
Draft Initial Study/Mitigated Negative Declaration
for the
Costco Gas Station Relocation, Parking Expansion, and Tire
Center & Produce Cooler Addition Project

SOUTH SAN FRANCISCO, SAN MATEO COUNTY
CALIFORNIA

Prepared For:

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Date:

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LIST OF ACRONYMS AND ABBREVIATIONS

ABAG	Association of Bay Area Governments
ALUC	Airport Land Use Commission
BAAQMD	Bay Area Air Quality Management District
BMP	Best Management Practice
C/CAG	City/County Association of Governments
Caltrans	California Department of Transportation
CBC	California Building Code
CCC	California Coastal Commission
CCR	California Code of Regulations
CDFW	California Department of Fish and Wildlife (formerly California Department of Fish and Game [CDFG])
CDFG ESD	California Department of Fish and Game Environmental Services Division
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFR	Code of Federal Regulations
CMA	Congestion Management Agency
CMP	Congestion Management Program
CNDDDB	California Natural Diversity Database
City	City of South San Francisco
Corps	United States Army Corps of Engineers
CRLF	California red-legged frog
CWA	Clean Water Act
CWSC	California Water Service Company
CY	cubic yard
EPA	United States Environmental Protection Agency
ESHA	Environmentally Sensitive Habitat Area
FESA	Federal Endangered Species Act
GHG	Greenhouse Gas
HCP	Habitat Conservation Plan
HI	Hazard Index
LCP	Local Coastal Program
MBTA	Migratory Bird Treaty Act
MTC	Metropolitan Transportation Commission
NPDES	National Pollution Discharge Elimination System

NWI	National Wetlands Inventory
NWPL	National Wetland Plant List
OHWM	Ordinary High Water Mark
PCE	Primary Constituent Element
PPT	Pacific pond turtle
RPW	Relatively permanent water
RWQCB	Regional Water Quality Control Board
SamTrans	San Mateo County Transit District
SCS	Soil Conservation Service
sf	square feet
SFGS	San Francisco garter snake
SFO	San Francisco International Airport
SFWD	San Francisco Water Department
SSFUSD	South San Francisco Unified School District
STOPPP	Stormwater Pollution Prevention Program
SWIS	Solid Waste Information System
SWMP	Stormwater Management Plan
SWPPP	Storm Water Pollution Prevention Control Plan
SWRCB	State Water Resources Control Board
TNW	Traditionally navigable waters
ToB	Top of Bank
UCBC	Uniform Code for Building Conservation
USDA	United States Department of Agriculture
USFWS	United States Fish and Wildlife Service
UST	Underground Storage Tank
WBWG	Western Bat Working Group
WRA	WRA, Inc.

CITY OF SOUTH SAN FRANCISCO

DRAFT INITIAL STUDY/MITIGATED NEGATIVE DECLARATION

Background

- 1. Project Title:** Costco Gas Station Relocation, Parking Lot Expansion, and Tire Center & Produce Cooler Addition Project

- 2. Lead Agency and Project Applicant:** City of South San Francisco
P.O. Box 711
South San Francisco, CA 94083

Costco Wholesale
999 Lake Drive
Issaquah, WA 98027

- 3. Contact Person and Phone Number:** Adena Friedman
(650) 877-8535
adena.friedman@ssf.net

- 4. Project Location:** 1600 El Camino Real
South San Francisco, CA 94080

5. Description of Project:

The proposed project includes the relocation and expansion of the gas station and a parking lot expansion on the northern end of the site; covering a portion of and installing a box culvert within Colma Creek to accommodate additional parking; the expansion of the existing tire center; addition of an exterior produce cooler located along the eastern warehouse facade, and the demolition of the existing gas station on the eastern end of the site and replacing it with parking. The project purpose is to improve vehicle traffic circulation within the Costco site parking lot in order to ease congestion associated with entering and exiting the parking lot and gas station areas. Circulation improvements will also aid in minimizing vehicle and pedestrian safety issues. The overall project site is approximately 130,000 square feet (sf) (2.98 acres) and is located within the existing Costco Wholesale development (15.12 acres). Site Plans for the proposed project are included in Appendix A. The existing Costco warehouse and gas station were previously approved under the Use Permit UP-98-084, Environmental Impact Report EIR-98-084, and Statement of Overriding Considerations SC-98-084. Figure 1 shows the regional location of the project site and Figure 2 shows the project plans overlaid on an aerial.



Figure 1. Regional Location Map

Costco Gas Station Relocation,
 Parking Expansion, and Tire Center &
 Produce Cooler Addition Project
 City of South San Francisco
 San Mateo County, California



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Map Prepared Date: 10/6/2016
 Map Prepared By: fhourigan
 Base Source: Esri Streaming - National Geographic
 Data Source(s): WRA



Figure 2. Project Site Aerial with Site Plan

Costco Gas Station Relocation, Parking Expansion, and Tire Center & Produce Cooler Addition Project
 City of South San Francisco
 San Mateo County, California



Map Prepared Date: 10/14/2016
 Map Prepared By: fhourigan
 Base Source: Esri Streaming - USDA FSA NAIP 2014
 Data Source(s): WRA

Project Components

Gas Station Relocation

The relocated gas station will consist of a metal wrapped canopy fascia with split faced concrete masonry unit (CMU) wrapped columns (approximately 9,142 sf), installation of 12 new multi-product dispensers (MPDs)¹, three (3) 30,000-gallon gasoline underground storage tanks (USTs), one (1) 1,500-gallon fuel additive UST, a controller enclosure, a Healy Clean Air separator, vent stacks, and associated site improvements. This new facility will be relocated to the northern corner of the existing parking lot. The project will also include the demolition and decommissioning of the existing gas station including the removal of all underground vapor and product piping and USTs. The area of the existing gas station in the southern portion of the parking lot will be restriped for parking and associated landscaping will be installed. The gas station will continue to operate under the existing land use approval including hours of operation and staffing levels. The gas station is anticipated to operate 365 days a year.

Parking Lot Expansion

The northeast parking lot will be expanded and include the installation of a box culvert for Colma Creek. A portion of the existing concrete-lined trapezoidal creek will be widened to a rectangular box culvert running under the proposed parking area. The box culvert will be designed in accordance with the San Mateo County Flood Control District standards for peak events. Several bioretention planters will be included to receive the runoff of the disturbed impervious surface. Proposed stormwater treatment and the Hydromodification Management Plan (HMP) will ensure improvements are compliant with Provision C.3 requirements of the Municipal Regional Stormwater Permit (MRP). The parking lot expansion will extend across an undeveloped area on the opposite side of the creek that is currently a vacant dirt lot. It will also include landscaping and an existing pedestrian trail will be relocated to the edge of the property, and be treated with appropriate landscaping to maintain a harmonious pedestrian connection to the surrounding area. The relocated pedestrian path will be designed to be safe, efficient, and compatible with the site, and will include attention to species selection and lighting in accordance with City standards.

Warehouse Additions

The warehouse additions will include an expansion of three (3) new bays to the existing tire center (approximately 2,280 sf), and the addition of a new exterior produce cooler (approximately 2,940 sf). The tire center will be designed to match the existing structure and include architectural metal panels and columns which utilize a combination of smooth face CMU, scored split face pilaster, and split face CMU. The produce cooler addition will also be designed to match the existing warehouse CMU brick pattern, utilizing a combination of smooth and split face CMU with an accent band along the facade.

¹ *The existing gas station contains 16 fuel stations. The relocated gas station would have 12 fuel pumps, for a total of 24 fuel stations.*

Construction

Construction is anticipated to begin in July, 2017 and performed in accordance with the South San Francisco Municipal Code (Sections 8.32.050 and 15.08.010). Grading, infrastructure, and utilities would take approximately three months. Final grading, landscaping, and completion of improvements would take approximately one month. Demolition and removal of the existing gas station will occur after occupancy of the new gas station and be completed in approximately 30 days. Construction and full buildout of the project would be completed by October 2017.

Grading / Drainage

On-site grading activity will produce approximately 5,000 cubic yards (CY) of excavated material. This includes approximately 450 CY for the box culvert and new paved areas as well as 4,500 CY for the underground storage tanks, canopy footings and piping. Approximately 5,000 CY of material will be exported to an approved disposal site

The irrigation system will be a water-efficient low flow, point source system designed to provide adequate watering to support plant growth and ensure deeply rooted plant material while avoiding excess water application. The system will be programmable, allowing operation during late night and/or early morning hours, with multiple start times and cycles. The system will interface with a weather based sensor that will adjust the amount of water applied to the plant material based on daily weather conditions. Irrigation materials specified for the site will be selected on the basis of durability and ease of maintenance. A project plant list and drainage details are providing the in the Landscape Plan within Appendix A (Site Plans).

Parking

The current Costco development provides 829 parking spaces. The proposed project would add 51 parking stalls for a new overall site total of 880 parking spaces. The City Code parking standards require a minimum of one (1) parking stall per 300 sf of building area for retail sales uses. Based on this ratio, 508 off-street stalls are required for the site and the Costco development will continue to exceed the City’s minimum parking requirements.

Circulation

The gas station will continue to use a single-direction circulation design with a full-length bypass lane. To aid circulation into and out of the center fueling positions, an additional seven (7) feet of maneuvering space will be provided between the center and rear dispensers.

Landscaping

Landscaping will include a combination of trees, shrubs, and ground cover in accordance with the City's standards for placement and species selection and will provide a buffer between the parking area and surrounding properties. As described in the drainage discussion above, the project will include the use of bio-retention areas located within the parking lot landscaping in order to meet the City low-impact development (LID) requirements for storm water treatment.

Lighting

Lighting along the pedestrian trail will include attention to species present and will be in accordance with City standards. Parking lot lighting will be designed in accordance with the approved lighting plan for the site, and provide safe lighting levels for members and employees, while limiting glare on the surrounding properties. The gas station lighting would utilize flat-lensed light-emitting diode (LED) fixtures and will reduce light spill on the surrounding area.

6. Project – Related Approvals, Agreements, and Permits

The information contained in this Initial Study will be used to prepare a Mitigated Negative Declaration as CEQA compliance for the project. The Initial Study/Mitigated Negative Declaration (IS/MND) will be reviewed by the City of South San Francisco (the CEQA Lead Agency) as it considers whether or not to approve the proposed project. If the project is approved, the IS/MND would be used by the City and responsible and trustee agencies in conjunction with various approvals and permits. These actions include, but may not be limited to, the following approvals by the agencies indicated:

City of South San Francisco

- Use Permit Modification
- Design Review
- Grading Permit
- Encroachment Permit
- Building Permits

San Mateo County Flood Control District

- Flooding Study Review
- Box Culvert Design Review

Army Corps of Engineers

- Clean Water Act Section 404 Form 4345, Application for Department of the Army Permit

California Department of Fish and Wildlife

- Section 1602 Lake and Streambed Alteration Agreement

Regional Water Quality Control Board

- Clean Water Act, Application for Section 401 Water Quality Certification

San Francisco Public Utilities Commission

- Project Review Committee

7. Project Location

The project site is located at the existing Costco Wholesale development on Assessor's Parcel Number (APN) 010-212-070 on 1600 El Camino Real within the City of South San Francisco, San Mateo County (see Figure 1, Regional Location Map). The 15.12-acre site is adjacent to the City of Colma. The project site is serviced by State Route 82 (El Camino Real), Interstate 280, and the South San Francisco BART station. The proposed project consists of 2.98 acres of disturbance, which includes the northern and southern portions of the existing parking lot, the eastern warehouse façade and undeveloped land to the north of the parking lot (see Figure 2, Aerial Map). Views of the project site are provided in Figures 3 and 4. Surrounding land uses include residential and commercial uses, undeveloped land owned by the San Francisco Public Utilities Commission (SFPUC), a mobile home park, a pedestrian walkway, and Colma Creek (see Figure 5, Views of Surrounding Land Uses). Residential uses are located to the west (mobile home park), to the northeast (apartment buildings) and to the south (single-family homes). Each residential use is separated from the project site by Colma Creek or El Camino Real. The nearest residence within the mobile home park is approximately 70 feet from the edge of construction; while the apartment buildings are approximately 277 feet away; and the single family homes are 600 feet away at their nearest point.

8. General Plan Designation and Zoning District

General Plan Designation:

Community Commercial

Zoning Designation:

Transit Village – Commercial (TV-C)



View 1. View looking southeast from the existing parking lot towards the existing gas station.



View 2. View looking southeast across the existing parking lot from the northern boundary of the property.



View 3. View looking west at the existing tire center, located on the eastern side of the Costco warehouse.



View 4. View looking south at the proposed site for the tire center and dairy cooler addition along the northeastern corner of the Costco warehouse.

Figure 3. Views of the Project Site

Costco Gas Station Relocation, Parking Expansion, and Tire Center & Dairy Cooler Addition Project
 City of South San Francisco
 San Mateo County, California



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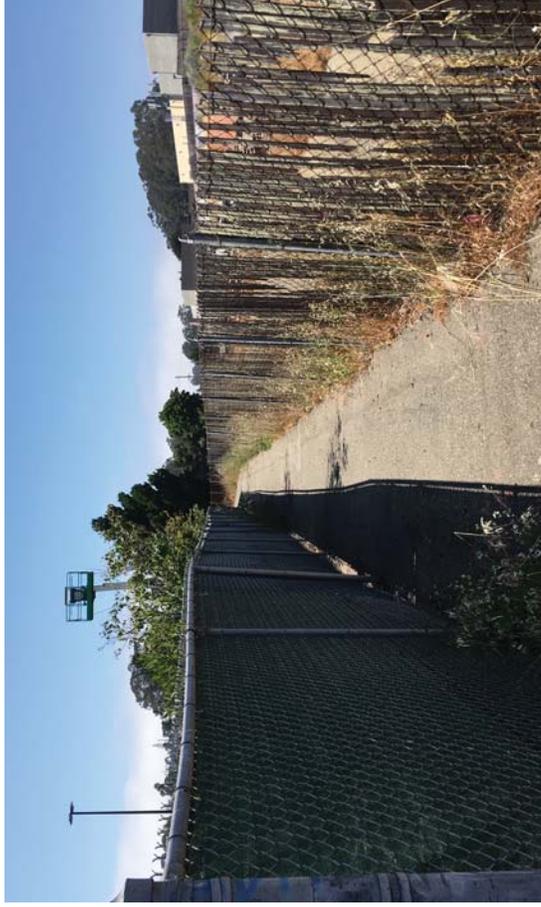
Source: WRA, June 2016



View 1. View looking north from the existing site boundary towards Colma Creek and undeveloped land for the proposed parking lot expansion.



View 2. View looking northeast along the existing pedestrian path, Colma Creek, and undeveloped land for the proposed parking lot expansion.



View 3. View looking northwest along the existing pedestrian pathway.



View 4. View looking northwest along Colma Creek towards the proposed parking lot expansion and creek cap location.

Figure 4. Views of the Project Site

Costco Gas Station Relocation, Parking Expansion, and Tire Center & Dairy Cooler Addition Project
 City of South San Francisco
 San Mateo County, California



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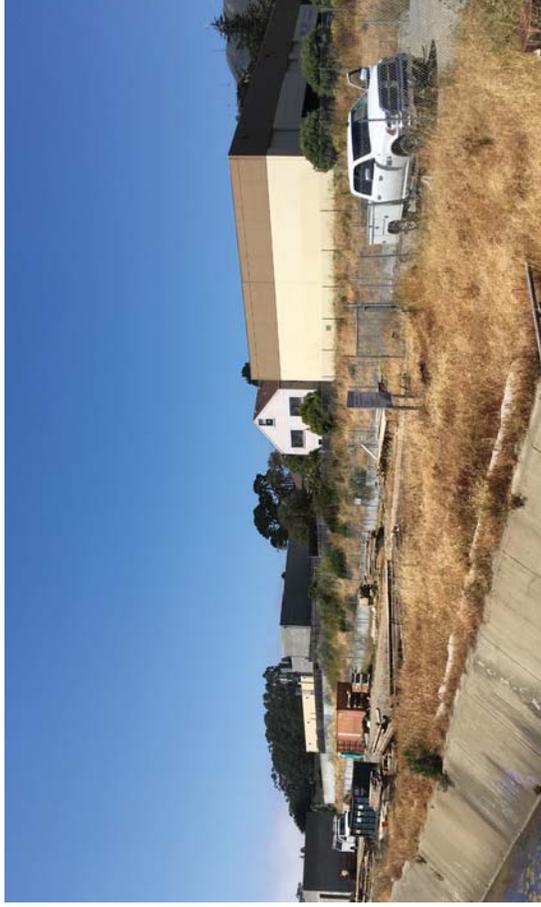
Source: WRA, June 2016



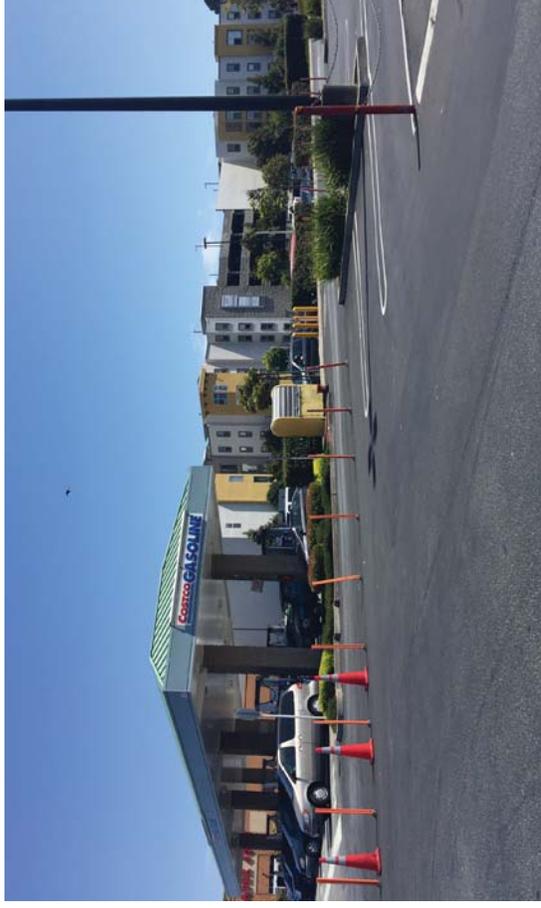
View 1. View looking northwest towards the RV Park adjacent to the project site.



View 2. View looking east of the project site towards Colma Creek, the pedestrian path, and residential uses.



View 3. View looking northwest from the pedestrian path over Colma Creek, towards undeveloped land and storage for adjacent commercial uses.



View 4. View looking south towards the existing gas station and adjacent mixed-use and multi-family residential land uses.

Figure 5. Views of Surrounding Land Uses

Costco Gas Station Relocation, Parking Expansion, and Tire Center & Dairy Cooler Addition Project
 City of South San Francisco
 San Mateo County, California



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Source: WRA, June 2016

Environmental Factors Potentially Affected

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is potentially significant unless mitigation is incorporated, as indicated by the checklist on the following pages.

<input type="checkbox"/>	Aesthetics	<input type="checkbox"/>	Land Use/Planning
<input type="checkbox"/>	Agricultural Resources	<input type="checkbox"/>	Mineral Resources
X	Air Quality	X	Noise
X	Biological Resources	<input type="checkbox"/>	Population and Housing
X	Cultural Resources	<input type="checkbox"/>	Public Services
<input type="checkbox"/>	Geology and Soils	<input type="checkbox"/>	Recreation
<input type="checkbox"/>	Greenhouse Gas Emissions	<input type="checkbox"/>	Transportation/Traffic
X	Hazards and Hazardous Materials	<input type="checkbox"/>	Utilities
X	Hydrology and Water Quality	X	Mandatory Findings of Significance

Determination

On the basis of this initial evaluation:

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

Signature: 
 Name and Title: Sailesh Mehra, Chief Planner

Date: 12-9-2016

INITIAL STUDY CHECKLIST

This section describes the existing environmental conditions in and near the project site and evaluates environmental impacts associated with the proposed project. The environmental checklist, as recommended in the CEQA Guidelines (Appendix G), was used to identify environmental impacts that could occur if the proposed project is implemented. The right-hand column in the checklist lists the source(s) for the answer to each question. The cited sources are identified at the end of this section.

Each of the environmental categories was fully evaluated, and one of the following four determinations was made for each checklist question:

- **“No Impact”** means that no impact to the resource would occur as a result of implementing the project.
- **“Less than Significant Impact”** means that implementation of the project would not result in a substantial and/or adverse change to the resource, and no mitigation measures are required.
- **“Less than Significant with Mitigation Incorporated”** means that the incorporation of one or more mitigation measures is necessary to reduce the impact from potentially significant to less than significant.
- **“Potentially Significant Impact”** means that there is either substantial evidence that a project-related effect may be significant, or, due to a lack of existing information, could have the potential to be significant.

I. AESTHETICS — Would the project:	<i>Potentially Significant Impact</i>	<i>Less than Significant with Mitigation Incorporated</i>	<i>Less than Significant Impact</i>	<i>No Impact</i>	<i>Source²</i>
a) Have a substantial adverse effect on a scenic vista?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	1,2,20
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	1,2,3
c) Substantially degrade the existing visual character or quality of the site and its surroundings?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1,6

Environmental Setting

Aesthetic resources are generally defined as both the natural and built features of the landscape that contribute to the public's experience and appreciation of the environment. Depending on the extent to which a project's presence would negatively alter the perceived visual character and quality of the environment, aesthetic impacts may occur.

The City's aesthetic resources include, but are not limited to, the shoreline, creeks, ridgelines, tree cover, and vegetation. Sign Hill and the Bayfront are the City's most significant aesthetic resources. Scenic routes within the City include I-280, a designated state scenic highway, and State Route CA-1, an eligible state scenic highway.

South San Francisco's urban character is one of contrasts within a visually well-defined setting. San Bruno Mountain to the north, the ridge along Skyline Boulevard to the west, US 380 to the south, and the San Francisco Bay to the east provide the City with distinctive edges. The City is surrounded by hills on two sides. The City's terrain ranges from the flatlands along the water to hills east and north. Hills are visible from all parts of the City, and Sign Hill and San Bruno Mountain in the distance are visual landmarks. Much of the City's topography is rolling, resulting in distant views from many neighborhoods. Geographically, the City is relatively small, extending approximately two miles in a north-south direction and about five miles from east to west. South San Francisco's industrial roots are reflected in its urban character, especially in its eastern parts. Almost twenty percent of South San Francisco's land is occupied by industrial and warehousing uses.

² A complete list of reference sources can be found on page 82.

Discussion of Impacts

- a,b) **No Impact.** The project site is located approximately two miles east of CA-1 and 0.90 miles east of I-280 and is not visible from either scenic highway, due to distance and screening by trees and structures. The City's General Plan does not identify any scenic routes or vistas and no historic buildings listed on the National Register of Historic Places are within the project vicinity. According to the City's website, the closest historic site is the Reichardt Duck Farm located at the El Camino High School.³ The proposed project would not obstruct views of the high school or this historic site. The proposed project would have a no impact on scenic vistas or a scenic highway.
- c) **Less Than Significant Impact.** The proposed project would be visible from small portions of El Camino Real, McLellan Drive and the adjacent walking path. The parking lot expansion, gas station relocation, tire center, and produce cooler addition would all take place on the northeastern side of the project site. They are screened from most vantage points on El Camino Real by the existing Costco warehouse. The demolition of the existing gas station would be visible from El Camino Real; however, demolition would be temporary during the construction phase of the project. Views from McLellan Drive would include most of the project site. However, the proposed project would not significantly alter pre-construction conditions, as all new development would occur within the existing Costco warehouse and parking lot. The installation of the box culvert in Colma Creek would alter views of the site as a portion of the creek within the project site would no longer be visible. While views of the creek would be altered, the current creek is within a concrete-lined trapezoidal channel and does not provide any aesthetic quality to the site. Furthermore, the expansion of the parking lot over the creek would be consistent with the visual character of the entire site, which is a highly developed commercial site. Therefore, the proposed project would have a less than significant impact on the visual character of the site and its surroundings.
- d) **Less Than Significant Impact.** The proposed project would include lighting for the gas station as well as the tire center and produce cooler additions. The proposed project would incorporate lighting fixtures that are consistent with the existing development and that comply with all City regulations regarding light and glare⁴. Compliance with municipal code will reduce the amount of lighting projected into the night sky. In addition, effective shielding of lighting prevents off-site light trespass, as the light is directed to remain on-site. Glare would not be increased from the proposed additions, as no reflective surface or materials are proposed as part of the project. Lighting plans for the proposed project are provided in Appendix A. Therefore, impacts would be less than significant.

³ City of South San Francisco. Historic Marker Program.2016. <http://www.ssf.net/277/List-of-Markers>.

⁴ City of South San Francisco Municipal Code. Section 20.300.008 Lighting and Illumination.

II. AGRICULTURAL AND FORESTRY RESOURCES — Would the project:	<i>Potentially Significant Impact</i>	<i>Less than Significant with Mitigation Incorporated</i>	<i>Less than Significant Impact</i>	<i>No Impact</i>	<i>Source</i>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	4
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	2,4
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))?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	2
d) Result in the loss of forest land or conversion of forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	1
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	1,4

Environmental Setting

According to the San Mateo County Important Farmland Map (2014), the project site is designated as Urban and Built-Up Land. The proposed project includes the relocation of a gas station, expansion of a parking lot, addition of tire center and produce cooler, and demolition of the existing gas station with parking replacement within an area zoned “Transit Village – Commercial.”

The Williamson Act of 1965 allows local governments to enter into contract agreements with local landowners with the purpose of trying to limit specific parcels of land to agricultural or other related open space uses. The project site does not contain any state designated agricultural lands or open space. The project site is not subject to a Williamson Act Contract.

Discussion of Impacts

- a-e) **No Impact.** The majority of project site is developed, excluding the northern region of the site, which is currently a vacant dirt lot. This currently undeveloped vacant portion of the site is disturbed from past activities. In addition, according to the San Mateo County Important Farmland Map the entire project site is considered Urban and Built-Up Land. The project site does not contain any important farmland, land zoned for agricultural use, or land subject to a Williamson Act contract. Similarly, the project site does not contain any forestland or timberland or any land zoned for such uses. Therefore, the proposed project would have no impact on agriculture or forest resources.

III. AIR QUALITY — Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:	<i>Potentially Significant Impact</i>	<i>Less than Significant with Mitigation Incorporated</i>	<i>Less than Significant Impact</i>	<i>No Impact</i>	<i>Source</i>
a) Conflict with or obstruct implementation of the applicable air quality plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	1, 13
b) Violate any air quality standard or contribute to an existing or projected air quality violation?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1, 13
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1, 13
d) Expose sensitive receptors to substantial pollutant concentrations?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1, 13
e) Create objectionable odors affecting a substantial number of people?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1, 13

Environmental Setting

The project is located in the northern portion of San Mateo County within the San Francisco Bay Area Air Basin. Ambient air quality standards have been established at both the State and federal level. The Bay Area meets all ambient air quality standards with the exception of ground-level ozone, respirable particulate matter (PM₁₀) and fine particulate matter (PM_{2.5}).

High ozone levels are caused by the cumulative emissions of reactive organic gases (ROG) and nitrogen oxides (NO_x). These precursor pollutants react under certain meteorological conditions to form high ozone levels. Controlling the emissions of these precursor pollutants is

the focus of the Bay Area's attempts to reduce ozone levels. The highest ozone levels in the Bay Area occur in the eastern and southern inland valleys that are downwind of air pollutant sources. High ozone levels aggravate respiratory and cardiovascular diseases, reduced lung function, and increase coughing and chest discomfort.

Particulate matter is another problematic air pollutant of the Bay Area. Particulate matter is assessed and measured in terms of respirable particulate matter or particles that have a diameter of 10 micrometers or less (PM₁₀) and fine particulate matter where particles have a diameter of 2.5 micrometers or less (PM_{2.5}). Elevated concentrations of PM₁₀ and PM_{2.5} are the result of both region-wide (or cumulative) emissions and localized emissions. High particulate matter levels aggravate respiratory and cardiovascular diseases, reduce lung function, increase mortality (e.g., lung cancer), and result in reduced lung function and growth in children.

Toxic air contaminants (TAC) are a broad class of compounds known to cause morbidity or mortality (usually because they cause cancer) and include, but are not limited to, the criteria air pollutants listed above. TACs are found in ambient air, especially in urban areas, and are caused by industry, agriculture, fuel combustion, and commercial operations (e.g., dry cleaners). TACs are typically found in low concentrations, even near their source (e.g., diesel particulate matter near a freeway). Because chronic exposure can result in adverse health effects, TACs are regulated at the regional, state, and Federal level.

Diesel exhaust is the predominant TAC in urban air and is estimated to represent about three-quarters of the cancer risk from TACs (based on the Bay Area average). According to the California Air Resources Board (CARB), diesel exhaust is a complex mixture of gases, vapors and fine particles. This complexity makes the evaluation of health effects of diesel exhaust a complex scientific issue. Some of the chemicals in diesel exhaust, such as benzene and formaldehyde, have been previously identified as TACs by the CARB, and are listed as carcinogens either under the state's Proposition 65 or under the Federal Hazardous Air Pollutants programs.

The Bay Area Air Quality Management District (BAAQMD) CEQA Air Quality Guidelines published in 2011 contains recommended thresholds of significance for regional criteria pollutants (ROG, NO_x, PM₁₀, and PM_{2.5}) and community risk criteria for construction impacts, which were used in this assessment.

Significance Thresholds

In June 2010, BAAQMD adopted thresholds of significance to assist in the review of projects under CEQA. These thresholds were designed to establish the level at which BAAQMD believed air pollution emissions would cause significant environmental impacts under CEQA and were posted on BAAQMD's website and included in BAAQMD's updated CEQA Guidelines (updated May 2011). The significance thresholds identified by BAAQMD and used in this analysis are summarized in Table 1.

BAAQMD's adoption of significance thresholds contained in the 2011 CEQA Air Quality Guidelines was called into question by an order issued March 5, 2012, in California Building Industry Association (CBIA) v. BAAQMD (Alameda Superior Court Case No. RGI0548693). The order requires the BAAQMD to set aside its approval of the thresholds until it has conducted environmental review under CEQA. The ruling made in the case concerned the environmental impacts of adopting the thresholds and how the thresholds would indirectly affect land use

development patterns. In August 2013, the Appellate Court struck down the lower court's order to set aside the thresholds (Cal. Court of Appeal, First Appellate District, Case Nos. A135335 & A136212). CBIA sought review by the California Supreme Court on three issues, including the appellate court's decision to uphold the BAAQMD's adoption of the thresholds, and the Court granted review on just one: Under what circumstances, if any, does CEQA require an analysis of how existing environmental conditions will impact future residents or users of a proposed project? In December 2015, the Supreme Court determined that an analysis of the impacts of the environment on a project – known as "CEQA-in-reverse" – is only required under two limited circumstances: (1) when a statute provides an express legislative directive to consider such impacts; and (2) when a proposed project risks exacerbating environmental hazards or conditions that already exist (Cal. Supreme Court Case No. S213478). The Supreme Court reversed the Court of Appeal's decision and remanded the matter back to the appellate court to reconsider the case in light of the Supreme Court's ruling.

Table 1. Air Quality Significance Thresholds

Pollutant	Construction Thresholds	Operational Thresholds	
	Average Daily Emissions (pounds/day)	Average Daily Emissions (pounds/day)	Annual Average Emissions (tons/year)
Criteria Air Pollutants			
ROG	54	54	10
NO _x	54	54	10
PM ₁₀	82	82	15
PM _{2.5}	54	54	10
CO	Not Applicable	9.0 ppm (8-hour average) or 20.0 ppm (1-hour average)	
Fugitive Dust	Construction Dust Ordinance or other Best Management Practices		Not Applicable
Health Risks and Hazards for Single Sources			
Excess Cancer Risk		10 per 1 million	
Chronic or Acute Hazard Index		1.0	
Incremental annual average PM _{2.5}		0.3 µg/m ³	
Health Risks and Hazards for Cumulative Sources (Cumulative from all Sources within 1,000-Foot Zone of Influence)			
Excess Cancer Risk		100 per 1 million	
Chronic or Acute Hazard Index		10.0	
Annual Average PM _{2.5}		0.8 µg/m ³	
Greenhouse Gas Emissions			
Greenhouse Gas Annual Emissions	1,100 metric tons or 4.6 metric tons per capita		
<i>Note: ROG = reactive organic gases, NO_x = nitrogen oxides, PM₁₀ = coarse particulate matter or particulates with an aerodynamic diameter of 10 micrometers (µm) or less, PM_{2.5} = fine particulate matter or particulates with an aerodynamic diameter of 2.5 µm or less; CO = carbon monoxide, ppm = parts per million, µg/m³ = micrograms per cubic meter</i>			

Source: BAAQMD, 2011

Discussion of Impacts

- a) **No Impact.** The most recent clean air plan is the Bay Area 2010 Clean Air Plan that was adopted by BAAQMD in September 2010. The proposed project would not conflict with the latest Clean Air planning efforts since the project would have emissions well below the BAAQMD thresholds (see *b, c* below) and would not interfere with implementation of any of the plan measures. In addition, the project does not require any General Plan amendments that would change land use assumptions in the 2010 Plan, upon which region-wide emissions were estimated.
- b,c) **Less Than Significant Impact with Mitigation Incorporated.**

Construction Period Emissions

The California Emissions Estimator Model Version 2016.3.1 (CalEEMod) provided construction emissions for the project. A statewide model designed to provide a uniform platform to quantify air quality emissions from land use projects, CalEEMod provides emission estimates for both on-site and off-site construction activities. On-site activities are primarily made up of construction equipment emissions from demolition and UST excavation of the existing facility and construction of the box culvert, expanded parking area and new facility, while off-site activity includes worker, hauling, and vendor traffic. A construction build-out scenario, including equipment list and schedule, was based on model defaults for a project of this type and size and project-specific information provided by the applicant. The proposed project land uses were input into CalEEMod, which included: 12 pumps entered as "Gasoline/Service Station," 2,280 square feet (sf) entered as "Automobile Care Center" for the tire bays, and 130,000 sf entered as "Parking Lot," and 2,940 sf entered as "Super Market" for the produce cooler, on 2.98 acres.

The anticipated 5,000 cubic yards of material export was entered into the model. The construction schedule assumes that the project would be built out over a period of approximately 5 months beginning in July 2017, or an estimated 108 construction workdays. Average daily emissions are shown in Table 1 for emissions of ROG, NOX, PM10, and PM2.5 during construction of the project. The CalEEMod input and output values for construction emissions are found in Appendix B. In addition, annual emissions are also shown in Table 2. As indicated in Table 1, computed project construction period emissions would not exceed the BAAQMD average daily significance thresholds.

Table 2. Construction Period Emissions

Scenario	ROG	NOx	PM₁₀ Exhaust	PM_{2.5} Exhaust
Annual construction emissions (tons)	0.24 tons	1.50 tons	0.08 tons	0.08 tons
Average daily emissions (pounds) ¹	4.4 lbs.	27.8 lbs.	1.5 lbs.	1.5 lbs.
<i>BAAQMD Thresholds (pounds per day)</i>	54 lbs.	54 lbs.	82 lbs.	54 lbs.
Exceed Threshold?	No	No	No	No
Notes: ¹ Assumes 108 workdays.				

Source: Illingworth & Rodkin, Inc., 2016

Construction activities, particularly during site preparation and grading, would temporarily generate fugitive dust in the form of PM₁₀ and PM_{2.5}. Sources of fugitive dust would include disturbed soils at the construction site and trucks carrying uncovered loads of soils. Unless properly controlled, vehicles leaving the site would deposit mud on local streets, which could be an additional source of airborne dust after it dries. The BAAQMD CEQA Air Quality Guidelines consider these impacts to be less than significant if best management practices are implemented to reduce these emissions. Mitigation Measure AIR-1 would implement BAAQMD-recommended best management practices.

Operational Period Emissions

Operational air emissions from the proposed would be generated primarily from autos driven by future customers and employees. Evaporative emissions from architectural coatings and maintenance products (classified as consumer products) are typical emissions from these types of uses. CalEEMod was used to compute net emissions from operation of the proposed project. In addition, the storage and transfer of gasoline, although controlled through implementation of special equipment prescribed by BAAQMD, results in emission of air pollutants (i.e., ROG).

Land Uses

The same CalEEMod run used to compute construction emissions was also used for operational emissions. The same land uses were input, as described above.

Model Year

Emissions associated with vehicle travel depend on the year of analysis because emission control technology requirements are phased-in over time. Therefore, the earlier the year analyzed in the model, the higher the emission rates utilized by CalEEMod. The earliest full year the project was assumed to begin operating is 2018. Emissions associated with build-out later than 2018 would be lower.

Trip Generation Rates

The daily trip rates for the project were estimated by multiplying the peak hour increase in trips from the project traffic report by twelve (hours of operation). This provides for a conservative assessment of project operational emissions in that other operating hours besides the peak hour would be expected to have fewer trips. There is no expected substantial net increase in idling emissions. Though the proposed project would increase customer trips, queuing times would be reduced through the addition of fueling pumps and any increase in idling emissions would be negligible. The project would include 12 fueling pumps, with 24 fueling stations. This would be an increase from the existing 16 fueling stations.

Energy

CalEEMod defaults for energy use were used, which include the 2013 Title 24 Building Standards.

Fueling

The transfer and storage of gasoline results in emissions of organic compounds, referred to as total organic gases (TOG). These TOG emissions are assumed to be same as reactive organic gases or ROG for the purposes of this analysis⁵. These gases, when combined with NO_x, lead to ozone formation. ROG emissions for the proposed gas station were computed based on recent emission factors developed by CARB⁶. The emission factors are based on annual gasoline throughput and account for emissions from fuel storage tank loading and pressure driven (breathing) losses, motor vehicle refueling, spillage while refueling, and minor emissions from vapor permeation through gasoline dispensing hoses. The fueling emission factors take into account the effects of vehicles equipped with onboard refueling vapor recovery (ORVR) systems. ORVR systems were phased in beginning with 1998 model year passenger vehicles, and are now installed on all passenger, light-duty, and medium-duty vehicles manufactured since the 2006 model year. Emissions were calculated based on a maximum annual throughput of 20 million gallons per year, which, is the maximum annual throughput. Emission calculations from transfer and storage of gasoline are provided in Appendix B. It should be noted that evaporative emissions from the existing Costco fueling facility were not subtracted, which provides for a conservative assessment of project impacts.

⁵ *Reactive organic gases (ROG) represent organic compounds that are reactive in the atmosphere which are involved in the formation of ozone. These reactive compounds are a subset of the total organic gases that may be emitted.*

⁶ *CARB. 2013. Revised Emissions Factors for Gasoline Marketing Operations at California Gasoline Dispensing Facilities. December 23.*

Other Inputs

Default model assumptions for emissions associated with solid waste generation and water/wastewater use were applied to the project.

Table 3 reports the predicted emissions in terms of annual emissions in tons and average daily operational emissions, assuming 365 days of operation per year. As shown in Table 3, average daily and annual net emissions of ROG, NO_x, PM₁₀, or PM_{2.5} emissions associated with operation would not exceed the BAAQMD significance thresholds.

Table 3. Operational Emissions

Scenario	ROG	NO_x	PM₁₀	PM_{2.5}
Net Operational Emissions From CalEEMod (tons)	0.18 tons	0.48 tons	0.41 tons	0.11 tons
Evaporative Gasoline Emissions (entire future facility – 20 million gallons throughput)	5.24 tons	--	--	--
Total	5.42 tons	0.48 tons	0.41 tons	0.11 tons
<i>BAAQMD Thresholds (tons per year)</i>	<i>10 tons</i>	<i>10 tons</i>	<i>15 tons</i>	<i>10 tons</i>
Exceed Threshold?	No	No	No	No
Average Daily Net Operational Emissions (pounds) ¹	29.7 lbs.	2.6 lbs.	2.2 lbs.	0.6 lbs.
<i>BAAQMD Thresholds (pounds per day)</i>	<i>54 lbs.</i>	<i>54 lbs.</i>	<i>82 lbs.</i>	<i>54 lbs.</i>
Exceed Threshold?	No	No	No	No
<i>Notes: ¹Assumes 365-day operation.</i>				

Source: Illingworth & Rodkin, Inc., 2016.

Mitigation Measure AIR-1: Construction Emissions

During any construction period ground disturbance, the applicant shall ensure that the project contractor implements measures to control dust and exhaust. Implementation of the measures recommended by BAAQMD and listed below would reduce the air quality impacts associated with grading and new construction to a less than significant level. The contractor shall implement the following best management practices that are required of all projects:

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 five 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.

- d) ***Less Than Significant Impact.*** Prior discussions examined potential impacts of project air emissions. The discussion below examines potential community health risk impacts from project emissions. Table 1 identifies the thresholds of significance for, increased cancer risk, annual PM_{2.5} concentration, and Hazard Index (HI). The analyses then compare community risk levels from the project against the identified standards, and present conclusions as to whether community health risk levels from the project would exceed these standards.

Operational TAC Impacts

As previously described, emissions of ROG (assumed to be the same as TOG) were computed based on the maximum allowable throughput of gasoline (i.e., 20 million gallons). Emissions of TOG and benzene, which is a TAC, were computed using CARB emission factors for gasoline dispensing facilities and assuming that benzene makes up 0.3% of gasoline vapor.⁷ Total benzene emissions were calculated at 31.4 pounds per year. Appendix B includes emissions of fueling storage and transfer TOG and benzene. Diesel fuel is not included in the project scope. Community risk was then calculated based on BAAQMD's *Risk and Hazards Emissions Screening Calculator (Beta Version) and Distance Adjustment Multiplier for Gasoline Dispensing Facilities*. At approximately

⁷ CAPCOA. *Air Toxics "Hot Spots" Program, Gasoline Service Station Industrywide Risk Assessment Guidelines, November 1997.*

250 feet or more to the nearest sensitive receptor (residence in mobile home park to the north), results indicate that the total future fueling operations would result in maximum excess cancer risk of 1.6 in one million,⁸ no PM_{2.5} concentration, and HI of less than 0.01, all of which would be below BAAQMD thresholds of significance of 10 in one million cancer risk, 0.3 ug/m³ annual PM_{2.5} concentration, and HI of 1.0. Community risk levels from project operation are shown in Table 4.

Table 4. Maximum Community Risk from Project Operation

Source	Maximum Cancer Risk (per million)	PM _{2.5} concentration (µg/m ³)	Hazard Index
Project Fueling Operation	1.6	–	<0.01
<i>BAAQMD Thresholds</i>	10	0.3	1.0
<i>Exceed Threshold?</i>	No	No	No

Source: Illingworth & Rodkin, Inc., 2016.

Project Construction TAC Impacts

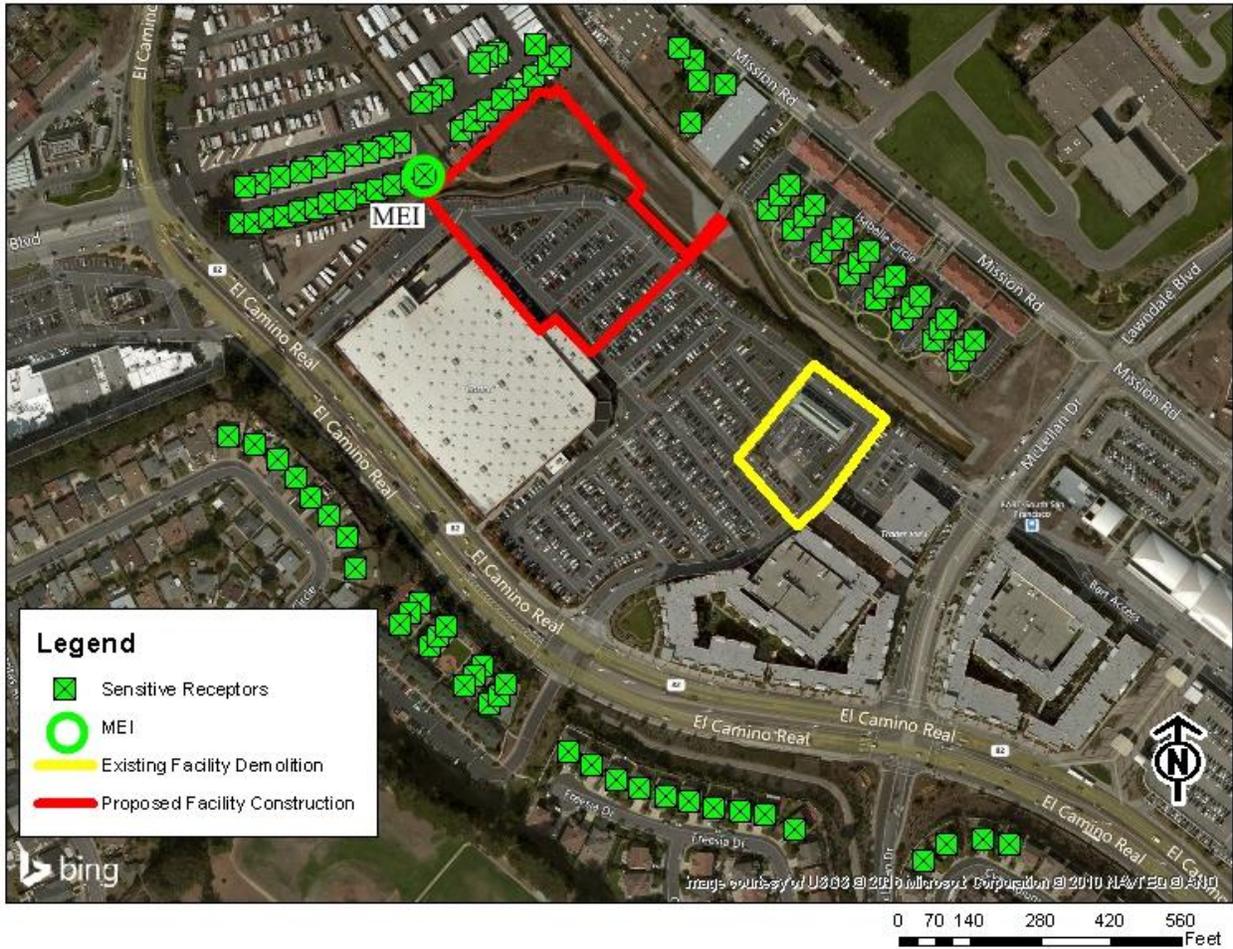
Construction activity is anticipated to involve demolition of the existing on-site gas station, grading and construction of the new facility, including tire bays, new cooler, culvert, parking lot expansion, and paving. As discussed above, the project would have less-than-significant construction period criteria pollutant emissions. While those thresholds primarily address the potential for emission to adversely affect regional air quality, localized emissions of dust or equipment exhaust could affect nearby sensitive land uses, such as residences or schools.

Construction equipment and associated heavy-duty truck traffic generates diesel exhaust, which is a known TAC. Diesel exhaust poses both a health and nuisance impact to nearby receptors. A community risk assessment of the project construction activities was conducted that evaluated potential health effects to sensitive receptors from construction emissions of DPM.⁹ A dispersion model was used to calculate the off-site DPM concentrations resulting from project construction at sensitive receptors so that lifetime cancer risks could be predicted. Figure 6 shows the project site and sensitive receptor locations used in the air quality dispersion modeling analysis where potential health impacts were evaluated. Appendix B includes a detailed summary of the risk modeling methodology used.

⁸ Includes adjustment factor of 1.3744 to account for latest OEHHA methodology per correspondence with Alison Kirk, BAAQMD, November 23, 2015.

⁹ DPM is identified by California as a toxic air contaminant due to the potential to cause cancer.

Figure 6. Project Construction Site, Locations of Sensitive Receptors, and “Maximally Exposed Individual” (MEI)



Source: Illingworth & Rodkin, Inc., 2016.

Construction Emissions

The construction health risk assessment focused on modeling on-site construction activity. Construction period emissions were modeled using CalEEMod. The same model used to predict criteria air pollutant emissions from construction, as described above, was used for this analysis; however, vehicle trip lengths were adjusted to 0.5 miles to reflect emissions on and near the site. The CalEEMod model provided total annual PM₁₀ exhaust emissions (assumed to be DPM) for the off-road construction equipment and for exhaust emissions from on-road vehicles (haul trucks, vendor trucks, and worker vehicles), with total emissions of 0.0772 tons (154 pounds). The on-road emissions are the result of haul truck travel, worker travel, and vendor deliveries during construction activities. Emissions from on-road vehicles traveling at or near the site were modeled as occurring at the construction site. Fugitive PM_{2.5} dust emissions were calculated by CalEEMod as eight pounds for the overall construction period.

Dispersion Modeling

The U.S. EPA AERMOD dispersion model was used to predict concentrations of DPM and PM_{2.5} concentrations at existing sensitive receptors in the vicinity of the project construction area. The AERMOD dispersion model, including methodology and assumptions, is a BAAQMD-recommended model for use in modeling these types of emission activities for CEQA projects.¹⁰ Emission sources for the construction site were grouped into two categories, exhaust emissions of DPM and fugitive PM_{2.5} dust emissions. The dispersion modeling utilized four area sources to represent the on-site construction emissions: two area sources for DPM exhaust emissions and the same area sources for fugitive PM_{2.5} dust emissions. The first area was the existing facility, which included demolition and 25 percent (based on the relative size to both construction areas) of repaving emissions. The other modeled area was the proposed facility including tire bays, new cooler, culvert, and parking lot expansion (which included all other construction emissions from the project). For the exhaust emissions from construction equipment, an emission release height of six meters (20 feet) was used for the area sources. The elevated source height reflects the height of the equipment exhaust pipes plus an additional distance for the height of the exhaust plume above the exhaust pipes to account for plume rise of the exhaust gases. For modeling fugitive PM_{2.5} emissions, a near-ground level release height of two meters (6.6 feet) was used for the area sources. Emissions from vehicle travel at and around the project site were included in the modeled area sources. Construction emissions were modeled as occurring daily between 8 a.m. and 6 p.m., when the majority of the construction activity involving equipment usage would occur.

The modeling used a five-year data set (2009 - 2013) of hourly meteorological data from the San Francisco International Airport that was prepared by the BAAQMD for use with the AERMOD model. Annual DPM and PM_{2.5} concentrations from construction activities during 2017 were calculated using the model. DPM and PM_{2.5} concentrations were calculated at nearby residential receptors. The modeling used receptor heights of 1.5 meters (4.9 feet) to represent breathing heights of residences of nearby residential buildings.

Predicted Project Cancer Risk and Hazards

The maximum modeled DPM and PM_{2.5} concentration occurred at a receptor immediately north of the construction area in the mobile home park, as labeled "MEI" or maximally exposed individual in Figure 6. Increased cancer risks at this location were calculated using the modeled DPM concentrations and BAAQMD-recommended risk assessment methods for both infant exposure (3rd trimester through 2 years of age) and adult exposure (see Appendix B for a description of these calculations). The cancer risk calculations were based on applying the age sensitivity factors to the DPM exposures that reflect the greater sensitivity of infants and small children to cancer-causing TACs. There was a very minimal increase in risk, described below. This minimal increase was below all BAAQMS thresholds of significance. Exposures were assumed to occur at all off-site residences, shown in Figure 6, during the entire construction period.

¹⁰ *Bay Area Air Quality Management District (BAAQMD), Version 3.0. May 2012. Recommended Methods for Screening and Modeling Local Risks and Hazards.*

Results of this assessment indicate that, for project construction, the maximum increased cancer risk, assuming residential infant exposure, would be 8.0 in one million and the increased residential adult cancer risk would be 0.2 in one million. Alta Loma Middle School is located over 900 feet from proposed construction activity. At this distance, increased child cancer risk (which is lower than infant risk) would be much lower than at the nearby residences. The maximum increased residential cancer risk would be below the BAAQMD significance threshold of 10 in one million for cancer risk, and would be considered a *less-than-significant impact*.

The maximum modeled annual PM_{2.5} concentration at the residential MEI was 0.1 µg/m³. This PM_{2.5} concentration is below the BAAQMD significance threshold of greater than 0.3 µg/m³ used to judge the significance of health impacts from PM_{2.5}. This would be considered a *less-than-significant impact*.

Potential non-cancer health effects due to chronic exposure to DPM are expressed in terms of a hazard index (HI), which is the ratio of the TAC concentration to a reference exposure level (REL). The maximum modeled annual DPM concentration was 0.0493 µg/m³, which is much lower than the REL. The maximum computed HI based on this DPM concentration is 0.01, which is much lower than the BAAQMD significance criterion of a HI greater than 1.0. This would be considered a *less-than-significant impact*. Table 5 summarizes community risk impacts due to project construction.

Table 5. Maximum Community Risk from Project Construction

Source	Maximum Cancer Risk (per million)	PM_{2.5} concentration (µg/m³)	Hazard Index
Project Construction	8.1	0.1	0.01
<i>BAAQMD Thresholds</i>	10	0.3	1.0
<i>Exceed Threshold?</i>	No	No	No

Source: Illingworth & Rodkin, In., 2016.

Cumulative Community Risk Impacts

The cumulative impacts of TAC emissions associated with construction of the project were addressed by including effects from nearby stationary sources, traffic on El Camino Real (SR-82), and project fueling. The impacts of these cumulative sources were estimated at the construction MEI and are summarized in Table 6.

BAAQMD screening tools were used to identify community risk impacts. The State of California Office of Environmental Health Hazard Assessment (OEHHA) and CARB develop recommended methods for conducting health risk assessment guidelines were

published in February of 2015.¹¹ The predicted screening cancer risk from roadways, highways and stationary sources were adjusted using a factor of 1.3744 to account for new OEHHA guidance. This factor was provided by BAAQMD for use with their CEQA screening tools that are used to predict cancer risk.¹²

As shown in Table 6, the sum of emissions from combined sources at the construction MEI would be below the cumulative thresholds of significance and this impact would be considered *less-than-significant*.

Table 6. Cumulative Construction Community Risk from Combined Sources

Source	Maximum Cancer Risk (per million)	PM _{2.5} concentration (µg/m ³)	Hazard Index
Project Construction	9.0	0.1	0.01
Project Fueling	1.6	–	<0.01
El Camino Real (SR-82) at 400 feet	2.8	0.0	<0.01
Plant G3305 at 600 feet Extra Oil Company, 110 Hickey Boulevard	3.3	--	<0.01
Combined Sources	15.1	0.1	<0.03
BAAQMD Threshold – Combined Sources	100	0.8	10.0
Exceed Threshold?	No	No	No

Source: Illingworth & Rodkin, Inc., 2016.

- e) **Less Than Significant Impact.** The project would generate localized emissions of diesel exhaust during construction equipment operation and truck activity. These emissions may be noticeable from time to time by adjacent receptors. However, they would be localized and are not likely to adversely affect people off site by resulting in confirmed odor complaints. The project would not include any sources of significant odors that would cause complaints from surrounding uses. This would be a *less-than-significant impact*

¹¹ OEHHA, 2015. *Air Toxics Hot Spots Program Risk Assessment Guidelines, The Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments.* Office of Environmental Health Hazard Assessment. February.

¹² Email from Alison Kirk, BAAQMD to Illingworth & Rodkin, Inc, dated November 23, 2015.

IV. BIOLOGICAL RESOURCES — Would the project:	<i>Potentially Significant Impact</i>	<i>Less than Significant with Mitigation Incorporated</i>	<i>Less than Significant Impact</i>	<i>No Impact</i>	<i>Source</i>
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1,5
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>		1,5
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1,5
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	1,5
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1,6
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	1,2

The following discussion related to biological resources is based on a Biological Resources Assessment prepared by WRA, Inc. in 2016, which is provided in Appendix C.

Environmental Setting

Vegetation Communities

Biological Resource Assessment examined a Study Area composed of approximately 4.28 acres of developed/landscaped areas, including an existing parking lot and pedestrian walkway in the southern portion. The project site is a 2.98-acre subset of the overall study area. Additionally, there is approximately 0.68 acre of disturbed/ruderal areas including a currently vacant area in the northern portion of the Study Area. Landscaped areas are limited to parking lot medians in the southern portion of the Study Area, which contain an array of planted ornamental shrubs and trees including oleander (*Nerium oleander*), and pear (*Pyrus* sp.). The northern portion of the Study Area contains ruderal vegetation composed of predominantly non-native, invasive grasses and forb species, with scattered ornamental trees.

Dominant vegetation within the disturbed/ruderal area included non-native, invasive grasses and forbs including slim oat (*Avena barbata*), wild radish (*Raphanus sativus*) and prickly lettuce (*Lactuca serriola*), with scattered ornamental and/or naturalized trees including lollypop tree (*Myoporum laetum*), Monterey pine (*Pinus radiata*), and one native red willow (*Salix laevigata*) tree, located in the uplands above the top of bank of the concrete channel of Colma Creek.

Aquatic communities within the Study Area include open waters associated with the concrete-lined channel of Colma Creek, discussed in detail below.

Wetlands and Waters of the U.S.

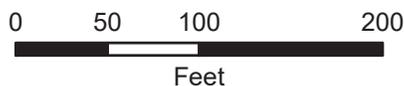
Wetlands are not present in the Study Area. However, approximately 0.16 acre (615 linear feet) of non-wetland waters were observed within the Study Area, associated with Colma Creek (Figures 7 and 8). The channel of Colma Creek is a concrete trapezoidal flood control and stormwater drainage channel, comprised of a concrete bed and banks with no natural substrates. This perennial channel is fed by many storm drain outlets of varying sizes along its length and contained standing water with algal blooms during the site visit.

Because the concrete channel carries a natural watercourse (Colma Creek), which contains an identifiable ordinary high water mark (OHWM) and is a tributary of San Francisco Bay, a traditional navigable water body, the channel was determined to be potentially jurisdictional under Section 404 of the Clean Water Act (CWA) based on current U.S. Army Corps of Engineers (Corps) guidance. Colma Creek is also potentially jurisdictional for the Regional Water Quality Control Board (RWQCB) under Section 401 of the CWA and the Porter-Cologne Act, and California Department of Fish and Wildlife (CDFW) under Section 1600-1616 of the California Fish and Game Code (CFGC). The extent of Corps and RWQCB jurisdiction within the Study Area was mapped to the OHWM of Colma Creek, as shown on Figure 8. CDFW jurisdiction within the Study Area was mapped to the top of bank of Colma Creek (Figure 8). Waters in the channel within the Study Area are not tidal and occur approximately 3.9 river-miles from the San Francisco Bay.



Figure 7. Biological Communities within the Study Area

Costco Gas Station Relocation,
 Parking Expansion, and Tire Center &
 Produce Cooler Addition Project
 City of South San Francisco
 San Mateo County, California



Map Prepared Date: 10/14/2016
 Map Prepared By: ffourigan
 Base Source: USGS EROS 1'
 Data Source(s): WRA

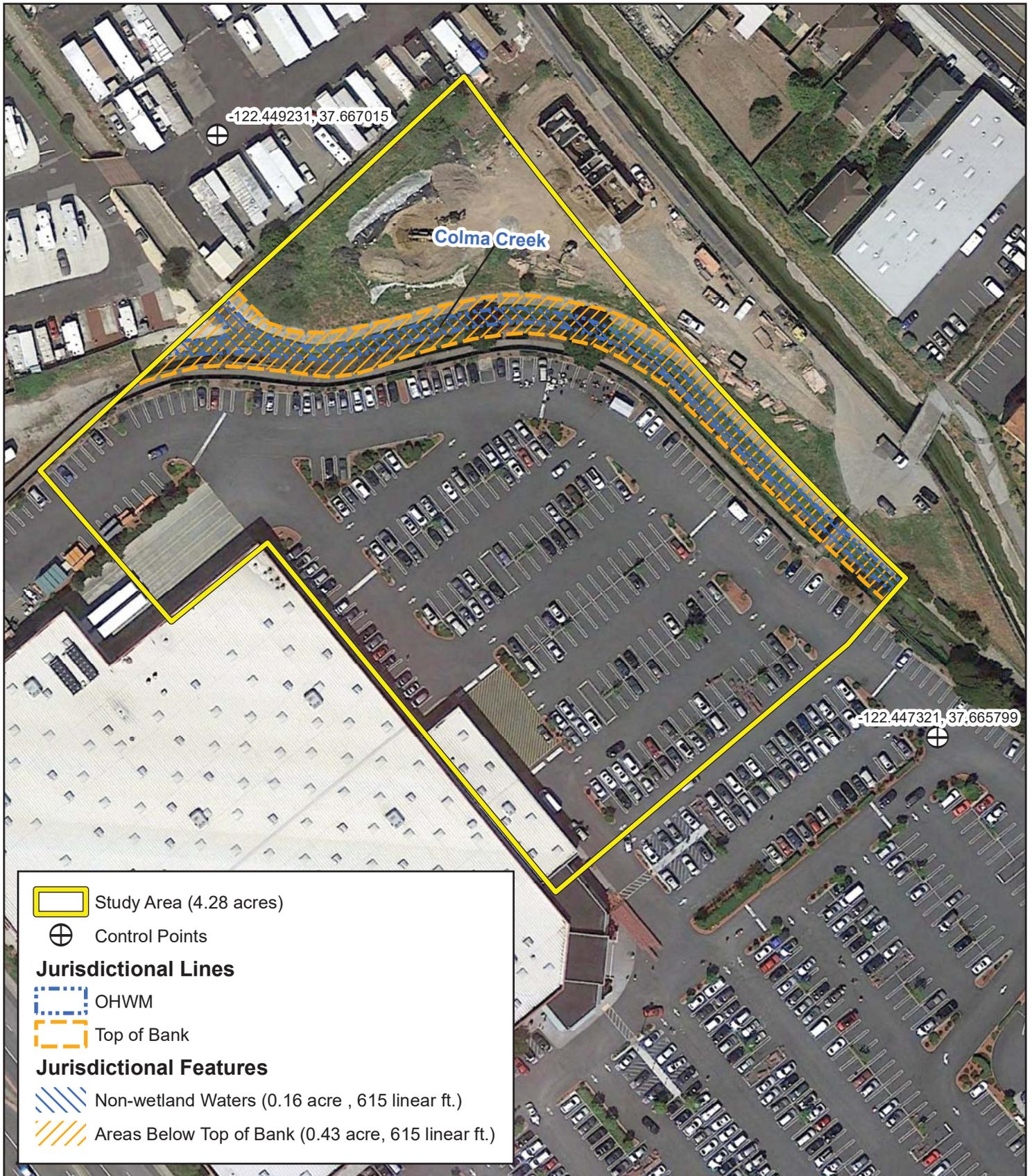


Figure 8. Jurisdictional Areas within the Study Area

Costco Gas Station Relocation,
 Parking Expansion, and Tire Center &
 Produce Cooler Addition Project
 City of South San Francisco
 San Mateo County, California



Map Prepared Date: 10/14/2016
 Map Prepared By: fhourigan
 Base Source: USGS EROS 1'
 Data Source(s): WRA



Figure 9. Photograph facing southeast towards the trapezoidal channel of Colma Creek, carrying potential waters of the U.S. (Project site is on the right.)



Figure 10. Photograph taken in the northwest corner of the Study Area facing east towards the concrete flood control channel of Colma Creek, carrying potential waters of the U.S.

Special-Status Plant Species

Forty-two special-status plant species are known to occur in the vicinity of the Study Area (CDFW 2016, CNPS 2016). No special-status plant species were observed during the site visit. Two Monterey pine (CNPS Rank 1B.1) trees were observed within the Study Area; however, only native occurrences of this species are considered special-status and the Study Area is not located at the site of a native occurrence (CNPS 2016). Monterey pine is widely naturalized throughout coastal California, and is considered invasive outside of its native range (Cal-IPC 2016). Current conditions in the project site do not contain suitable habitat for special-status plant species known to occur in the vicinity, based on the highly disturbed and developed conditions of the site, and dominance of non-native, invasive species. The undeveloped vacant area located in the northwest portion of the site is disturbed from past activities, supports sparse cover by weedy plant species and does not have the potential to support rare plant species. There is no potential for the project site to support special-status plant species.

Special-Status Wildlife Species

Twenty-nine special-status wildlife species are known to occur in the vicinity of the project site. No special-status wildlife species have the potential to occur within the project area due to the disturbed and developed site conditions. The undeveloped vacant area located in the northwest portion of the site is disturbed/ruderal. The project site does not contain suitable habitat for any special-status wildlife species. Callippe silverspot butterfly (*Speyeria callippe callippe*), and Mission blue butterfly (*Icaricia [Plebejus] icarioides missionensis*) have been documented within 1 mile of the project site on San Bruno Mountain. However, the project site has no potential to support these species due to the highly disturbed and developed conditions of the site, dominance of non-native invasive plant species, and lack of larval host plants (e.g. *Viola pedunculata* and *Lupinus* spp.) and preferred nectar plants (e.g. *Heterotheca villosa*, *Dichelostemma capitatum*). Colma Creek, which runs from south to north in the site, is a concrete stormwater drainage channel that lacks natural substrate and vegetation and thus lacks suitable habitat for anadromous fish species or special-status amphibians. There is no

potential for special-status amphibian or fish species to occur, nor is there essential fish habitat (EFH) present within the concrete channel. The closest EFH is located approximately 2.8 miles east of the project site, i.e. the high-tide line of San Francisco Bay (NOAA 2016).

Non-Special-Status Birds and Bats

Nesting birds have potential to occur within some areas of the project area including in trees, shrubs, and along existing structures. No trees, structures, or culverts observed within the project site provide suitable roost habitat for bat species; therefore, there is no potential for bats to roost within the project site.

Protected Trees

The project site may contain trees protected per the City of South San Francisco Tree Protection Ordinance¹³. The City of South San Francisco encourages the protection and preservation of trees within its city limits. The City of South San Francisco Tree Preservation Ordinance declares it unlawful to prune or remove a “protected tree” without a permit. Protected trees are defined as those with a minimum circumference of 48 inches (15.28 inches diameter) when measured at 54 inches above natural grade.

Regulatory Setting

Federal Migratory Bird Treaty Act (16 U.S.C., Section 703-712)

There are over 900 species of birds protected by the federal Migratory Bird Treaty Act (MBTA). The MBTA prohibits killing, possessing, or trading in migratory birds, except in accordance with regulations prescribed by the Secretary of the Interior. This Act encompasses whole birds, parts of birds, and bird nests and eggs. Construction activities during the breeding season could result in the incidental loss of fertile eggs or nestlings or nest abandonment. The MBTA is typically enforced by the California Department Fish and Wildlife.

Clean Water Act

The federal Water Pollution Control Act Amendments of 1972, commonly referred to as the Clean Water Act (CWA), is the primary federal law that protects the quality of the nation's surface waters, including lakes, rivers, and coastal wetlands. (33 USC 1251 et seq.) The CWA regulates fill and water quality.

Section 404 of the CWA requires a permit for activities that would result in the fill of waters of the United States. Both the U.S. Environmental Protection Agency (USEPA) and the Corps regulations address the CWA Section 404 process (33 CFR 323.1 et seq. (Corps); 40 CFR 230.1 et seq. (USEPA)) “Waters of the United States” are defined broadly as waters susceptible to use in commerce, interstate waters and wetlands, and all other waters (including intrastate water bodies and wetlands) and their tributaries. (33 CFR 328.3 (Corps); 40 CFR 230.3(s) (USEPA))

¹³ *A detailed arborist survey was not completed for this analysis, however, site observations indicate that ornamental landscaping trees within the project site may be large enough to meet “protected tree” criteria. A tree survey of the project area would be required prior to grading and building permit issuance.*

Section 401 of the CWA requires an applicant for any federal permit that proposes an activity that may result in a discharge to waters of the United States to obtain from the state a water quality certification for the project. Section 401 is administered in California by the State Water Resources Control Board through the Regional Water Quality Control Boards (RWQCBs).

Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act (California Water Code 13000 et seq.) (Porter-Cologne Act) authorizes regulation of water quality in the state. The legislation defines “waters of the state” as “any surface water or groundwater, including saline waters, within the boundaries of the state.” (California Water Code 13050) The State Water Resources Control Board and the RWQCBs administer the Porter-Cologne Act, including setting of water standards and permitting for placement of fill in wetlands, streams and riparian areas.

California Fish and Game Code

Nesting birds are protected by the California Fish and Game Code Section 3503, which reads, “It is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, except as otherwise provided by this code or any regulation made pursuant thereto.”

Streams and lakes are subject to CDFG jurisdiction under sections 1600-1616 of the California Fish and Game Code. Alterations to or work within or adjacent to streambeds or lakes generally require Lake and Streambed Alteration Agreement, which may include reasonable measures necessary to protect fish and wildlife resources (California Fish and Game Code 1602).

South San Francisco Municipal Code Section 13.30.020 Protected Tree Ordinance

South San Francisco Municipal Code Section 13.30.020 defines a “Protected Tree” as one with a circumference of 48” or more when measured 54” above natural grade; a tree or stand of trees designated by the Director of Parks and Recreation as one of uniqueness, importance to the public due to its location or unusual appearance, historical significance or other factor; or a stand of trees that the Director of Parks and Recreation has determined each tree is dependent on the others for survival.

Discussion of Impacts

- a) ***Less Than Significant with Mitigation Incorporated.*** The proposed project would have a significant impact if it would have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service. The project site is comprised predominantly of developed and disturbed areas and does not provide habitat connections to or from open space. Current conditions in the study area do not contain suitable habitat for special-status plant or wildlife species known to occur in the vicinity. However, the occurrence of shrubs and trees on the project site provides sufficient habitat to support nesting birds protected by the MBTA. As a disturbance of these birds would create a significant impact, necessary mitigation measures would be implemented to lessen the impact to a less-than-significant level.

Mitigation Measure BIO-1: Preconstruction Surveys

To comply with the Migratory Bird Treaty Act, pre-construction breeding bird surveys shall be completed by a qualified biologist if construction activity is initiated or if trees and shrubs are proposed to be removed between February 15 and August 31 (the dates of the breeding bird season in this vicinity). If nesting birds are observed during the preconstruction surveys, the biologist shall set appropriate buffers surrounding active nests based on the species present, generally between 50 and 100 feet given the urban environment present. Construction and vegetation removal within those buffers would be allowed only if nests are monitored periodically by a qualified biologist. If nesting birds are showing signs of distress, construction shall be stopped until appropriate measures are implemented to avoid disturbance or the young birds have fled the nest. Removing trees and shrubs and initiating construction between September 1 and February 14 (outside of the breeding bird season) would also avoid affecting nesting birds.

- b) ***Less Than Significant with Mitigation Incorporated.*** The proposed project would have a significant impact if it would have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service. Despite its current condition, Colma Creek is considered a sensitive natural community by CDFW due to its hydrological connectivity and open channel form. The proposed project would install a box culvert within the concrete lined Colma Creek, converting an open concrete channel to an underground drainage. Impacts would include loss of open channel area along the existing concrete lined creek. Mitigation for these impacts will require creation of perennial stream at a minimum of a 1:1 ratio for impacts, or restoration of a stream that would provide equivalent biological function. The project has the potential to impact up to 0.11 acres (415 linear feet) of Colma Creek. Impacts would be less than significant with incorporation of the following mitigation measures.

Mitigation Measure BIO-2: Creek Mitigation

Mitigation for impacts to approximately 0.11 acres (415 linear feet) of a concrete lined segment of Colma Creek will require creation or restoration of stream at a minimum of a 1:1 ratio for impacted area, creation and/or restoration of a stream that would provide equivalent biological function, purchase of stream credits at an approved mitigation bank, or some combination of these actions. Prior to the issuance of a grading permit, the applicant shall obtain a Section 404 Corps permit, RWQCB Section 401 Water Quality Certification, and a Section 1602 Streambed Alteration Agreement from CDFW. The applicant shall comply with all mitigation and conditions associated with these permits. Determination that creation and/or restoration results in creation of equivalent biological function shall be based on the relevant regulatory agency permits.

Mitigation Measure BIO-3: Spill Prevention and Cleanup

Prior to the issuance of a grading permit, the contractor shall be required to prepare an Accidental Spill Prevention and Cleanup Plan. The plan shall include, but not limited to, the following:

- a. Require spill control absorbent material, for use beneath stationary equipment, to be present on-site and available at all times.
- b. To minimize fluid leaks during operation, refueling, and maintenance of stationary equipment spill control absorbent material shall be in place underneath this equipment at all times to capture potential leaks.
- c. All stockpiling of construction materials, equipment, and supplies, including storage of chemicals, refueling and maintenance, shall occur outside the creek channel. No equipment shall be washed where runoff could enter the creek.
- d. All refueling and maintenance of equipment, other than stationary equipment, shall occur outside the creek's top-of-bank. Receptacles containing fuel, oil, or any other substance that may adversely affect aquatic resources shall be stored outside of the channel. Any hazardous chemical spills shall be cleaned immediately.
- e. No motorized equipment shall be left within the creek channel (top of bank to top of bank) overnight.
- f. No equipment, including concrete trucks, shall be washed within the channel of the Creek, or where wash water could flow into the channel. Prior to project construction, the contractor shall establish a washout area for trucks in a location where wash water will not enter Colma Creek. The washout area shall follow the practices outlined in the San Francisco Bay Regional Water Quality Control Board Erosion and Sediment Control Field Manual (page 107-108, July 1999) or equivalent guidelines. Substitution of the designated concrete washout area or methods shall require prior approval of the City. Such practices may include, but are not limited, to the following
 - Incorporate a stabilized construction entrance/exit.
 - Construct on level ground when possible, on a pad of coarse aggregate greater than three inches, but smaller than six inches. A geotextile fabric should be placed below the aggregate.
 - Wash rack shall be designed and constructed/manufactured for anticipated traffic loads.
 - Provide a drainage ditch that will convey the runoff from the wash area to a sediment trapping device. The drainage ditch shall be of sufficient grade, width, and depth to carry the wash runoff.
 - Use hoses with automatic shutoff nozzles to prevent hoses from being left on.
 - Require that all employees, subcontractors, and others that leave the site with mud caked tires and undercarriages to use the wash facility.

- c) **Less Than Significant with Mitigation Incorporated.** The proposed project would have a significant impact if it would have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means. Based on the results of the site visit, the Study Area contains a concrete drainage channel (Colma Creek) that is potentially jurisdictional as “Waters of the U.S” by the Corps, and as “Waters of the State” by the RWQCB. There are no wetlands present on the project site, however, approximately 0.16 acre (615 linear feet) of non-wetland waters were observed within the study area. Of this area of non-wetland waters, the project would impact 0.11 acre (415 linear feet) of Colma Creek, which may also be considered CDFW jurisdiction under Sections 1600-1616 of the CFGC. Impacts to Colma Creek associated with the Project may require a Section 404 Corps permit, RWQCB Section 401 Water Quality Certification, and a Section 1602 Streambed Alteration Agreement from CDFW. Section 404 and 401 permits regulate the discharge of dredged or fill material into waters of the United States, including wetlands and non-wetland waters. The project would require work within Colma Creek, which is considered non-wetland waters. Impacts would be less than significant with implementation of the Mitigation Measures BIO-2 and BIO-3. Implementation of BIO-2 and BIO-3 would ensure that spills within the water course are limited to the maximum amount feasible. In addition, implementation would require that any loss of jurisdictional stream channel be offset by requiring the restoration or creation of habitat at a 1:1 ratio.
- d) **Less than Significant Impact.** Dewatering of Colma Creek is also anticipated prior to work planned in the stream channel. The proposed project would use standard construction equipment to remove the existing concrete lining to exact and construction the new box culvert. Based on the lack of habitat fish, wildlife, and plants within the concrete lined channel, potential impacts due to dewatering are less than significant. Colma Creek runs beneath paved and developed areas for miles upstream of the project area, is culverted beneath the South San Francisco BART station for several thousand feet downstream of the project area, and is not in a condition that can support fish, wildlife or plant species. The creek does not support woody riparian vegetation capable of providing canopy cover for the movement of wildlife species. Based on these conditions, the creek does not provide a corridor suitable for movement of wildlife or distribution of plant species. Therefore, the project would result in less than significant impacts to wildlife movement.
- e) **Less Than Significant Impact.** The proposed project would have a significant impact if it would conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance. The City of South San Francisco Tree Preservation Ordinance declares it unlawful to prune or remove a “protected tree” without a permit. Protected trees are those with a minimum circumference of 48 inches (15.28 inches’ diameter) when measured at 54 inches above a natural grade. As there were trees found on the project site, the project may be subject to this ordinance. If the trees on-site are deemed to be “protected” a

permit shall be acquired¹⁴. On-site trees potentially subject to removal are planted ornamental landscape species and permits for their removal would be required prior to issuance of grading permits. With the required issuance of tree removal permits for qualifying trees, the project would not conflict the local tree policy, and the removal of the planted ornamental landscape trees is otherwise considered a less than significant impact.

- f) **No Impact.** The proposed project would have a significant impact if it would conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan. According to the City of South San Francisco's General Plan, the project site is not subject to any Habitat or Natural Community Conservation Plan and therefore would have no impact.

¹⁴ *A detailed arborist survey was not completed for this analysis, however, site observations indicate that ornamental landscaping trees within the project site may be large enough to meet "protected tree" criteria.*

V. CULTURAL RESOURCES — Would the project:	<i>Potentially Significant Impact</i>	<i>Less than Significant with Mitigation Incorporated</i>	<i>Less than Significant Impact</i>	<i>No Impact</i>	<i>Source</i>
a) Cause a substantial adverse change in the significance of a historical resource as identified in Section 15064.5?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	1,2, 20
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1,2, 20
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1,2, 20
d) Disturb any human remains, including those interred outside of formal cemeteries?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1,2

Environmental Setting

South San Francisco’s older buildings display a wide range of architectural styles, emblematic of the shifting styles that characterize the periods of the City’s growth. Queen Anne, Victorian, Neoclassical, Craftsman, Spanish and Mission Revival, Moderne, as well as contemporary styles, are all represented in the City’s central neighborhoods.

In addition to Sign Hill, designated resources in South San Francisco include several residential and commercial buildings in the downtown area. The City’s Municipal Code, and state and federal law, protect these local, State, and national historic resources from alteration and demolition. The Planning Commission oversees the protection of these resources. Most are located along Grand Avenue near the Civic Center, and around the intersection of Grand Avenue and Eucalyptus Street. As noted in Section I (Aesthetics), there are no historic buildings within the project site, and the nearest historic site is located at El Camino High School.

Assembly Bill 52 (AB-52)

Assembly Bill (AB) 52 (Chapter 532, Statutes of 2014) establishes a formal consultation process for California Native American tribes as part of CEQA and equates significant impacts on “tribal cultural resources” with significant environmental impacts (PRC Section 21084.2). AB 52 defines a “California Native American Tribe” as a Native American tribe located in California that is on the contact list maintained by the Native American Heritage Commission (Public Resources Code Section 21073). Under AB 52, formal consultation with California Native American Tribes is required prior to determining the level of environmental document if a tribe has requested to be informed by the lead agency of proposed projects. AB 52 also requires that consultation address project alternatives and mitigation measures for significant effects, if requested by the California Native American Tribe. No tribe has requested consultation from

the City of South San Francisco under AB-52. Therefore, the proposed project is not subject to the consultation requirements.

Archaeological Resources

Consistent with its history as an Ohlone settlement location, South San Francisco has Native American village sites and shell mounds scattered around the City. Known resources include:

- A Native American archaeological village (CA-SMA-299) located within the El Camino Real Corridor Redevelopment Area that contains household items, projectile points, dietary debris, and human burials.
- A large shell mound (CA-SMA-40) and one small shell midden (CA-SMA-40) near the south slope of San Bruno Mountain. The shell mound is considered a significant archaeological resource. South San Francisco's coastal location, and its rich history as a center of industry, makes the existence of additional prehistoric and historic archaeological resources likely.

Discussion of Impacts

a) **No Impact.** As previously discussed in Section I (Aesthetics), the proposed project site does not contain any historic resources listed on the National Register of Historic Places or identified in the General Plan. As the proposed project is located within the existing Costco development, as well as undeveloped land, the project would have no impact on historical resources.

b,c,d) **Less Than Significant with Mitigation Incorporated.** As stated in the City's General Plan, a known archaeological resource in the City is a Native American archaeological village (CA-SMA-299) located within the former El Camino Real Corridor Redevelopment Area, that contains household items, projectile points, dietary debris, and human burials. The project site is located west of this resource, and is not located within the former Redevelopment Area. According the Archeological Survey Report (ASR) prepared for the South San Francisco BART station, located adjacent to the project site, "site 299 was recorded previously in the proposed BART alignment in South San Francisco. The site record, completed in 1989, found that the site had been "completely destroyed."¹⁵ The General Plan and Bart ASR do not identify any unique geologic features or paleontological resources within the project vicinity.

Although the site is considered destroyed due to soil mining, creek channelization, and construction of the rail line, the potential exists for the inadvertent discovery of subsurface prehistoric material to be uncovered during construction of the parking lot expansion into previously undeveloped land and excavation of the proposed UST area. The installation of the box culvert would also extend work below the high tide line and extend past the previously disturbed area of the concrete-line trapezoidal

¹⁵ *BART-San Francisco Airport Extension Project: Draft Environmental Impact Report/Supplemental Draft Environmental Impact Statement: Archeological Resources Technical Report. 1995. Available: https://archive.org/stream/bartsanfrancisco1994rice/bartsanfrancisco1994rice_djvu.txt. EIR certified _____, 19__.*

channel. This is a potentially significant impact that can be reduced to a less than significant level with the implementation of Mitigation Measure CULT-1.

Mitigation Measure CULT-1: Accidental Discovery

In the event of accidental discovery of archeological or paleontological resources or human remains, the following measures shall be implemented in accordance with CEQA Guidelines section 15064.5:

1. If any archeological or paleontological deposits are encountered, all soil disturbing work shall be halted immediately at the location of any discovery until a qualified archeologist or paleontologist evaluates the significance of the find(s) and prepares a program for further action. Prehistoric archeological site indicators include: obsidian and chert flakes and chipped stone tools; grinding and mashing implements (e.g. slabs and handstones and mortars and pestles); bedrock outcrops and boulders with mortar cups; and locally darkened midden soils. Midden soils may contain a combination of any of the previously listed items with the possible addition of bone and shell remains, and fire-affected stones. Historic period sites indicators generally include split lumber; and structure and feature remains such as building foundations and discrete trash deposits (e.g. wells, privy pits, and dumps).
2. In the event human remains are encountered, excavation or disturbance of the location shall be halted immediately in the vicinity of the find, and the county coroner shall be contacted. If the coroner determines the remains are Native American, the coroner shall contact the Native American Heritage Commission (NAHC). The NAHC shall identify the person or persons believed to be the “most likely descendent” of the deceased Native American. The most likely descendent shall then make a recommendation regarding the treatment of the remains with appropriate dignity.

VI. GEOLOGY AND SOILS — Would the project:	<i>Potentially Significant Impact</i>	<i>Less than Significant with Mitigation Incorporated</i>	<i>Less than Significant Impact</i>	<i>No Impact</i>	<i>Source</i>
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:					2,10, 15
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	2,10
ii) Strong seismic ground shaking?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	2,10
iii) Seismic-related ground failure, including liquefaction?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	2,10
iv) Landslides?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	2,10
b) Result in substantial soil erosion or the loss of topsoil?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	2,10
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code, creating substantial risks to life or property?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	2,6
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	1

Environmental Setting

Soils

South San Francisco is comprised of three distinct topographic zones, each with its own soil compositions and hazards to development. According to the City's General Plan, the proposed project site is located within the Upland Zone with less than 15 percent slopes.

Upland Zone

Soils in this zone are mostly developed, covered by urban land and cut-and-fill. The cut-and-fill in some areas has superimposed the alluvial soils of the Colma Creek floodplain. The difficulty in this zone is the varying nature of the fill, which was laid with varying attention to engineering practices. There is a moderate potential for shrink-swell and/or erosion hazard in this zone.

Seismicity

South San Francisco is located in one of the most seismically active regions in the United States. There are approximately 30 known faults in the Bay Area that are considered capable of generating earthquakes; eleven of these are within 40 miles of the City. The Peninsula segment of the San Andreas Fault, the predominant fault system in California, passes through the westernmost corner of South San Francisco, commonly referred to as the Westborough area. This area was developed after Interstate 280 was built in the 1970s and contains a large concentration of townhomes and one of the City's main concentrations of local-serving commercial uses. The project site is located approximately 1.6 miles northeast of the Peninsula segment of the San Andreas Fault.

The San Andreas Fault is considered a source of high earthquake hazard to the entire City, creating potential for ground rupture and high levels of ground shaking. It has generated some of the largest, most destructive earthquakes in the Bay Area, including the 1906 San Francisco earthquake (magnitude 8.3) and the 1989 Loma Prieta earthquake (magnitude 7.1). Most of the City would experience an intensity level of VII (Nonstructural Damage) or VIII (Moderate) from a rupture of the Peninsula Segment of the San Andreas Fault during an earthquake with a 7.1 magnitude. Portions of the City with unstable soil conditions, particularly the fill areas in the east, would experience particularly strong ground shaking. Other faults in the region may also generate earthquakes that affect South San Francisco. While most of South San Francisco is comprised of flat to gently sloping areas, steep hillsides surround the northern and western portions of the City. Seismic and other structural hazards are related to two geologic conditions found in South San Francisco:

- Soils in the flat lowland areas, comprised largely of Bay mud overlain with fill in the eastern portions of the City, have high shrink-swell potential, high water table, and low strength. These soil conditions amplify earthquake waves and ground shaking, and are subject to liquefaction.
- Steeply-sloping hillside areas have soils with shrink-swell hazards, high erosion hazard, and low strength. Some of these soils have severe limitations for bearing dwellings without basements and for local roads. In addition, substantial portions of the south flank of San Bruno Mountain are classified as a high landslide risk area.

Existing Seismic Risk to Development

Within South San Francisco, earthquake damage to structures can be caused by ground rupture, near-field effects, liquefaction, landsliding, ground shaking, and possibly inundation from seiche or tsunami. The level of damage in the City resulting from an earthquake will depend upon the magnitude of the event, the epicenter distance from the City, the response of geologic materials, and the strength and construction quality of structures.

Buildings constructed prior to the 1970s in most cases would not meet current design provisions in the Uniform Building Code for earthquake forces. The most severe hazards are presented by unreinforced masonry buildings constructed of brick or concrete block. Under strong intensity ground shaking, many of these structures may be expected to collapse or require demolition. The City has developed a list of unreinforced masonry buildings to assess their potential to meet Uniform Code for Building Conservation (UCBC) requirements through retrofit.

Other types of buildings that may also be severely damaged are older buildings of steel and concrete framing that were not designed to resist earthquake vibrations and older reinforced brick and masonry structures.

Ground Shaking

The distribution of earthquake wave amplification as related to geologic materials has been mapped by the Association of Bay Area Governments (ABAG) with input from the U.S. Geological Survey. Areas subject to extremely high or very high levels of wave amplification include the alluvial lowlands surrounding Colma Creek, between Orange and South Linden Avenues. ABAG has also mapped the intensities created by a rupture of the Peninsula Segment of the San Andreas Fault registering 7.1 on the modified mercalli intensity scale in the South San Francisco area. The majority of the City, including the project site, would experience “Very Strong” shaking under this scenario, with portions of the City experiencing “Violent” shaking.

Liquefaction

Liquefaction is the rapid transformation of saturated, loose, fine-grained sediment to a fluid-like state normally because of earthquake ground shaking. Most of the lowland areas of South San Francisco potentially have liquefaction hazards, with moderate liquefaction potential in the alluvial fan of Colma Creek and in a narrow strip of land south of Sister Cities Boulevard. The project site has a “High Susceptibility” for liquefaction according to ABAG hazard maps. Lateral spreading (lurching) also may be present where open banks and unsupported cut slopes provide a free face, or where artificial fill overlies Bay mud. Ground shaking, especially when inducing liquefaction, may induce lateral spreading toward unsupported slopes.

Landslides

The strong ground motions that occur during earthquakes are capable of inducing landslides, generally where unstable soil conditions already exist. The parts of the San Francisco Bay region having the greatest susceptibility to landsliding are hilly areas underlain by weak bedrock units of slope greater than 15 percent. In South San Francisco this hazard is primarily located on the southern flank of San Bruno Mountain in the Terrabay development and near Skyline

Boulevard. The project site is located in an area of relatively flat topography and is not susceptible to landslides.

Inundation

Earthquakes can cause tsunamis ('tidal waves') and seiches (oscillating waves in enclosed water bodies) in the Bay. As portions of the City are located adjacent San Francisco Bay, and are low-lying, tsunami or seiche inundation is a possibility in these areas. Wave run-up is estimated at approximately 4.3 feet (msl) for tsunami with a 100-year recurrence and 6.0 feet (msl) for a 500-year tsunami. However, according to ABAG hazard maps the project site is located outside of a tsunami or seiche inundation zone.

Earthquake damage inflicted on structures and infrastructure within the City is not only a function of the seismic risks outlined above, but also of the form, structural design, materials, construction quality, and location of the structure. New construction in South San Francisco is required to meet the requirements of California Building Code (CBC), and buildings of special occupancy are required by the State to meet more stringent design requirements.

Discussion of Impacts

- a-i) ***Less Than Significant Impact.*** The Alquist-Priolo Earthquake Fault Zoning Act prohibits construction within 50 feet of an active fault and requires geologic investigations before development can occur within a mapped Earthquake Fault Zone that typically extends about a quarter mile from a fault line. The proposed project is not located within an Alquist-Priolo Zone. The nearest zone is for the San Andreas Fault, located approximately 1.5 miles west of the project site. Due to the distance from this fault to the project site, impacts from the potential for fault rupture during an earthquake would be less than significant.

- a-ii) ***Less Than Significant Impact.*** The San Andreas Fault Zone, one of the most seismically active faults in the world, runs through the westernmost corner of the City. During a major seismic event on the San Andreas Fault, there is the potential for strong ground shaking that could expose persons and property to undue risks. The proposed project would be constructed in conformance with standard engineering practices and CBC requirements. Compliance with CBC seismic design requirements would ensure the project site would not expose persons or property to strong seismic ground shaking hazards. Impacts in this regard would be less than significant.

- a-iii) ***Less Than Significant Impact.*** As previously discussed, portions of the City containing alluvium materials near Colma Creek have a High Susceptibility for liquefaction. Liquefaction has the potential to occur when earthquake waves cause water pressures to increase in the sediment and the sand grains to lose contact with each other, leading the sediment to lose strength and behave like a liquid. This could cause project components to be susceptible to damage or failure. However, the proposed project must adhere to the CBC and the Seismic Hazards Mapping Act, which include requirements for geotechnical investigations in areas with high risks for liquefaction, including mitigation to minimize risks. SFFMC Section 15.08.140 (Grading Permit Requirements) also requires a soils engineering report and engineering geology report that would identify potential geotechnical hazards and

measures to minimize hazards. Compliance with applicable regulations would ensure that potential impacts are less-than-significant.

- a-iv) **No Impact.** As previously stated, the parts of the San Francisco Bay region having the greatest susceptibility to land slides are hilly areas underlain by weak bedrock units of slope greater than 15 percent. The project site is flat; therefore, there is no potential for a landslide to occur.
- b) **Less Than Significant Impact.** As discussed in Section IX (Hydrology and Water Quality) below, the proposed project would be required to comply with the erosion control requirements stipulated in the National Pollution Discharge Elimination System (NPDES) Permit issued by the San Francisco Bay Regional Water Quality Control Board. These requirements include the preparation and implementation of a Storm Water Pollution Prevention Control Plan (SWPPP) that contains BMPs designed to control erosion, siltation, and contaminated runoff from construction sites. Therefore, impacts would be less than significant.
- c, d) **Less Than Significant Impact.** Project design to ensure protection from seismic ground motion and soil or slope instability is governed by existing regulations of the State of California (California Building Code, California Code of Regulations [CCR], Title 24, Part 2) or the City of South San Francisco (South San Francisco Municipal Code Title 15). These regulations require a soils engineering report and engineering geology report that would identify potential geotechnical hazards and measures to minimize hazards. The proposed project would require mandatory compliance with the City of South San Francisco Municipal Code and NPDES General Construction Permit requirements. Therefore, impacts would be less than significant related to unstable soils or expansive soils.
- e) **No Impact.** The project does not involve construction of septic tanks or alternative wastewater disposal systems. Therefore, the project would have no impact.

VII. GREENHOUSE GAS EMISSIONS — Would the project:	<i>Potentially Significant Impact</i>	<i>Less than Significant with Mitigation Incorporated</i>	<i>Less than Significant Impact</i>	<i>No Impact</i>	<i>Source</i>
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1,13
b) Conflict with any applicable plan, policy, or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1,16

Environmental Setting

Gases that trap heat in the atmosphere, greenhouse gases, or GHGs, regulate the earth's temperature. This phenomenon, known as the greenhouse effect, is responsible for maintaining a habitable climate. The most common GHGs are carbon dioxide (CO₂) and water vapor but there are also several others, most importantly methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF₆). These are released into the earth's atmosphere through a variety of natural processes and human activities. Sources of GHGs are generally as follows:

- CO₂ and N₂O are byproducts of fossil fuel combustion.
- N₂O is associated with agricultural operations such as fertilization of crops.
- CH₄ is commonly created by off-gassing from agricultural practices (e.g., keeping livestock) and landfill operations.
- Chlorofluorocarbons (CFCs) were widely used as refrigerants, propellants, and cleaning solvents but their production has been stopped by international treaty.
- HFCs are now used as a substitute for CFCs in refrigeration and cooling.
- PFCs and sulfur hexafluoride emissions are commonly created by industries such as aluminum production and semi-conductor manufacturing.

Each GHG has its own potency and effect upon the earth's energy balance. This is expressed in terms of a global warming potential (GWP), with CO₂ being assigned a value of 1 and sulfur hexafluoride being several orders of magnitude stronger with a GWP of 23,900. In GHG emission inventories, the weight of each gas is multiplied by its GWP and is measured in units of CO₂ equivalents (CO₂e).

An expanding body of scientific research supports the theory that global warming is currently affecting changes in weather patterns, average sea level, ocean acidification, chemical reaction rates, and precipitation rates, and that it will increasingly do so in the future. The climate and several naturally occurring resources within California could be adversely affected by the global

warming trend. Increased precipitation and sea level rise could increase coastal flooding, saltwater intrusion, and degradation of wetlands. Mass migration and/or loss of plant and animal species could also occur. Potential effects of global climate change that could adversely affect human health include more extreme heat waves and heat-related stress; an increase in climate-sensitive diseases; more frequent and intense natural disasters such as flooding, hurricanes and drought; and increased levels of air pollution.

The City adopted the Climate Action Plan (CAP) in 2014 that provides goals, policies, and programs to reduce greenhouse gas emissions, climate change adaptation and support the goals of Assembly Bill (AB) 32 and Senate Bill (SB) 375¹⁶. In preparation of the CAP, the City completed a Government Operations Emissions Inventory, a community-wide Greenhouse Gas Emissions Inventory, and adopted a Pedestrian Master Plan. The CAP builds on both recent and current planning efforts including the Community Based Transportation Plan, the Downtown Station Area Plan and the El Camino Real Specific Plans. The CAP estimated South San Francisco's 2005 baseline annual emission inventory at 548,600 metric tons of CO₂e. The CAP targets emission from all sources except stationary sources and direct emissions from landfills, because those emissions are regulated by BAAQMD and CARB. The CAP's target is to reduce GHG emissions to 15 percent below the 2005 baseline by 2020. The CAP projects that the combination of State actions and GHG reduction measures in the CAP will reduce GHG emissions in the community to meet the goal by 2020. Local actions will contribute about 40 percent of the reduction in 2020.

The 2011 version of the BAAQMD CEQA Air Quality Guidelines provides a significance threshold of 1,100 metric tons per year of greenhouse gases, measured as CO₂e, that are used to judge the significance of a project's operational impact.

Discussion of Impacts

- a) **Less Than Significant Impact.** Greenhouse gases emitted by operation of the project were computed, as described above under III b, c for air quality. These include mobile emissions and natural gas combustion, as well as indirect emissions from electricity consumption, water use, and disposal of project waste. The same CalEEMod model run that was used to compute criteria air pollutant emissions was also used to compute GHG emissions from implementation of the project. In terms of electricity generation, CalEEMod has a default rate of 641.3 pounds of CO₂ per megawatt of electricity produced, which is based on PG&E's 2008 emissions rate. The PG&E rate was updated to be the most recent rate reported in the California Climate Registry that was for 2013, which is 429.64 pounds of CO₂ per megawatt of electricity produced.¹⁷ Results of modeling indicate that project net emissions would be 468 metric tons of CO₂e. This would be below the significance threshold of 1,100 metric tons per year recommended by BAAQMD.
- b) **Less Than Significant Impact.** AB 32, the Global Warming Solutions Act of 2006, codifies the State of California's GHG emissions target by directing CARB to reduce the state's global warming emissions to 1990 levels by 2020. AB 32 was signed and

¹⁶ City of South San Francisco. 2016. *City of South San Francisco Climate Action Plan*. Prepared by PMC with assistance from Fehr & Peers. February 13.

¹⁷ The Climate Registry. *Curated Default Emission Factor Database*. <http://www.theclimateregistry.org/tools-resources/reporting-protocols/general-reporting-protocol>.

passed into law by Governor Schwarzenegger on September 27, 2006. Since that time, CARB, CEC, the California Public Utilities Commission (CPUC), and the Building Standards Commission have all been developing regulations that will help meet the goals of AB 32 and Executive Order S-3-05. A Scoping Plan for AB 32 was adopted by CARB in December 2008. It contains the State of California's main strategies to reduce GHGs from BAU emissions projected in 2020 back down to 1990 levels. BAU is the projected emissions in 2020, including increases in emissions caused by growth, without any GHG reduction measures. The Scoping Plan has a range of GHG reduction actions, including direct regulations, alternative compliance mechanisms, monetary and non-monetary incentives, voluntary actions, and market-based mechanisms such as a cap-and-trade system. It required CARB and other state agencies to develop and adopt regulations and other initiatives reducing GHGs by 2012.

As directed by AB 32, CARB has also approved a statewide GHG emissions limit. On December 6, 2007, CARB staff resolved an amount of 427 MMT of CO₂e as the total statewide GHG 1990 emissions level and 2020 emissions limit. The limit is a cumulative statewide limit, not a sector- or facility-specific limit. CARB updated the future 2020 BAU annual emissions forecast, in light of the economic downturn, to 545 MMT of CO₂e. Two GHG emissions reduction measures currently enacted that were not previously included in the 2008 Scoping Plan baseline inventory were included, further reducing the baseline inventory to 507 MMT of CO₂e. Thus, an estimated reduction of 80 MMT of CO₂e is necessary to reduce statewide emissions to meet the AB 32 target by 2020.

The proposed project would not conflict or otherwise interfere with the statewide GHG reduction measures identified in CARB's Scoping Plan. The project would comply with requirements of the Green Building Code. The proposed structures would be constructed in conformance with CALGreen and the Title 24 Building Code.

VIII. HAZARDS AND HAZARDOUS MATERIALS — Would the project:	<i>Potentially Significant Impact</i>	<i>Less than Significant with Mitigation Incorporated</i>	<i>Less than Significant Impact</i>	<i>No Impact</i>	<i>Source</i>
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	7
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1, 18
f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	1
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1
h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1,12

Environmental Setting

Hazardous Materials

Numerous industrial and commercial operations, both past and present, have manufactured, handled, stored and disposed of hazardous materials in South San Francisco. Hazardous materials sites include manufacturing operations, active and abandoned landfills, facilities with leaking underground storage tanks (USTs), permitted dischargers, and generators of hazardous waste (City of South San Francisco 1999).

Hazardous materials are regulated by a variety of state and local agencies. Operation and maintenance of the gasoline underground storage tanks is regulated by the California Water Resources Control Board Underground Storage Tank Program. Installation and maintenance of the proposed USTs will be subject to CCR Title 23, Chapter 16 (Underground Tank Regulations). These regulations establish construction requirements for new underground tanks; establish separate monitoring requirements for new and existing underground storage tanks; establish uniform requirement for unauthorized release report and for repair, upgrade, and closure of underground storage tanks; and specify variance request procedures. The gas station operation will result in the regular transportation of gasoline to the project site. These deliveries will occur on designated truck routes in compliance with the California Department of Motor Vehicle standards.

Aircraft Safety

The land surrounding the San Francisco International Airport (SFO) and under the landing and departure flight paths is almost entirely developed with urban uses. Portions of the City of South San Francisco are subject to frequent overflight from aircraft departures on Runway 28 and less frequent overflight from arrivals on Runway 10. Protection against such conditions is essential to airport/land use safety compatibility. The Airport Land Use Commission (C/CAG) recognizes and discourages approval of specific land uses that would pose a potential hazard to aircraft in flight. The Land Use and Sub Area elements of the General Plan include policies restricting building heights in the vicinity of SFO in accordance with Federal Aviation Regulations Part 77 height limits (City of South San Francisco 1999).

Emergency Services

The San Mateo County Office of Emergency Services and Homeland Security provide preparation, training and information for various emergency situations, including earthquakes, fire, flooding, landslides, oil spills, and pandemics. In 2011, the County updated the Countywide Emergency Operations Plan (EOP). The 2010 Local Hazard Mitigation Plan City of South San Francisco Annex is another planning document, authored by ABAG that identifies hazards and mitigation strategies within the City of South San Francisco.

Discussion of Impacts

- a-c) ***Less Than Significant with Mitigation Incorporated.*** The proposed project includes the relocation and future operation of the gas station. Therefore, the proposed project includes the dispensing of gasoline and other auto-related chemicals that, if handled improperly, may result in spills that could enter the creek.

The proposed project is located within ¼-mile of Alta Loma Middle School. Given the proximity and the intervening uses there is a very limited potential for the project to affect Alta Loma Middle School. The transport, use and storage of hazardous materials would be required to comply with all applicable state and federal regulations, such as requirements that spills would be cleaned up immediately and all wastes and spills control materials would be properly disposed of at approved disposal facilities. Compliance with CCR Title 23, Chapter 16 would also be required for maintenance and monitoring of the USTs for potential leaks. Mitigation Measure HYDRO-1 in Section IX (Hydrology and Water Quality) of this Initial Study requires the preparation of a Stormwater Pollution Prevention Program (SWPPP), which includes a list of Best Management Practices (BMPs) to be implemented on the site both during and after construction to minimize potential contamination of Colma Creek from accidental spills. With compliance of the SWPPP as well as all local, State, and Federal regulations regarding hazardous materials, impacts associated with the use or accidental spill of hazardous materials would be less than significant.

- d) **Less Than Significant Impact.** According to the California Department of Toxic Substances Control (2015) Envirostor database of hazardous materials release sites, the proposed project is not located on a site identified by the Cortese List (Government Code 65962.5). The closest cleanup site is a Voluntary Cleanup site approximately 2.0 miles south of the project site. According to the State Water Resources Control Board (SWRCB) GeoTracker database, the project site was designated a Leaking Underground Storage Tank (LUST) Cleanup Site in 1999 and this cleanup was completed in 2001. Therefore, this is a less than significant impact.
- e) **Less Than Significant Impact.** The City is located immediately north of SFO and within the San Mateo County Airport Land Use Commission's (ALUC) jurisdiction. According to the Comprehensive Airport Land Use Compatibility Plan for the Environs of SFO (C/CAG 2012), the project site is located within Airport Influence Area B. Within Area B, real estate disclosures are required and the ALUC must review proposed land use policy actions and land development proposals. ALUC polices limit the potential for glare and unscreened lights within the airport flightpath. Therefore, the proposed project would be required to comply with any applicable safety and compatibility policies of the Land Use Compatibility Plan and impacts would be less than significant.
- f) **No Impact.** There are no private airstrips in the City. Therefore, there would be no impact.
- g) **Less Than Significant Impact.** The proposed project is consistent with the policies identified in the relevant emergency management plans for the City. In 1995, the City prepared an Emergency Response Plan, integrated with the San Mateo Area/ County Multi-Hazard Functional Plan. The plan's policies provide guidance to ensure that egress and ingress are adequate for emergency vehicles. As the proposed project does not include work on any roadways, the project would not obstruct emergency access to the project site or surrounding area or interfere with evacuation routes. Therefore, impacts would be less than significant.

- h) **Less Than Significant Impact.** According to the Association of Bay Area Governments (ABAG) Wildland Urban Interface (WUI) Fire Threat map, the project site is located within an area subject to wildland fires. However, the proposed project would include paved parking areas, permanent buildings, and bioretention basins with irrigated landscapes. Storage and dispensing of automobile fuels would be regulated by local, state, and federal requirements. Therefore, the proposed project would not increase the potential for wildland fires, as it is in a highly developed area, and impacts would be less than significant.

IX. HYDROLOGY AND WATER QUALITY — Would the project:	<i>Potentially Significant Impact</i>	<i>Less than Significant with Mitigation Incorporated</i>	<i>Less than Significant Impact</i>	<i>No Impact</i>	<i>Source</i>
a) Violate any water quality standards or waste discharge requirements?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1, 2
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1
d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1
e) Create or contribute runoff water that would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1

IX. HYDROLOGY AND WATER QUALITY — Would the project:	<i>Potentially Significant Impact</i>	<i>Less than Significant with Mitigation Incorporated</i>	<i>Less than Significant Impact</i>	<i>No Impact</i>	<i>Source</i>
f) Otherwise substantially degrade water quality?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1, 6
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	2, 8
h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1, 8
i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1
j) Inundation of seiche, tsunami, or mudflow?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	2,19

Environmental Setting

Water quality is a particular area of concern in the City of South San Francisco because of the ease with which potentially contaminated water can reach San Francisco Bay and the effects of pollution on nearshore wildlife habitat. Point sources of pollution are regulated through the National Pollutant Discharge Elimination System (NPDES) permit process. Permits are required under NPDES for all publicly operated treatment plants, for industrial dischargers, and for surface-water runoff in urban areas. These permits specify the discharge limits for certain pollutants and ensure that local industries pretreat the pollutants they discharge into treatment plants. For the purposes of administering NPDES, the State Water Resources Control Board (SWRCB) has jurisdiction over nine Regional Water Quality Control Boards (RWQCBs) in California. South San Francisco falls under the authority of the San Francisco Bay RWQCB, which is responsible for implementing State policy through the preparation of basin plans for water quality control and the regulation of all activities affecting water quality.

The quality of groundwater and water flowing into Colma Creek and the Bay is most likely to be affected by nonpoint pollution sources in South San Francisco, because of the amount of impervious surface and the age of development. Development can potentially pose a threat to surface and groundwater quality through construction sediment, materials used on-site, and related increases in automobile use.

Surface Water Quality and Pollution

Since the City is largely developed, there is a high proportion of impermeable surface area. Stormwater and irrigation runoff is collected in the City's storm system and discharged to Colma Creek or San Francisco Bay. Colma Creek is particularly susceptible to water quality problems due to nonpoint sources of pollution. These sources include general pollutants picked up by runoff from streets, open areas, and urban lands. In most urban areas, nonpoint pollution includes sediment, oil, debris, hydrocarbons, volatile organic compounds, herbicides and pesticides, and fertilizers. Industrial areas may have a variety of other toxic and hazardous substances as well. Any pollution in Colma Creek affects the immediate habitat and is ultimately discharged into San Francisco Bay.

In order to control nonpoint source pollution, the City joined the San Mateo Countywide Stormwater Pollution Prevention Program (SMCSPPP) in 1991. SMCSPPP functions under a Joint Municipal Regional NPDES Permit for stormwater quality management, as authorized by the San Francisco Bay RWQCB. The program includes pollutant source identification, water quality measurement, and elimination of illicit discharges; structural and nonstructural controls for commercial, residential, and industrial areas; and controls for new development, construction sites, and other elements.

The program also calls for the preparation of a Stormwater Management Plan (SWMP) for each municipality. The City has selected a variety of best management practices (BMPs) for adoption into its plan. These practices include street sweeping, storm drain stenciling, spill cleanup, and annual catch basin maintenance. Since much of Colma Creek flows through private property, the City has also adopted a number of BMPs aimed at private land owners to control litter, gain compliance from industrial dischargers, reduce pollutants at commercial sites, minimize construction sediment, and clean and maintain privately owned watercourses.

Groundwater Quality and Pollution

Much of the alluvium that underlies the lowland areas of the City is capable of transmitting groundwater, especially in the southwestern portion of the City which is underlain by a portion of the San Mateo Groundwater Basin. With the exception of industrial areas or locations with underground storage tanks where high levels of nitrate and manganese have been detected, the quality of this water is considered good. However, contamination may be present in existing or former industrial areas of unconfined waste disposal, or in the areas of high groundwater levels.

Discussion of Impacts

- a,f) ***Less Than Significant with Mitigation Incorporated.*** Construction of the proposed project could generate stormwater runoff that could cause or contribute to a violation of water quality standards or waste discharge requirements. Operation of the proposed project would include a parking lot expansion and structures such as the relocated gas station that could introduce pollutants into stormwater runoff, which could potentially degrade downstream water quality and groundwater quality. They could also result in soil erosion and sedimentation and result in pollutants entering stormwater runoff during rain events (i.e., fuels, oil, solvents, paints, trash). The project also includes landscaping and bio-retention basins that would reduce runoff and assist with stormwater filtration during operation of the proposed project.

Implementation of Mitigation Measure HYDRO-1 would reduce these impacts to less-than-significant levels.

Mitigation Measure HYDRO-1: Stormwater Runoff

Construction activities would be required to comply with the NPDES general permit for construction activities, pursuant to which BMPs would be implemented to control stormwater during construction. In compliance with State Water Resources Control Board General Order 2009-009-DWQ, the project shall prepare a stormwater pollution prevention plan (SWPPP), which shall include a list of BMPs to be implemented on the site both during and after construction to minimize erosion and sedimentation to the creek. The applicant shall complete a SWPPP prior to the issuance of a grading permit.

The project would also be required to comply with relevant provisions of the Joint Municipal Regional NPDES Permit via the SMCSPPP, including implementation of measures to reduce the additional volume of stormwater contributed by the project, and provide for water quality treatment of the runoff contributed to the project. The applicant shall implement design measures for stormwater reduction and treatment in compliance with these local and State permits

- b) **Less Than Significant Impact.** The proposed project would not result in a substantial increase in impervious surfaces that would interfere with groundwater recharge. The proposed gas station relocation and tire center and cooler expansion would occur within the existing Costco warehouse development area and would not result in any increase in impervious surfaces. The parking expansion would expand over the existing creek. However, Colma Creek is currently a concrete-lined trapezoidal channel, and therefore, the placement of the box culvert would not result in an increase of impervious surfaces on the project site. Furthermore, the proposed project would not require the use of groundwater and would include landscaping and bio-retention areas throughout the project site that would allow for groundwater recharge. This impact would be less than significant.

- c,d,e) **Less Than Significant with Mitigation Incorporated.** Construction of the proposed project would include ground-disturbing activities that could potentially create erosion or siltation. The proposed project would be required to conform to SMCSPPP erosion control BMPs that would ensure significant erosion, siltation, and contamination impacts would not occur during short-term construction activities. Implementation of Mitigation Measure HYDRO-1 would ensure that erosion impacts are less than significant.

Operation of the proposed project would alter drainage patterns and runoff rates, resulting from the installation of the box culvert in Colma Creek, and an insubstantial increase in impervious surface. Alteration of drainage patterns is considered less than significant because drainage would be directed to storm drain inlets and would not affect neighboring properties or water features. A portion of the existing concrete-lined trapezoidal creek would be widened to a rectangular box culvert running under the proposed parking area. The total depth of this culvert would be eight feet which is greater than the existing seven-foot channel depth. The existing maximum flow rate of the creek is 1,320 cubic feet per second (cfs) and the

proposed culvert would result in a maximum flow rate of 2,302 cfs. The installation of the box culvert would increase the capacity of Colma Creek. This increase in capacity would not impact upstream properties and would lower the base flood elevation on the site, resulting in a lessened potential for on-site flooding. Implementation of Mitigation Measure HYDRO-1 would also ensure that impacts related to post-construction stormwater runoff are less than significant.

- g) **No Impact.** The proposed project would not directly or indirectly result in the construction of any housing. There would be no impact.
- h) **Less than Significant Impact.** The northern portion of the project site including Colma Creek and the surrounding area are located within “Floodway Areas in Zone AE” (100-year flood hazard) according to the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) panel for the project site.¹⁸ The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1 percent annual chance flood can be carried without substantial increase in flood heights. As the proposed project includes the installation of a box culvert within the channel that would increase the capacity of Colma Creek, this would result in a lower base flood elevation. Furthermore, the parking lot expansion and gas station would include drainage infrastructure that would ensure flood flows continue to drain towards the creek, rather than impede or redirect flood flows. Therefore, the proposed project would have a less than significant impact related to flooding.
- i,j) **Less than Significant Impact.** Earthquakes can cause tsunamis (tidal waves) and seiches (oscillating waves in enclosed water bodies) in the San Francisco Bay. Due to its proximity to the Pacific Ocean, the San Francisco Bay, and the hillsides within San Bruno Mountain State and County Park, portions of the City are subject to risk of inundation from tsunami, seiche, and mudflow. However, the proposed project is not located in a tsunami inundation zone and would not directly or indirectly result in the construction of any housing or other habitable structures and would not result in population growth. Therefore, the project would not increase exposure of persons to the risk of inundation from tsunami, seiche, or mudflow. Given the project location, there is not potential for tsunami, seiche, or mudflows, as it is on flat land located inland from a standing water body. There are no dams in the area that could potential impact the project. This impact would be less than significant.

¹⁸ Federal Emergency Management Agency. 2012. *FIRM Panel 37 of 150, Map Number 06081C0037E*. Available at: <https://msc.fema.gov/portal/advanceSearch#searchresultsanchor>

X. LAND USE AND PLANNING – Would the project:	<i>Potentially Significant Impact</i>	<i>Less than Significant with Mitigation Incorporated</i>	<i>Less than Significant Impact</i>	<i>No Impact</i>	<i>Source</i>
a) Physically divide an established community?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	1
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	2,11, 16
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	1,2

Environmental Setting

The project site is located in the City of South San Francisco, adjacent to the City of Colma, in San Mateo County. The project site is comprised of the existing Costco warehouse development, Colma Creek, a pedestrian path, and a small vacant area in the northwest portion of the site. This site is also located near the South San Francisco BART station and is a designated Transit Village. Surrounding land uses include mixed-use development, residential uses, the Treasure Island Mobile Home Park.

Regulatory Setting

Relevant Policies

City of South San Francisco General Plan

GUIDING POLICIES: EL CAMINO REAL

3.4-G-1 Develop El Camino Real as a boulevard that accommodates its role as a regional corridor but with streetscape and development that provide identity to the street.

3.4-G-2 Encourage development of a mix of uses, with pockets of concentrated activity that provide foci and identity to the different parts of El Camino Real.

3.4-G-3 Develop the South San Francisco BART station area as a vital pedestrian-oriented center, with intensity and mix of uses that complement that area’s new role as a regional center.

3.4-G-4 Develop more east-west crossings El Camino Real that connect the city's neighborhoods, and a continuous parallel street on the eastside to provide alternative travel routes.

NORTH EL CAMINO REAL POLICIES: BART STATION AREA

3.4-1-4 Permit big box or other regional commercial activities north of the pedestrian-oriented center, but not in the center.

3.4-1-8 Require any new development/redevelopment within ½-mile of the BART station at a density of no less than 30 units per net acre for residential uses, or a FAR of 1.5 for non-residential uses, or an appropriate combination of the two. Maintain higher densities where specified otherwise in the General Plan.

City of South San Francisco Climate Action Plan

For discretionary projects seeking to use CEQA streamlining provisions, the City may require measures in the Climate Action Plan (CAP) as mandatory conditions of approval or as mitigation identified in a Mitigated Negative Declaration or in an Environmental Impact Report, as appropriate, on a project-by-project basis. This approach allows the City to ensure that new development can benefit from CEQA streamlining provisions while also ensuring that the City can achieve the reduction targets outlined in this Plan.¹⁹

Measure 1.1: Expand active transportation alternatives by providing infrastructure and enhancing connectivity for bicycle and pedestrian access.

Measure 1.3: Integrate higher-density development and mixed-use development near transit facilities and community facilities, and reduce dependence on autos through smart parking practices.

Measure 2.2: Reduce emissions from off-road vehicles and equipment.

Measure 6.2: Provide alternative water resources for irrigation.

Comprehensive Airport Land Use Compatibility Plan for the Environs of San Francisco International Airport

IP-2 Airport Influence Area B – Policy/Project Referral Area : Within Area B, the Airport Land Use Commission (the C/CAG Board) shall exercise its statutory duties to review proposed land use policy actions, including new general plans, specific plans, zoning ordinances, plan amendments and rezonings, and land development proposals.

NP-1 Noise Compatibility Zones: For the purposes of this ALUCP, the projected 2020 CNEL noise contour map from the Draft Environmental Assessment for the Proposed Runway Safety Area Program shall define the boundaries within which noise compatibility policies shall apply (URS 2011).

¹⁹ See *City of South San Francisco Climate Action Plan, Chapter 6*.

Discussion of Impacts

a) **No Impact.** The proposed project is located within the existing Costco warehouse development site as well as a small undeveloped portion of land northeast of the existing parking lot and Colma Creek. The project would include upgrades to the existing pedestrian pathway along Colma Creek that would provide for better pedestrian connectivity to the housing along Mission Road and the Treasure Island Mobile Home Park. Therefore, the proposed project would not physically divide an established community and no impact would occur.

b) **Less Than Significant Impact.** A proposed project would have a significant impact if it were to conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect. The proposed project is subject to several local policies, plans, and regulations, as described above.

The proposed project is located within the Transit-Village – Commercial zoning district, which allows for a mixture of residential and commercial uses in the manner that promotes and enhances the use of multiple transportation modes and a safe and pleasant pedestrian environment. The proposed project would also comply with the CAP through the enhancement of the pedestrian facility located near a transit facility, BMPs for construction equipment, bioretention basins for irrigation, and the reduction in vehicle idling times at the gas station. The proposed project would not conflict with the City of South San Francisco General Plan other applicable plans or policies. Impacts would be less than significant.

c) **No Impact.** The project site is in an urban built-up state and is not located in an area subject to a Habitat Conservation Plan, nor is the project site subject to a Natural Community Conservation Plan. Therefore, no impact would occur.

XI. MINERAL RESOURCES — Would the project:	<i>Potentially Significant Impact</i>	<i>Less than Significant with Mitigation Incorporated</i>	<i>Less than Significant Impact</i>	<i>No Impact</i>	<i>Source</i>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	1,17
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	1,17

Discussion of Impacts

- a,b) **No Impact.** The project site is not in or adjacent to any important mineral resource areas. According to the Office of Mine Reclamation AB 3098 list, no mines are operating within the City of South San Francisco. The implementation of the proposed project would not preclude future excavation of oil or minerals should such extraction become viable. As such, there would be no loss of availability of known mineral resources and no impact to mineral resources.

XII. NOISE — Would the project result in:	<i>Potentially Significant Impact</i>	<i>Less than Significant with Mitigation Incorporated</i>	<i>Less than Significant Impact</i>	<i>No Impact</i>	<i>Source</i>
a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1,2,6
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1
f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	1

Environmental Setting

Existing Noise Environment

Sensitive receptors located near the project area are exposed to ambient noise levels from a variety of sources. Sensitive receptors for the project site include surrounding residences and schools including Alta Loma Middle School, El Camino High School, and Sunshine Gardens Elementary School. The ambient noise environment results primarily from traffic along El Camino Real (SR 82), aircraft operations associated with SFO, and noise-producing commercial and mixed-use land uses. City of South San Francisco General Plan Figures 9-1 and 9-2 show the Community Noise Equivalent Level (CNEL) Noise Contours for the City. A review of these data show that ambient noise levels in the vicinity of the project area are typically 60 to 65 dBA CNEL at locations near El Camino Real. Aircraft operations produce CNEL noise levels ranging from 60 to 70 dBA throughout the southernmost portion of the City.

Regulatory Setting

The City of South San Francisco establishes noise regulations in Chapter 8.32 of the Municipal Code.

8.32.030 Maximum permissible sound levels.

(a) It is unlawful for any person to operate or cause to be operated any source of sound at any location within the City or allow the creation of any noise on property owned, leased, occupied or otherwise controlled by such person, which causes the noise level when measured on any other property to exceed:

(1) The noise level standard for that land use as specified in Table 8.32.030 for a cumulative period of more than thirty minutes in any hour;

(2) The noise level standard plus five dB for a cumulative period of more than fifteen minutes in any hour;

(3) The noise level standard plus ten dB for a cumulative period of more than five minutes in any hour;

(4) The noise level standard plus fifteen dB for a cumulative period of more than one minute in any hour; or

(5) The noise level standard or the maximum measured ambient level, plus twenty dB for any period of time.

(b) If the measured ambient level for any area is higher than the standard set in Table 8.32.030, then the ambient shall be the base noise level standard for purposes of subsection (a)(1) of this section. In such cases, the noise levels for purposes of subsections (a)(2) through (a)(5) of this section shall be increased in five dB increments above the ambient.

(c) If the measurement location is on a boundary between two different zones, the noise level standard shall be that applicable to the lower noise zone plus five dB.

(d) Notwithstanding any other provisions of this chapter, no person shall willfully make or continue, or cause to be made or continued, any loud, unnecessary or unusual noise which disturbs the peace or quiet of any neighborhood.

Table 7. Noise Level Standards

Land Use Category	Time Period	Noise Level (dB)
R-E, R-1 and R-2 zones or any single-family or duplex residential in a specific plan district	10 p.m.—7 a.m. 7 a.m.—10 p.m.	50 60
R-3 and D-C zones or any multiple-family residential or mixed residential/commercial in any specific plan district	10 p.m.—7 a.m. 7 a.m.—10 p.m.	55 60
C-1, P-C, Gateway and Oyster Point Marina specific plan districts or any commercial use in any specific plan district	10 p.m.—7 a.m. 7 a.m.—10 p.m.	60 65
M-1, P-1	Anytime	70

*Source: Adapted from “The Model Community Noise Control Ordinance,” Office of Noise Control, California Department of Health.

Discussion of Impacts

- a,d) **Less Than Significant with Mitigation Incorporated.** The proposed project would include construction activities that would generate temporary noise from equipment use and ground disturbance. The most common noise generated would be from mobile diesel equipment such as excavators, dozers, trucks, front end loaders and compactors. All construction activities would take place per the City’s Municipal Code Section 8.32.050 (d) which permits construction, alteration, repair or landscape maintenance activities which are authorized by a valid city permit between the hours of 8:00 a.m. and 8:00 p.m. Monday through Friday, on Saturdays between the hours of nine a.m. and eight p.m., and on Sundays and holidays between the hours of ten a.m. and six p.m., or at such other hours as may be authorized by the permit. Due to the project site’s proximity to existing residences, the following measures in Mitigation Measure NOISE-1, would reduce all construction noise related impacts to less-than-significant levels.

Mitigation Measure NOISE-1: Construction Activities

Prior to and during construction activities, the Applicant shall comply with the following regulations:

1. All construction activities shall take place per the City’s Municipal Code Section 8.32.050 (d) which permits construction, alteration, repair or landscape maintenance activities which are authorized by a valid city permit between the hours of 8:00 a.m. and 8:00 p.m. Monday through Friday, on

Saturdays between the hours of nine a.m. and eight p.m., and on Sundays and holidays between the hours of ten a.m. and six p.m., or at such other hours as may be authorized by the permit. Construction hours shall be clearly posted on a sign at the entrance to the construction site.

2. Businesses, residences, and noise-sensitive land uses adjacent to the construction site shall be notified of the construction schedule in writing. The City's construction manager shall be responsible for responding to any noise complaints. The construction manager's telephone number shall be posted at the construction site.
3. All equipment used on-site shall be muffled and maintained. All internal combustion engine-driven equipment shall be fitted with mufflers that are in good condition. Good mufflers shall result in non-impact tools generating a maximum noise level of 80 dB when measured at a distance of 50 feet.
4. Unnecessary idling of internal combustion engines shall be prohibited and all equipment shall be turned off when not in use.
5. Construction workers' radios audible on adjoining properties shall be prohibited.
6. All stationary noise-generating construction equipment such as air compressors shall be located as far as practicable from existing nearby residences and other noise sensitive land uses. Such equipment shall be acoustically shielded.
7. Quiet construction equipment, particularly air compressors, shall be selected whenever possible. (Motorized equipment shall be fitted with proper mufflers in good working order and appropriate for the equipment.)
8. Heavy equipment, such as paving and grading equipment, shall be stored on-site whenever possible to minimize the need for extra heavy truck trips on local streets.
9. The contractor shall minimize the use of vehicle backup alarms. A common approach to minimizing the use of backup alarms is to design the construction site with a circular flow pattern that minimizes backing up of trucks and other heavy equipment. Another approach to reducing the intrusion of backup alarms is to require all equipment on site to be equipped with ambient sensitive alarms. With this type of alarm, the alarm sound is automatically adjusted based on the ambient noise.

- b) **Less Than Significant Impact.** A significant impact would occur if the proposed project were to generate or expose people to excessive groundborne vibration or groundborne noise levels. While the proposed project would not include pile driving, the proposed project would include ground disturbing activities during the construction phase to install a box culvert in Colma Creek, the expansion of the parking lot, placement of underground storage tanks for the relocation of the gas station, and demolition of the existing gas station with replacement parking. These

activities have the potential to produce low levels of groundborne vibration for surrounding residences. Construction activities that would produce groundborne vibration would take place per the City's Municipal Code Section 8.32.050 (d) which permits construction, alteration, repair or landscape maintenance activities which are authorized by a valid city permit between the hours of 8:00 a.m. and 8:00 p.m. Monday through Friday, on Saturdays between the hours of nine a.m. and eight p.m., and on Sundays and holidays between the hours of ten a.m. and six p.m., or at such other hours as may be authorized by the permit. Therefore, these activities would not occur during recognized sleep hours for nearby residences. Construction activities are also only anticipated to occur for five months, and these activities would not be required for the entire duration of construction. Therefore, the proposed project would not expose people to excessive groundborne vibration and impacts would be less than significant.

- c) **Less Than Significant Impact.** The ambient noise environment in the project area is elevated due to traffic along El Camino Real, BART, aircraft operations associated with SFO, and noise-producing commercial land uses in and around the project site. Operations of the relocated gas station, expanded tire center, and new cooler would not be expected to result in a substantial noise increase above the existing ambient noise environment. These uses are either already taking place, or are merely a minor expansion of an existing use. As the proposed project maintains uses that are similar to the existing conditions, the project would have a less than significant impact on permanent increases to ambient noise levels.

- e) **Less Than Significant Impact.** The project would not expose people residing or working in the project area to excessive noise levels due to aircraft. The project site is not within an aircraft insulation area and is outside the 65 dB contour according to the ALUCP for San Francisco International Airport (SFO). The proposed project would not expose people working within the project site to excessive noise. Therefore, impacts would be less than significant.

- f) **No Impact.** The proposed project site is not within the vicinity of private airstrip. Therefore, no impact would occur.

XIII. POPULATION AND HOUSING — Would the project:	<i>Potentially Significant Impact</i>	<i>Less than Significant with Mitigation Incorporated</i>	<i>Less than Significant Impact</i>	<i>No Impact</i>	Source
a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	1
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	1
c) Displace substantial numbers of people necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	1

Environmental Setting

The U.S. Census Bureau collects and estimates demographic data for the entire United States. The most recent census, completed in 2010, reported a total population of 63,632 people living in the City of South San Francisco. This population was spread over approximately 20,938 households, which constituted a 96 percent occupancy rate (DOF 2010).

Discussion of Impacts

a,b,c) **No Impact.** The proposed project does not include plans for the development of housing or other habitable structures, nor does it propose extensions of other infrastructure that would support such structures. The proposed project would not result in substantial population growth, nor would the project displace existing housing or people.

XIV. PUBLIC SERVICES — Would the project:	<i>Potentially Significant Impact</i>	<i>Less than Significant with Mitigation Incorporated</i>	<i>Less than Significant Impact</i>	<i>No Impact</i>	<i>Source</i>
a) Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:					
Fire protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	1
Police protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	1
Schools?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	1
Parks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	1
Other public facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	1

Environmental Setting

The City of South San Francisco Fire Department provides full response, preparedness, and prevention services. The Department also provides fire suppression, fire prevention and education, and hazardous material control. The City is served by five fire stations. Law enforcement services in South San Francisco are provided by the City of South San Francisco Police Department, which maintains a 24-hour security patrol throughout the community. Police services also include the South San Francisco Police Department Special Weapons and Tactics (S.W.A.T.) Team and a K9 Unit. The South San Francisco Unified School District (SSFUSD) provides K-12 educational services to the community. The SSFUSD operates 10 elementary schools, three middle schools and three high schools. Of these, all but three elementary schools are located within the City. Other public facilities include the South San Francisco Public Library, which has two branches, the Main Library and the Grand Avenue Branch.

Discussion of Impact

- a) **No Impact.** Given the proposed project would not result in population growth for the City, the project would not increase demand for public services or require construction of new governmental facilities. The proposed project would merely move an existing use (gas station) or be a minor expansion of an existing use (Costco warehouse). Therefore, impacts would be less than significant as the proposed project would not create a need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts.

XV. RECREATION — Would the project:	<i>Potentially Significant Impact</i>	<i>Less than Significant with Mitigation Incorporated</i>	<i>Less than Significant Impact</i>	<i>No Impact</i>	<i>Source</i>
a) 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	1,2
b) Include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	1,2

Environmental Setting

There are approximately 320 acres of parks and open space in the City of South San Francisco, including community, neighborhood, mini and linear parks, open space, and school land. Community and recreation centers provide space for many of the classes and services that are central to South San Francisco’s recreation programs. The City has six community/recreation buildings, some of which are used for specialized service such as senior programs at the Magnolia Center, public meetings at the Municipal Services Building, and Boy and Girls Club programs at the Paradise Valley Recreation Center. The City also has an indoor public pool at Orange Park. Outdoor pools at South San Francisco High School and El Camino High School supplement Orange Pool during the summer. A new public gymnasium was constructed in 1998 as part of the Terrabay Project (City of South San Francisco 1999). No parks or recreational facilities are located in the project site.

Discussion of Impacts

a,b) **No Impact.** The proposed project would include the construction and then operation of a relocated gas station, expansion of the northern and southern parking lots, an expansion of the existing tire center; and the addition of an exterior cooler. The project would not create any residential housing nor would it create new employment opportunities, given the minor nature of the expansions. Given the proposed project would not permanently increase the existing residential or employment population in the City, the project would not affect recreational facilities or increase the use of nearby recreational facilities. The purpose of the project does not include recreational facilities or require the construction or expansion of recreational facilities. No impacts would occur.

XVI. TRANSPORTATION/TRAFFIC — Would the project:	<i>Potentially Significant Impact</i>	<i>Less than Significant with Mitigation Incorporated</i>	<i>Less than Significant Impact</i>	<i>No Impact</i>	<i>Source</i>

XVI. TRANSPORTATION/TRAFFIC Would the project:	<i>Potentially Significant Impact</i>	<i>Less than Significant with Mitigation Incorporated</i>	<i>Less than Significant Impact</i>	<i>No Impact</i>	<i>Source</i>
a) Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1,2,6,22
b) Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1,21,22
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	1
d) Substantially increase hazards to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1,22
e) Result in inadequate emergency access?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1,22
f) Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	1,2

Environmental Setting

The proposed project is located along El Camino Real Boulevard near the Hickey Boulevard intersection. El Camino Real is a four-lane divided north-south arterial road that runs parallel to the U.S 101 Freeway. The roadway mostly serves commercial uses including the project site.

A traffic memorandum for the proposed project was prepared by Kittelson & Associates, Inc. on August 18, 2016 (Appendix D). The memorandum provides the results of a traffic operations analysis performed to assess the performance of the circulation system for the peak hours

occurring during the weekday (4:00 p.m.– 7:00 p.m.) and Saturday midday (11:00 a.m. – 3:00 p.m.) for both Existing (2016) Conditions and Existing (2016) plus Project Conditions. The intersections of El Camino Real & Hickey, El Camino Real & Costco North Driveway, and El Camino Real & Costco South Driveway were selected for analysis based on anticipated volumes and distributional patterns.

“Level of Service” (LOS) describes the operating conditions experienced by users of a facility. LOS is a qualitative measure of the effect of a number of factors, including speed and travel time, traffic interruptions, freedom to maneuver, driving comfort and convenience. LOSs are designated “A” through “F” from best to worst, which covers the entire range of traffic operations that might occur. LOS “A” through “E” generally represents traffic volumes at less than roadway capacity, while LOS “F” represents over capacity and/or forced flow conditions. Under the City’s General Plan, LOS D or better is considered acceptable; LOS E or LOS F may be acceptable under some circumstances (see Table 8, Level of Service Definitions, below).

Table 8. Level of Service Definitions

Signalized Intersection			Unsignalized Intersection
Average Delay Per Vehicle (Seconds)	LOS	Description of Traffic Conditions	Average Delay Per Vehicle (Seconds)
≤10.0	A	Free flowing. Most vehicles do not have to stop.	≤10.0
>10.0 and ≤20.0	B	Minimal delays. Some vehicles have to stop, although waits are not bothersome.	>10.0 and ≤15.0
>20.0 and ≤35.0	C	Acceptable delays. Significant numbers of vehicles have to stop because of steady, high traffic volumes. Still, many pass without stopping.	>15.0 and ≤25.0
>35.0 and ≤55.0	D	Tolerable delays. Many vehicles have to stop. Drivers are aware of heavier traffic. Cars may have to wait through more than one red light. Queues begin to form, often on more than one approach.	>25.0 and ≤35.0
>55.0 and ≤80.0	E	Significant delays. Cars may have to wait through more than one red light. Long queues form, sometimes on several approaches.	>35.0 and ≤50.0
>80.0	F	Excessive delays. Intersection is jammed. Many cars have to wait through more than one red light, or more than 60 seconds. Traffic may back up into “upstream” intersections.	>50.0

Source: Transportation Research Board, *Highway Capacity Manual*, Washington, D.C., 2000.

The existing operations of the study intersections were assessed for the weekday PM Peak hour (peak hour of the afternoon commute period) and Saturday midday peak hour (the peak

hour of the midday commute period). As shown in Table 9 below, all study intersections operate acceptably at LOS D or better under the existing conditions.

Table 9. Existing Intersection Level of Service

#	North/South Street	East/West Street	Control	Weekday PM Peak Hour		Saturday Midday Peak Hour	
				Delay(s)	LOS	Delay(s)	LOS
1	El Camino Real	Hickey Boulevard	Signalized	39.9	D	29.4	C
2	El Camino Real	Costco North Driveway	Two-Way Stop*	11.0	B	10.6	B
3	El Camino Real	Costco South Driveway	Signalized	30.5	C	33.2	C

Notes: Signalized and Unsignalized intersections are analyzed using HCM 2000 methodologies
** Two-way Stop Controlled Intersection – delay reported is for the worst approach.*

Source: Kittleson & Associates, Inc. 2016

The results of the intersection LOS analysis under the Existing plus Project Conditions are summarized in Table 10 below. The results indicate that all study intersections would operate at LOS D or better during both weekday PM peak hour and Saturday midday peak hour, in compliance with the City's significant impact criteria.

Table 10. Existing plus Project Conditions Intersection Level of Service

#	North/South Street	East/West Street	Control	Weekday PM Peak Hour		Saturday Midday Peak Hour	
				Delay(s)	LOS	Delay(s)	LOS
1	El Camino Real	Hickey Boulevard	Signalized	41.5	D	29.9	C
2	El Camino Real	Costco North Driveway	Two-Way Stop*	11.2	B	10.6	B
3	El Camino Real	Costco South Driveway	Signalized	32.4	C	36.9	D

Notes: Signalized and Unsignalized intersections are analyzed using HCM 2000 methodologies
** Two-way Stop Controlled Intersection – delay reported is for the worst approach.*

Source: Kittleson & Associates, Inc. 2016

Regulatory Setting

Federal and State

There are no federal or state regulations related to traffic that are applicable to the proposed project.

Local

City of South San Francisco General Plan

South San Francisco uses LOS D as the standard according to Chapter 4 of the General Plan. LOS E or F are accepted after finding that there is no practical and feasible way to mitigate the lower level of service; and the uses resulting in the lower level of service are clear, overall public benefit.

San Mateo County Congestion Management Plan

The Congestion Management Program (CMP) is administered by the San Mateo City/County Association of Governments (C/CAG) of San Mateo County. The following Level of Service (LOS) standards were selected for the roadway segments. On SR 82 (El Camino Real), the standard was set to be LOS E. The LOS Standards established for San Mateo County vary by roadway segment. By adopting LOS standards based on geographic differences, the C/CAG signaled that it intends to use the CMP process to prevent future congestion levels in San Mateo County from getting worse than currently anticipated. At the same time, the variations in LOS standards by geographic area conform to current land use plans and development differences between the Coastside and Bayside, between older downtowns near CalTrain stations and other areas of San Mateo County.

Discussion of Impacts

- a,b) ***Less Than Significant Impact.*** The expansion of the gas station would result in an increase of 62 new trips at the site during the weekday PM peak hour and 66 new trips during the Saturday midday peak hour, with half of the new trips inbound and half outbound. Relocation of the gas station and expansion of the parking lot would result in a minor shift in inbound traffic volumes from the signalized southern access toward the unsignalized right-in, right-out driveway. The southbound left-turn pocket at the intersection of El Camino Real and Costco South Driveway is adequate to serve the left-turning vehicles during existing conditions, and would remain adequate after implementation of the proposed project. The maximum observed northbound left-turn queues at the El Camino Real and Hickey Boulevard intersection occasionally block the northern Costco right-in, right-out access while remaining within the left-turn bay. Delays during blockages are low as motorists accept courtesy gaps or wait for the queue area to clear on green. The relocation of the gas station would have a negligible impact on the outbound trips or queue lengths and all study intersections would continue to operate at LOS D or better during peak hours due to the negligible increase in trip generation. The project would merely reroute internal circulation of the project site. The egress and ingress to the project site would remain the same. Queuing would not alter LOS services levels at any intersection, as shown in Tables 8 and 9. Therefore, the proposed project is

compliant with the City's General Plan and CMP LOS standards. No operational deficiencies were identified at the site accesses or the nearby intersection of El Camino Real and Hickey Boulevard in the existing conditions or with-project scenarios, during either peak period. Furthermore, the net increase in on-site parking reduces on-site circulation and maneuvering during peak periods. Therefore, given the proposed project would not trigger a new impact and would not significantly degrade intersection operations as compared to the City's significant impact criteria, no mitigation is required and impacts would be less than significant.

- c) **No Impact.** While the project site is located near SFO, the proposed project would not conflict with height limits established in the General Plan Land Use Element. The proposed building heights of the tire center and dairy cooler would match the existing height of the warehouse with a maximum height of 30 feet 8 inches and the gas station would have a maximum height of 17 feet. The project is located greater than 20,000 feet from the nearest runway at SFO and therefore, the project is not subject to FAA Part 77 notification requirements. Furthermore, the proposed project would not result in substantial population growth that could significantly increase air traffic. No impact would result.
- d) **Less Than Significant Impact.** The proposed project does not include any alterations to the existing entrances and exits to the project site. The project site would continue to be accessed by Costco Driveway North the Costco Driveway South via El Camino Real. The relocation of the gas station and expansion of the parking lot will increase the queue storage area from approximately 105 feet to 130 feet and would provide a dedicated tank delivery area for fuel trucks that would not impede operations. Therefore, the proposed project reduces potential hazards from queueing on El Camino Real. Circulation for the gas station would utilize a single-direction full-length bypass lane with an additional seven feet of maneuvering space between the center and rear dispensers. No direct routes are provided within the parking lot from the traffic signal directly to the fuel center that pass the main entrance. This is intended to reduce speeds near the entrance and encourage use of the periphery roadway to reduce hazards. The proposed project does not include any hazardous design features and would not support incompatible uses. Therefore, the proposed project would have a less than significant impact related to transportation design and usage.
- e) **Less Than Significant Impact.** The project does not involve any road construction that would obstruct or restrict emergency access. Emergency access to and from the site would be provided by El Camino Real, and as discussed, the proposed project would not include construction or alterations to this road and would not increase traffic along El Camino Real to an unacceptable level. The proposed project would also comply with all applicable fire code and ordinance requirements for construction and access to the affected site. The expansion of the parking lot and additional maneuvering space provided at the gas station would further provide for emergency access to the site. Therefore, the proposed project would have a less than significant impact on emergency access.
- f) **No Impact.** The proposed project does not include bus stations, bike racks or any other alternative transportation and does not have a direct effect on any local or regional policies involving support of alternative transportation. As the proposed

project does not include any alterations to existing roadways or alternative transportation facilities, no negative impacts on alternative transportation policies would occur. Furthermore, the existing pedestrian trail would be relocated at the edge of the parking lot expansion and upgraded with landscaping and lighting.

XVII. UTILITIES AND SERVICE SYSTEMS — Would the project:	<i>Potentially Significant Impact</i>	<i>Less than Significant with Mitigation Incorporated</i>	<i>Less than Significant Impact</i>	<i>No Impact</i>	<i>Source</i>
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1,9
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1,2
c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1,2
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1,2
e) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1,2
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1,14
g) Comply with federal, state, and local statutes and regulations related to solid waste?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1

Environmental Setting

Water

South San Francisco has two water suppliers. The California Water Service Company Bayshore District (CWSC) serves that portion of the City east of Interstate 280. The CWSC also serves San Carlos and San Mateo, with no restrictions on water allocation among these communities. The Company's current contract with the San Francisco Public Utilities Commissions (SFPUC) entitles the City to 42.3 million gallons per day (MGD). An additional 1.4 MGD can be pumped from groundwater. The South San Francisco system includes 144 miles of pipeline, 12 storage tanks, one collecting tank, and 21 booster pumps.²⁰ The Westborough Water District serves the area of the City located west of Interstate 280.

Wastewater

The South San Francisco Waste Quality Control Plant is located adjacent to San Francisco Bay on Colma Creek. This facility provides secondary wastewater treatment for the cities of South San Francisco, San Bruno, and Colma. It also provides the dechlorination treatment of chlorinated effluent for the cities of Burlingame, Millbrae, and SFO prior to discharging the treated wastewater into San Francisco Bay. The average dry weather flow through the facility is 9 MGD. Peak wet weather flows can exceed 60 MGD. The Water Quality Control Plant underwent a \$47 million facility upgrade in 2000. Another \$45 million was spent in 2004 for additional improvements to the facility including construction of a 7-million-gallon effluent storage pond and reconstruction of two large pump stations (City of South San Francisco 2012).

Solid Waste Collection and Recycling

Solid waste is collected from South San Francisco homes and businesses and then processed at the Scavenger Company's materials recovery facility and transfer station (MRF/TS). Materials that cannot be recycled or composted are transferred to the Ox Mountain Sanitary Landfill, near Half Moon Bay. Ox Mountain is a Class III Municipal Solid Waste Landfill, which accepts all types of solid waste and is prohibited from accepting hazardous waste. The landfill is located at 12310 San Mateo Road (Highway 92) in Half Moon Bay. According to Solid Waste Facility Permit SWIS No. 41-AA-0002, the landfill has a designed capacity of 49 million cubic yards and an estimated closure year of 2023.²¹ Furthermore, on August 24, 2016 a Modified Permit Application was accepted by the County of San Mateo Solid Waste Local Enforcement Agency (LEA) to update the designed capacity to 69 million cubic yards to provide a more accurate design capacity for the landfill.²²

²⁰ *California Water Service District Information*. 2016. Available at: <https://www.calwater.com/about/district-information/bay/>.

²¹ *California Integrated Waste Management Board (CIWMB), Solid Waste Facility Permit, SWIS No. 41-AA-0002, Issued June 26, 2001.*

²² *San Mateo County Environmental Health Services Division, Local Enforcement Agency. Notice of Acceptance Modified Permit Application. Ox Mountain Sanitary Landfill SWIS # 41-AA-0002. August 24, 2016. Website: http://www.smchealth.org/sites/main/files/file-attachments/20162608_filing_ox_modified_permit_notification_.pdf*

Discussion of Impacts

- a) **Less Than Significant Impact.** As discussed in Section IX (Hydrology and Water Quality), the City's stormwater quality is regulated by an NPDES permit by the RWQCB. Wastewater from the project site would be treated in onsite bioretention facilities in accordance with the requirements stipulated in this permit and requirements enforced by the City through Title 14 of the Municipal Code. Therefore, impacts related to wastewater treatment requirements would be less than significant.
- b,e) **Less Than Significant Impact.** As discussed previously, the City's wastewater is treated at the South San Francisco Water Quality Control Plant. Wastewater capacity for the plant is based upon the growth projections identified in the City's General Plan. The proposed project is consistent with the General Plan and does not require any variances for density regulations. Therefore, the wastewater generated by the proposed project is consistent with General Plan projections and associated wastewater capacity. Therefore, the WQCP has the capacity to serve the project site and , impacts would be less than significant.
- c) **Less Than Significant Impact.** As mentioned in Section IX (Hydrology and Water Quality) the proposed project would alter drainage patterns and runoff rates, however, the bioretention basins included as part of the proposed project would prevent flooding. The proposed storm drainage system for the project is designed to accommodate flows from the proposed commercial development and takes into account the high ratio of impervious surfaces in the area. Therefore, impacts to stormwater drainage facilities would be less than significant.
- d) **Less Than Significant Impact.** The CWSC provides water service to the project site. The project site is located within the Bayshore District of the CWSC. According to the 2015 UWMP, adopted in June 2016, the CWSC relies on the San Francisco Public Utilities Commission (SFPUC) as their water source for the area. The SFPUC is able to support its demand in non-drought years and the adopted Water Supply Improvement Plan (WISP) has identified strategies for meeting dry-year demands as well. As the proposed project is consistent with the General Plan designation for the project site, the proposed project would be included in the growth projections and buildout assumptions that also informed the UWMP's water supply assessments. The proposed project would require a minimal increase in water supplies and as the CWSC has adequate supplies to support projected development within its jurisdiction, there are adequate supplies to support the proposed project.²³ Therefore, impacts related to water supply would be less than significant.
- f,g) **Less Than Significant Impact.** Generated waste from the proposed project would be collected by the South San Francisco Scavenger Company and processed at the Scavenger Company's materials recovery facility and transfer facility (MRF/TS). Any materials that cannot be recycled would be taken to Ox Mountain Landfill. Any materials used during construction would be properly disposed of in accordance with federal, state, and local regulations. The California Integrated Waste Management

²³ CWSC. 2015 Urban Water Management Plan South San Francisco District. June 2016. Website: [https://www.calwater.com/docs/uwmp2015/bay/South_San_Francisco/2015_Urban_Water_Management_Plan_Final_\(SSF\).pdf](https://www.calwater.com/docs/uwmp2015/bay/South_San_Francisco/2015_Urban_Water_Management_Plan_Final_(SSF).pdf)

Board Solid Waste Information System (SWIS) indicates solid waste from the City of South San Francisco is landfilled at the Ox Mountain Sanitary Landfill, located near Half Moon Bay. Impacts in this regard would be less than significant.

XVIII. MANDATORY FINDINGS OF SIGNIFICANCE	<i>Potentially Significant Impact</i>	<i>Less than Significant with Mitigation Incorporated</i>	<i>Less than Significant Impact</i>	<i>No Impact</i>	<i>Source</i>
a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1,2,5
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)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1
c) Does the project have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1,2,5, 9,13,

Discussion

a) ***Less Than Significant Impact with Mitigation Incorporated.*** The project site is comprised predominantly of developed and disturbed areas and does not provide habitat connections to or from open space. Current conditions in the study area do not contain suitable habitat for special-statuses of plant or wildlife species known to occur in the vicinity. Based on the highly disturbed and developed conditions of the site, the site does not have the potential to support special status plant or wildlife species either. However, the occurrence of shrubs and trees on the project site provides sufficient habitat to support nesting birds protected by the MBTA. As a disturbance of these birds would create a significant impact, necessary mitigation measures would be implemented to lessen the impact to a less-than-significant level. Colma Creek would be considered a sensitive natural community by CDFW due to its hydrological connectivity and open channel form. There are no wetlands present

on the project site, however, approximately 0.16 acre (615 linear feet) of non-wetland waters were observed within the project site. The project has the potential to impact up to 0.11 acres (415 linear feet) of Colma Creek. Colma Creek may also be considered CDFW jurisdiction under Sections 1600-1616 of the CFGC. Impacts to Colma Creek associated with the Project may require a Section 404 Corps permit, RWQCB Section 401 Water Quality Certification, and a Section 1602 Streambed Alteration Agreement from CDFW. However, implementation of Mitigation Measures BIO-1, BIO-2, and BIO-3 would reduce these impacts to less-than-significant levels.

The project site does not contain any resource listed in, or determined to be eligible by, the National Register of Historic Places or identified in the General Plan and does not contain a resource included in a local register of historic resources or identified as significant in a historical or archaeological resource survey. The project site is a highly developed modern commercial property. It does not include any resource that would be identified examples of the major periods of California history or prehistory. As such, the project would result in a less than significant impact.

- b) ***Less Than Significant Impact.*** Cumulatively considerable means that the incremental effects of an individual project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects. The analysis within this Initial Study demonstrates that the project would not have any individually limited, but cumulatively considerable impacts. Due to the limited scope of direct physical impacts to the environment associated with construction, the project's impacts are project-specific in nature. Consequently, the project will create a less than significant cumulative impact with respect to all environmental issues.
- c) ***Less Than Significant Impact with Mitigation Incorporated.*** As presented in the analysis in Sections III (Air Quality), IV (Biological Resources), V (Cultural Resources), VIII (Hazards & Hazardous Materials), IX (Hydrology & Water Quality), and XII (Noise), any potentially significant impacts would be less than significant after mitigation.

CHECKLIST INFORMATION SOURCES

1. Professional judgment and expertise of the environmental/technical specialists evaluating the project, based on a review of existing conditions and project details, including standard construction measures
2. City of South San Francisco General Plan, 1999, as amended
3. California Department of Transportation, 2012 Scenic Highway Mapping System
4. California Department of Conservation, 2014 Important Farmland Map and 2012 Williamson Act Map
5. WRA. Inc. Biological Resource Assessment (BRA), 2016.
6. City of South San Francisco Municipal Code
7. Department of Toxic Substances Control, 2016, and State Water Resources Control Board, 2016
8. Federal Emergency Management Agency, 2011
9. San Francisco Regional Water Quality Control Board
10. California Department of Conservation, 2015 and ABAG Hazards Mapping, 2014
11. Comprehensive Airport Land Use Compatibility Plan for the Environs of San Francisco International Airport, 2012
12. Association of Bay Area Governments (ABAG) Wildland Urban Interface (WUI) Fire Threat map, 2003
13. Bay Area Air Quality Management District, 2010
14. California Department of Resources, Recycling and Recovery, 2015
15. California Building Code, California Code of Regulations [CCR], 2013
16. City of South San Francisco Climate Action Plan (CAP), 2014
17. California Department of Conservation, Office of Mine Reclamation, 2014
18. City/County Association of Governments, San Mateo County, 2012
19. Association of Bay Area Governments (ABAG) Tsunami Inundation Area for Emergency Planning
20. Archaeological Resources Technical Report, Bart-San Francisco Airport Extension Project 1995
21. City/County Association of Governments of San Mateo County, Congestion Management Plan, 2015.
22. Kittelson & Associates, Inc. Traffic Impact Analysis Memorandum, August 2016.

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APPENDIX A

**SITE PLANS
MG2, NOVEMBER 2016**

PROJECT DATA

CLIENT: COSTCO WHOLESALE
999 LAKE DRIVE
ISSAQUAH, WA 98027

PROJECT ADDRESS: 1600 EL CAMINO REAL
S. SAN FRANCISCO, CA. 94080

PARKING DATA:

TOTAL EXISTING PARKING: 829 STALLS

INCLUDES:

MAIN LEVEL PARKING PROVIDED:
 ○ 10' WIDE STALLS 474 STALLS
 ○ 9' WIDE STALLS 337 STALLS
 ○ ACCESSIBLE STALLS (1 PER 100) 18 STALLS

NO. OF EXISTING STALLS PER 1000 SF OF BUILDING AREA: 5.60 STALLS

PARKING NEEDED TO MAINTAIN 5.0 / 1000 S.F.: 733 STALLS

TOTAL PROPOSED PARKING: 880 STALLS

INCLUDES:

MAIN LEVEL PARKING PROPOSED:
 ○ 10' WIDE STALLS 449 STALLS
 ○ 9' WIDE STALLS 413 STALLS
 ○ ACCESSIBLE STALLS (1 PER 100) 18 STALLS

NO. OF STALLS PER 1000 SF OF BUILDING AREA: 5.74 STALLS

SITE DATA:

TOTAL SITE AREA: 15.12 ACRES (658,797 S.F.)
 JURISDICTION: SOUTH SAN FRANCISCO

SETBACKS: **REQUIRED** **ACTUAL**
 FRONT: 20'-0" FRONT: TBD
 SIDE: TBD SIDE: TBD
 REAR: TBD REAR: TBD

BOUNDARIES

INFORMATION: THIS PLAN HAS BEEN PREPARED BY USING
KIER & WRIGHT
CIVIL ENGINEERS
DRAWINGS DATED: 5-29-97

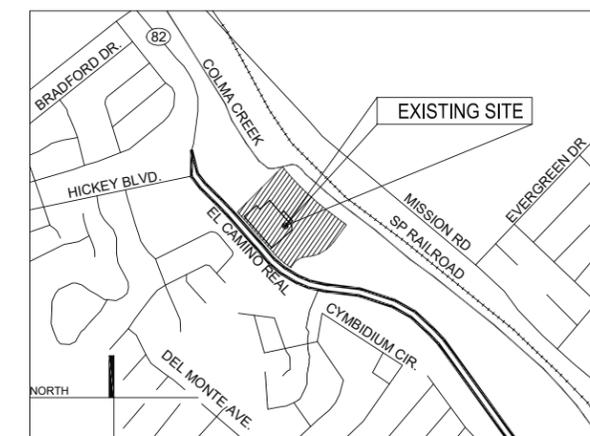
BUILDING DATA:

TOTAL BUILDING AREA: 148,032 S.F.
 INCLUDES:
 EXISTING WAREHOUSE MAIN LEVEL 140,927 S.F.
 EXISTING TIRE CENTER 5,718 S.F.
 EXISTING FOOD SERVICE 1,387 S.F.

TOTAL BUILDING ADDITION AREA: 5,168 S.F.
 INCLUDES:
 TIRE CENTER ADDITION 2,228 S.F.
 EXTERIOR PRODUCE COOLER ADDITION 2,940 S.F.

NEW TOTAL BUILDING AREA: 153,200 S.F.

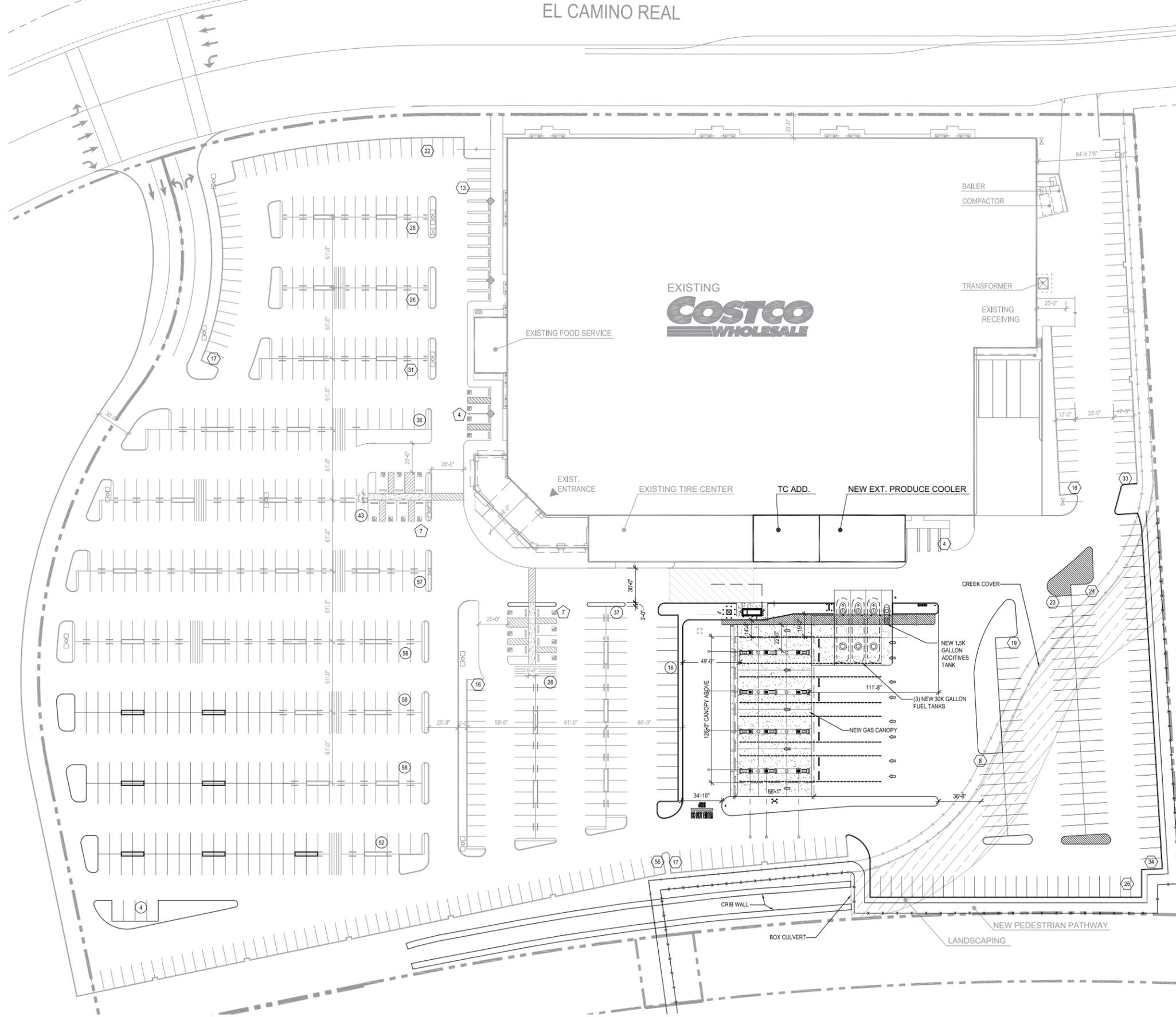
VICINITY MAP



REGIONAL MAP



SCALE: 1:500





PRELIMINARY PLANT LEGEND

Symbol	Botanical / Common Name	Size	WUCOLS	Comments	QTY	Size
TREES:						
	*Quercus virginiana 'Heritage' / Heritage Southern Live Oak	24" box	M	Matched Standards	xx	40-80'Tx80'W
	*Tristania conferta/ Brisbane box	24" box	M	Matched Standards		30-40'T x25'W
	Zelkova serrata 'Village Green' / Village Green Japanese Zelkova	24" box	M	Matched Standards		60'Tx 35'W
* = Denotes Evergreen Tree						

STORMWATER TREATMENT PLANTERS						
	Iris douglasiana	1 gal.	L	CA Native		
	Chondropetalum tectorum/ Cape Rush	1 gal.	L			
	Festuca californica/ California Fescue	1 gal.	L	CA Native		
	Lomandra longifolia 'Breeze' / Breeze Dwarf Mat Rush	5 gal.	L			

SHRUBS and PERENNIALS:						
	Agapanthus 'Tinkerbell' / Dwarf Variegated Agapanthus	1 gal.	M			
	Ceanothus gloriosus 'Anchor Bay' / Anchor Bay Ceanothus	5 gal.	L			
	Dietes vegeta 'Variegata' / Variegated Fortnight Lily	5 gal.	L			
	Euonymus fortunei/ Wintercreeper	5 gal.	M			
	Hebe 'Wiri blush' / Wiri blush hebe	5 gal.	M			
	Variegated Fortnight Lily					
	Olea europaea 'Montra' / Little Ollie Dwarf Olive	5 gal.	VL			
	Phormium cookianum 'Surfer' / Surfer New Zealand Flax	5 gal.	L			
	Phormium 'Dusky Chief' / Dusky Chief New Zealand Flax	5 gal.	L			
	Pittosporum tobira 'Wheeler's dwarf' / Wheeler's Dwarf Mock Orange	5 gal.	L			
	Pittosporum tobira 'Turners variegated dwarf' / Turners Pitt Mock Orange	5 gal.	L			
	Raphiolepis indica 'Clara' / Clara Indian hawthorn	5 gal.	L			
	Salvia leucantha 'Santa Barbara' / Santa Barbara Mexican Bush Sage	5 gal.	L			

ORNAMENTAL GRASS:						
	Festuca glauca 'Elijah Blue' / Elijah Blue Fescue	1 gal.	L			
	Muhlenbergia capillaris/ Pink Muhly	5 gal.	L			
	Pennisetum alopecuroides 'Hameln' / Dwarf Fountain Grass	1 gal.	L			

VEGETATED ROCK GABIONS

WUCOLS LEGEND
(WATER USAGE CLASSIFICATION OF LANDSCAPE SPECIES)

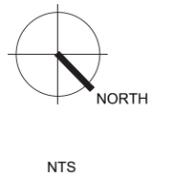
- VL Very Low Water Use
- L Low Water Use
- M Medium Water Use

Landscape Data

Total Parking Lot Area:	475,728 SF (7.62 AC)
Landscape Area Required:	47,572 SF (10%)
Total Landscape Area Provided:	56,801 SF (11.9%)

Irrigation System Statement

The irrigation system will be a water efficient low flow, point source system designed to provide adequate watering to support plant growth and ensure deeply rooted plant material while avoiding excess water application. The system will be programmable, allowing operation during late night and/or early morning hours, with multiple start times and cycles. The system will interface with a weather based sensor that will adjust the amount of water applied to the plant material based on daily weather conditions. Irrigation materials specified for the site will be selected on the basis of durability and ease of maintenance.



DAVID BABCOCK + ASSOCIATES
ARCHITECTURE LANDSCAPE PLANNING
3581 MT. DIABLO BLVD., SUITE 235
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T: 925.283.5070

CW15-0095
DBA #1536.L.01
NOVEMBER 30, 2016



SOUTH SAN FRANCISCO, CA

Concept Landscape Plan

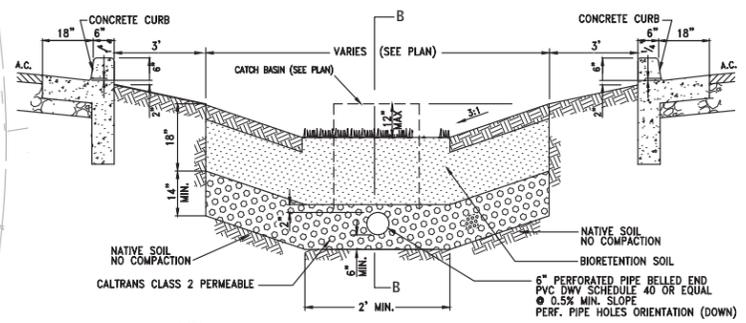
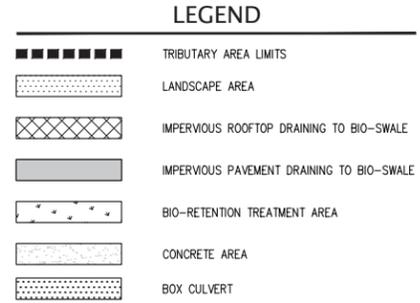
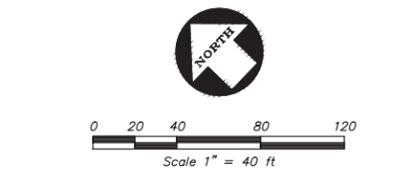
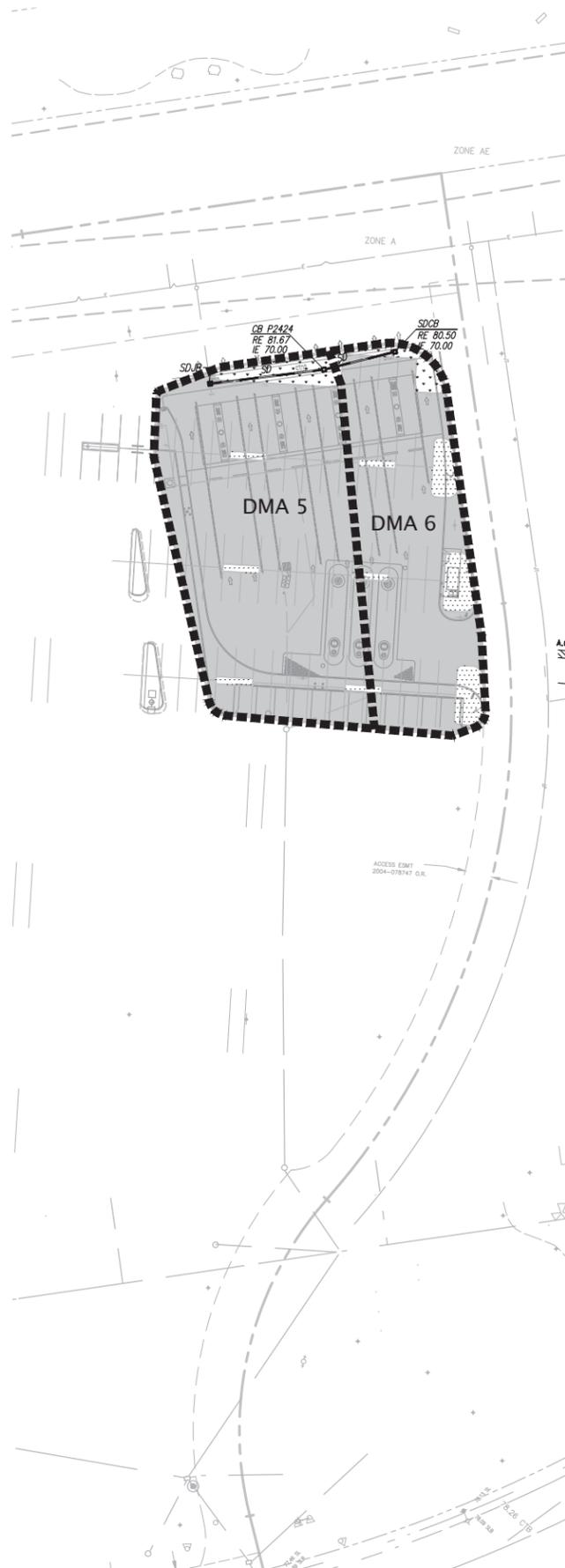
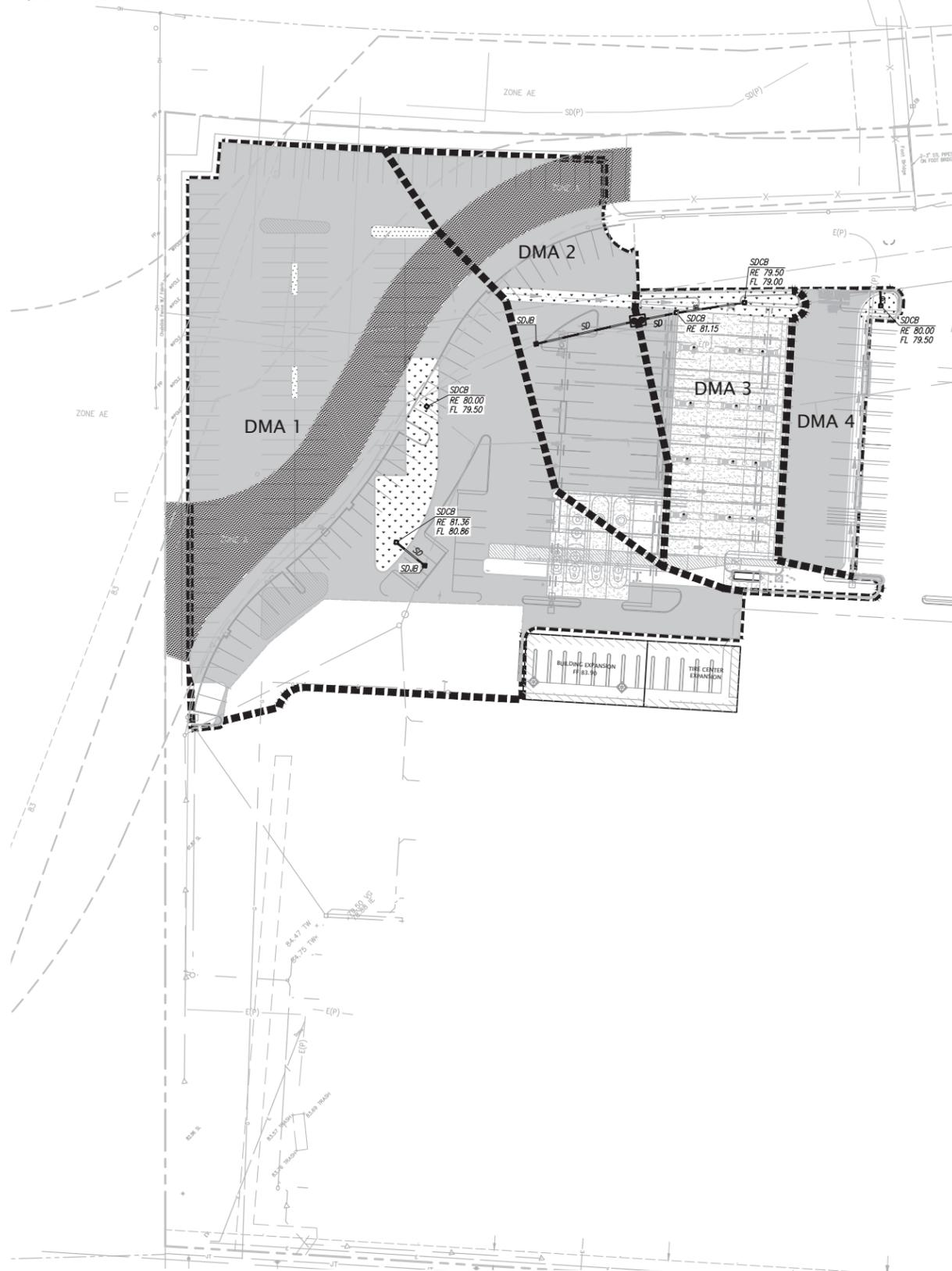
XX
OF xx

BIO-RETENTION SIZING - COMBINATION FLOW AND VOLUME METHOD

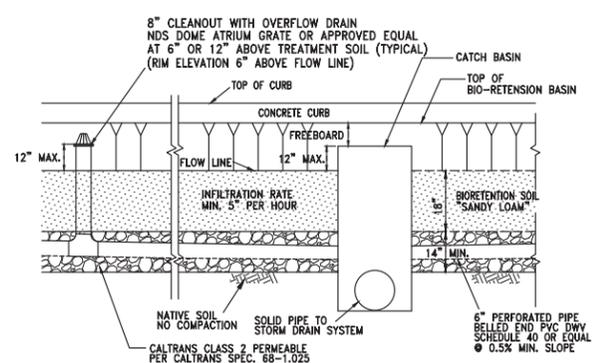
Drainage Area	Area (SF)	Area (AC)	Pervious (SF)	Pervious (AC)	Impervious (SF)	Impervious (AC)	Total Treatment Area* (SF)	BMP Required** (SF)	BMP Provided (SF)	Sizing Ratio	BMP Provided
1	72,875	1.67	455	0.01	72,420	1.66	72,466	2,174	2996	4.13%	Bio-retention Area
2	17,984	0.41	694	0.02	17,290	0.40	17,359	521	694	4.00%	Bio-retention Area
3	15,059	0.35	1,383	0.03	13,676	0.31	13,814	414	1380	9.99%	Bio-retention Area
4	8,120	0.19	980	0.02	7,140	0.16	7,238	217	290	4.01%	Bio-retention Area
5	18,685	0.43	1,060	0.02	17,625	0.40	17,731	532	819	4.62%	Bio-retention Area
6	12,407	0.28	1,132	0.03	11,275	0.26	11,388	342	571	5.01%	Bio-retention Area
Total:	145,130	3.33	5,704	0.13	139,426	3.20	139,996	4,200	6,750	4.82%	Bio-retention Area

*: Total Treatment Area is equal to Impervious Area + 0.10 * Landscape Area.

** : BMP Required is 3% of Total Treatment Area



- NOTES:
- SWALE SHALL BE GRADED TO DRAIN TOWARD OUTLET AT A MINIMUM SLOPE OF 0.5%
 - ALL PERFORATED PIPE SHALL HAVE A MINIMUM OF THREE 3/4" DIA. HOLES EVENLY SPACED ALONG THE CIRCUMFERENCE OF THE PIPE AND NOT LESS THAN THREE HOLES PER LINEAL FOOT OF PIPE.
 - ALL TREES IN PLANTER AREA SHALL HAVE 4" x 4" ROOT BARRIER
 - BIORETENTION SOIL SHALL ACHIEVE A LONG-TERM INFILTRATION RATE OF AT LEAST 5 INCHES PER HOUR. BIORETENTION SOIL SHALL ALSO SUPPORT VIGOROUS PLANT GROWTH.



BIO-RETENTION PLANTER DETAIL (1)

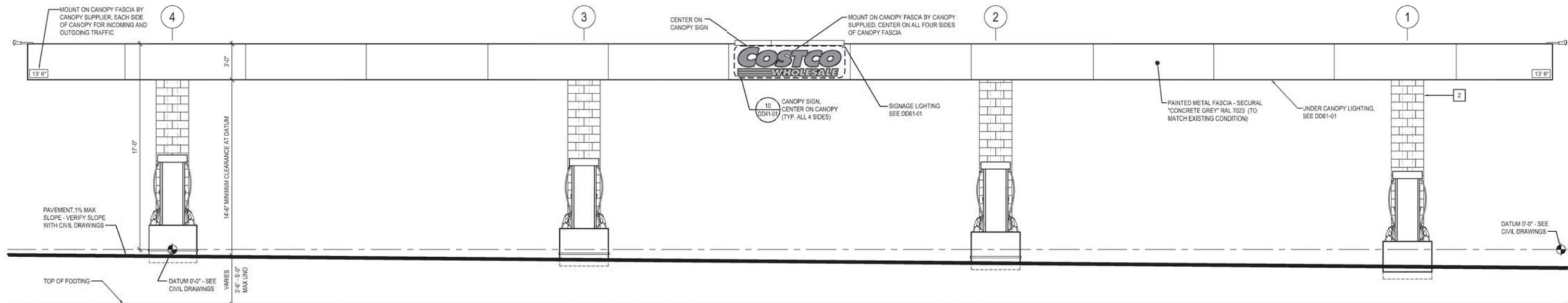
BY				
REVISION				
NO.	1	2	3	4
BY				
REVISION				
NO.	1	2	3	4
BY				

REGISTERED PROFESSIONAL ENGINEER
 STEVEN M. CALVERT
 No. 52282
 Exp. 06-30-2016
 CIVIL
 STATE OF CALIFORNIA

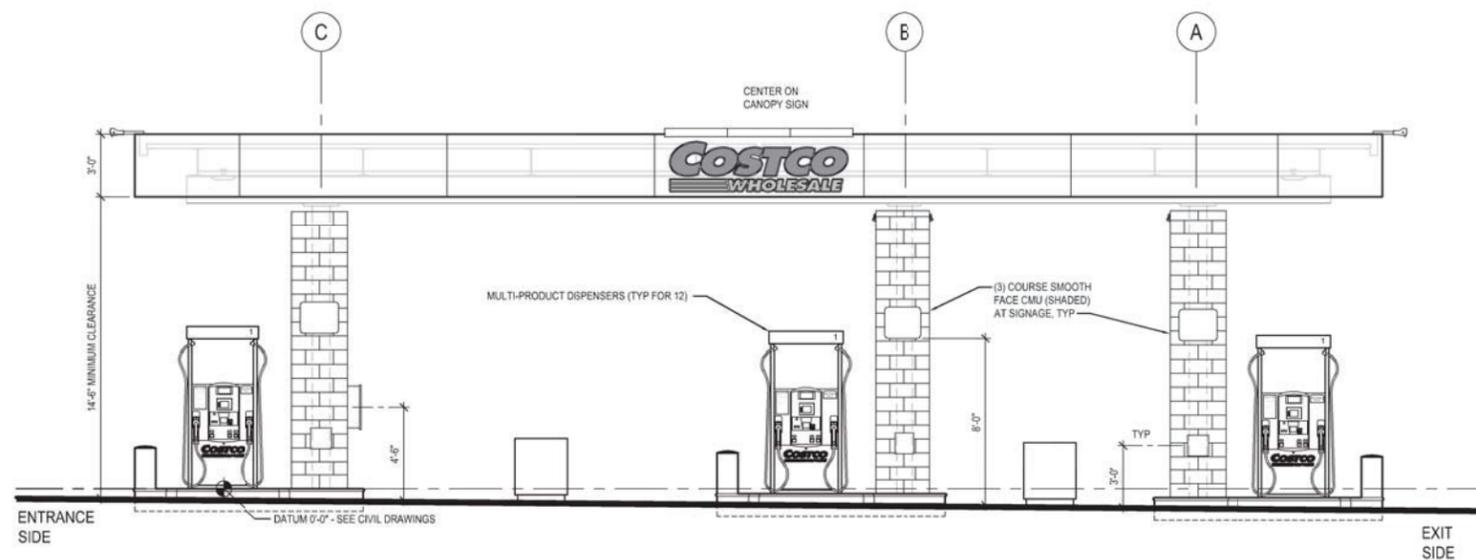
KIER & WRIGHT
 CIVIL ENGINEERS & SURVEYORS, INC.
 2850 Collier Canyon Road
 Livermore, California 94551
 Phone (925) 245-8788
 Fax (925) 245-8796

STORM WATER QUALITY CONTROL PLAN
 OF
EL CAMINO GAS STATION RELOCATION
 FOR
COSTCO WHOLESALE CORPORATION
 SOUTH SAN FRANCISCO, CALIFORNIA

DATE: SEPTEMBER, 2016
 SCALE: 1" = 40'
 DESIGNER: JT
 JOB NO.: A08539-5
 SHEET: **C7**
 OF 7 SHEETS



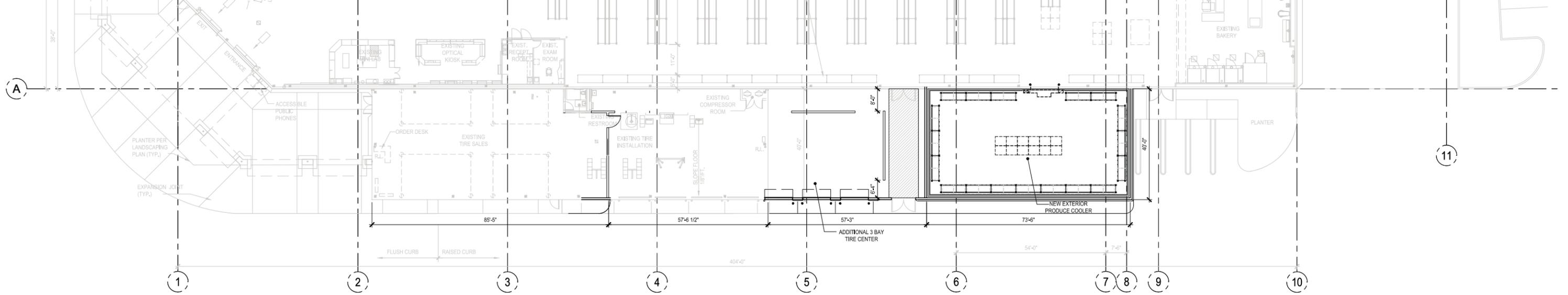
1 NORTH CANOPY ELEVATION
SCALE: 1/4" = 1'-0"



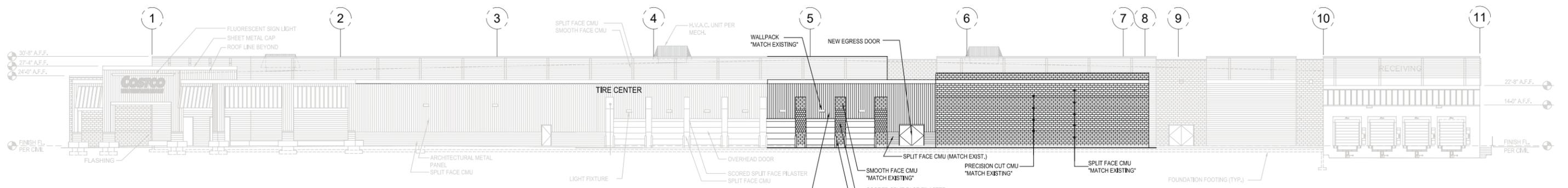
2 CANOPY AND DISPENSER ISLAND
SCALE: 1/4" = 1'-0"



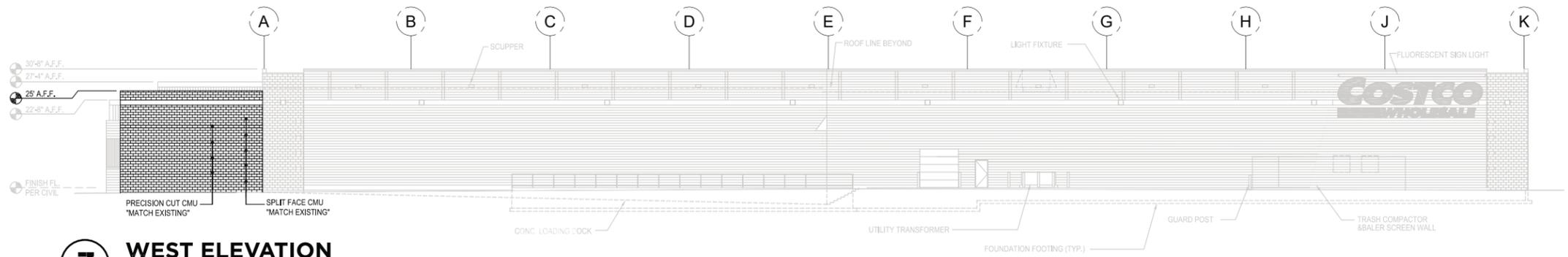
3 CANOPY SIGN
SCALE: 1/2" = 1'-0"



1 PROPOSED FLOOR PLAN
SCALE: 1/16" = 1'-0"



2 NORTH ELEVATION
SCALE: 1/16" = 1'-0"



3 WEST ELEVATION
SCALE: 1/16" = 1'-0"

APPENDIX B

**AIR QUALITY OUTPUTS
Illingworth & Rodkin,
Inc., December 2016**

Health Risk Calculation Methodology

A health risk assessment (HRA) for exposure to Toxic Air Contaminates (TACs) requires the application of a risk characterization model to the results from the air dispersion model to estimate potential health risk at each sensitive receptor location. The State of California Office of Environmental Health Hazard Assessment (OEHHA) and California Air Resources Board (CARB) develop recommended methods for conducting health risk assessments. The most recent OEHHA risk assessment guidelines were published in February of 2015.¹ These guidelines incorporate substantial changes designed to provide for enhanced protection of children, as required by State law, compared to previous published risk assessment guidelines. CARB has provided additional guidance on implementing OEHHA's recommended methods.² This HRA used the recent 2015 OEHHA risk assessment guidelines and CARB guidance. While the OEHHA guidelines use substantially more conservative assumptions than the current Bay Area Air Quality Management District (BAAQMD) guidelines, BAAQMD has not formally adopted recommended procedures for applying the newest OEHHA guidelines. BAAQMD is in the process of developing new guidance and has developed proposed HRA Guidelines as part of the proposed amendments to Regulation 2, Rule 5: New Source Review of Toxic Air Contaminants.³ Exposure parameters from the OEHHA guidelines and newly proposed BAAQMD HRA Guidelines were used in this evaluation.

Cancer Risk

Potential increased cancer risk from inhalation of TACs are calculated based on the TAC concentration over the period of exposure, inhalation dose, the TAC cancer potency factor, and an age sensitivity factor to reflect the greater sensitivity of infants and children to cancer causing TACs. The inhalation dose depends on a person's breathing rate, exposure time and frequency of exposure, and the exposure duration. These parameters vary depending on the age, or age range, of the persons being exposed and whether the exposure is considered to occur at a residential location or other sensitive receptor location.

The current OEHHA guidance recommends that cancer risk be calculated by age groups to account for different breathing rates and sensitivity to TACs. Specifically, they recommend evaluating risks for the third trimester of pregnancy to age zero, ages zero to less than two (infant exposure), ages two to less than 16 (child exposure), and ages 16 to 70 (adult exposure). Age sensitivity factors (ASFs) associated with the different types of exposure are an ASF of 10 for the third trimester and infant exposures, an ASF of 3 for a child exposure, and an ASF of 1 for an adult exposure. Also associated with each exposure type are different breathing rates, expressed as liters per kilogram of body weight per day (L/kg-day). As recommended by the BAAQMD, 95th percentile breathing rates are used for the third trimester and infant exposures, and 80th

¹ OEHHA, 2015. *Air Toxics Hot Spots Program Risk Assessment Guidelines, The Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments*. Office of Environmental Health Hazard Assessment. February.

² CARB, 2015. *Risk Management Guidance for Stationary Sources of Air Toxics*. July 23.

³ BAAQMD, 2016. *Workshop Report. Proposed Amendments to Air District Regulation 2, Rule 5: New Source Review of Toxic Air Contaminants. Appendix C. Proposed Air District HRA Guidelines*. January 2016.

percentile breathing rates for child and adult exposures. Additionally, CARB and the BAAQMD recommend the use of a residential exposure duration of 30 years for sources with long-term emissions (e.g., roadways).

Under previous OEHHA and BAAQMD HRA guidance, residential receptors are assumed to be at their home 24 hours a day, or 100 percent of the time. In the 2015 Risk Assessment Guidance, OEHHA includes adjustments to exposure duration to account for the fraction of time at home (FAH), which can be less than 100 percent of the time, based on updated population and activity statistics. The FAH factors are age-specific and are: 0.85 for third trimester of pregnancy to less than 2 years old, 0.72 for ages 2 to less than 16 years, and 0.73 for ages 16 to 70 years. BAAQMD recommends using these FAH factors for residential exposures.

Functionally, cancer risk is calculated using the following parameters and formulas:

$$\text{Cancer Risk (per million)} = \text{CPF} \times \text{Inhalation Dose} \times \text{ASF} \times \text{ED/AT} \times \text{FAH} \times 10^6$$

Where:

- CPF = Cancer potency factor (mg/kg-day)⁻¹
- ASF = Age sensitivity factor for specified age group
- ED = Exposure duration (years)
- AT = Averaging time for lifetime cancer risk (years)
- FAH = Fraction of time spent at home (unitless)

$$\text{Inhalation Dose} = C_{\text{air}} \times \text{DBR} \times A \times (\text{EF}/365) \times 10^{-6}$$

Where:

- C_{air} = concentration in air (µg/m³)
- DBR = daily breathing rate (L/kg body weight-day)
- A = Inhalation absorption factor
- EF = Exposure frequency (days/year)
- 10⁻⁶ = Conversion factor

The health risk parameters used in this evaluation are summarized as follows:

Parameter	Exposure Type →	Infant		Child	Adult
	Age Range →	3 rd Trimester	0<2	2 < 16	16 - 30
DPM Cancer Potency Factor (mg/kg-day) ⁻¹		1.10E+00	1.10E+00	1.10E+00	1.10E+00
Daily Breathing Rate (L/kg-day)*		361	1,090	572	261
Inhalation Absorption Factor		1	1	1	1
Averaging Time (years)		70	70	70	70
Exposure Duration (years)		0.25	2	14	14
Exposure Frequency (days/year)		350	350	350	350
Age Sensitivity Factor		10	10	3	1
Fraction of Time at Home		0.85 – 1.0	0.72 – 1.0	0.72 – 1.0	0.73

* 95th percentile breathing rates for 3rd trimester and infants and 80th percentile for children and adults

Non-Cancer Hazards

Potential non-cancer health hazards from TAC exposure are expressed in terms of a hazard index (HI), which is the ratio of the TAC concentration to a reference exposure level (REL). OEHHA has defined acceptable concentration levels for contaminants that pose non-cancer health hazards. TAC concentrations below the REL are not expected to cause adverse health impacts, even for sensitive individuals. The total HI is calculated as the sum of the HIs for each TAC evaluated and the total HI is compared to the BAAQMD significance thresholds to determine whether a significant non-cancer health impact from a project would occur.

Typically, for residential projects located near roadways with substantial TAC emissions, the primary TAC of concern with non-cancer health effects is diesel particulate matter (DPM). For DPM, the chronic inhalation REL is 5 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$).

Annual PM_{2.5} Concentrations

While not a TAC, fine particulate matter (PM_{2.5}) has been identified by the BAAQMD as a pollutant with potential non-cancer health effects that should be included when evaluating potential community health impacts under the California Environmental Quality Act (CEQA). The thresholds of significance for PM_{2.5} (project level and cumulative) are in terms of an increase in the annual average concentration. When considering PM_{2.5} impacts, the contribution from all sources of PM_{2.5} emissions should be included. For projects with potential impacts from nearby local roadways, the PM_{2.5} impacts should include those from vehicle exhaust emissions, PM_{2.5} generated from vehicle tire and brake wear, and fugitive emissions from re-suspended dust on the roads.

CalEEMod Input and Output Worksheets, and Risk Calculations

SSF Costco - San Mateo County, Annual

SSF Costco
San Mateo County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Parking Lot	130.00	1000sqft	2.98	130,000.00	0
Automobile Care Center	1.65	1000sqft	0.00	2,280.00	0
Gasoline/Service Station	12.00	Pump	0.00	1,694.10	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	70
Climate Zone	5	Operational Year		2018	
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	429.64	CH4 Intensity (lb/MWhr)	0.029	N2O Intensity (lb/MWhr)	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Using latest, verified PG&E CO2 factor

Land Use - New tire bays = auto care center

Construction Phase - 5 month construction schedule starting July 2017, adjusted based on CalEEMod default durations for a 5-month construction period

Off-road Equipment - default

Grading - 5,000cy export

Vehicle Trips - 42 net new trips incl. pass-by peak hours x 12 operating hrs = 504 daily, pass-by set to 0.

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	10.00	3.00
tblConstructionPhase	NumDays	220.00	90.00
tblConstructionPhase	NumDays	20.00	8.00
tblConstructionPhase	NumDays	6.00	2.00
tblConstructionPhase	NumDays	10.00	4.00
tblConstructionPhase	NumDays	3.00	1.00
tblConstructionPhase	PhaseEndDate	4/6/2017	11/29/2017
tblConstructionPhase	PhaseEndDate	3/28/2017	11/20/2017
tblConstructionPhase	PhaseEndDate	11/17/2016	7/12/2017
tblConstructionPhase	PhaseEndDate	11/22/2016	7/17/2017
tblConstructionPhase	PhaseEndDate	4/3/2017	11/24/2017
tblConstructionPhase	PhaseEndDate	11/18/2016	7/13/2017
tblConstructionPhase	PhaseStartDate	4/4/2017	11/25/2017
tblConstructionPhase	PhaseStartDate	11/23/2016	7/18/2017
tblConstructionPhase	PhaseStartDate	11/8/2016	7/1/2017
tblConstructionPhase	PhaseStartDate	11/19/2016	7/14/2017
tblConstructionPhase	PhaseStartDate	3/29/2017	11/21/2017
tblConstructionPhase	PhaseStartDate	11/18/2016	7/13/2017
tblGrading	MaterialExported	0.00	5,000.00
tblLandUse	BuildingSpaceSquareFeet	1,650.00	1,646.00
tblLandUse	LandUseSquareFeet	1,650.00	1,646.00
tblLandUse	LotAcreage	0.04	0.00
tblLandUse	LotAcreage	0.04	0.00
tblProjectCharacteristics	CO2IntensityFactor	641.35	429.64
tblVehicleTrips	PB_TP	59.00	0.00
tblVehicleTrips	PR_TP	14.00	73.00
tblVehicleTrips	ST_TR	23.72	0.00

tblVehicleTrips	ST_TR	168.56	42.00
tblVehicleTrips	SU_TR	11.88	0.00
tblVehicleTrips	SU_TR	168.56	42.00
tblVehicleTrips	WD_TR	23.72	0.00
tblVehicleTrips	WD_TR	168.56	42.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2017	0.2368	1.4967	1.0118	2.0500e-003	0.0400	0.0791	0.1191	0.0123	0.0754	0.0878	0.0000	184.4769	184.4769	0.0316	0.0000	185.2677
Maximum	0.2368	1.4967	1.0118	2.0500e-003	0.0400	0.0791	0.1191	0.0123	0.0754	0.0878	0.0000	184.4769	184.4769	0.0316	0.0000	185.2677

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					
2017	0.2368	1.4967	1.0118	2.0500e-003	0.0400	0.0791	0.1191	0.0123	0.0754	0.0878	0.0000	184.4768	184.4768	0.0316	0.0000	185.2675
Maximum	0.2368	1.4967	1.0118	2.0500e-003	0.0400	0.0791	0.1191	0.0123	0.0754	0.0878	0.0000	184.4768	184.4768	0.0316	0.0000	185.2675

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	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)
3	5-8-2017	8-7-2017	0.5832	0.5832
4	8-8-2017	9-30-2017	0.5786	0.5786
		Highest	0.5832	0.5832

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	0.0260	1.0000e-005	1.3400e-003	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.5700e-003	2.5700e-003	1.0000e-005	0.0000	2.7400e-003
Energy	4.5000e-004	4.0700e-003	3.4100e-003	2.0000e-005		3.1000e-004	3.1000e-004		3.1000e-004	3.1000e-004	0.0000	31.7323	31.7323	1.9300e-003	4.6000e-004	31.9183
Mobile	0.1502	0.4727	1.6509	4.6900e-003	0.3983	6.2200e-003	0.4045	0.1070	5.8700e-003	0.1129	0.0000	428.1072	428.1072	0.0173	0.0000	428.5398
Waste						0.0000	0.0000		0.0000	0.0000	2.5922	0.0000	2.5922	0.1532	0.0000	6.4221
Water						0.0000	0.0000		0.0000	0.0000	0.0998	0.4633	0.5631	0.0103	2.5000e-004	0.8942
Total	0.1767	0.4768	1.6557	4.7100e-003	0.3983	6.5300e-003	0.4048	0.1070	6.1800e-003	0.1132	2.6920	460.3053	462.9973	0.1827	7.1000e-004	467.7771

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	0.0260	1.0000e-005	1.3400e-003	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.5700e-003	2.5700e-003	1.0000e-005	0.0000	2.7400e-003
Energy	4.5000e-004	4.0700e-003	3.4100e-003	2.0000e-005		3.1000e-004	3.1000e-004		3.1000e-004	3.1000e-004	0.0000	31.7323	31.7323	1.9300e-003	4.6000e-004	31.9183
Mobile	0.1502	0.4727	1.6509	4.6900e-003	0.3983	6.2200e-003	0.4045	0.1070	5.8700e-003	0.1129	0.0000	428.1072	428.1072	0.0173	0.0000	428.5398
Waste						0.0000	0.0000		0.0000	0.0000	2.5922	0.0000	2.5922	0.1532	0.0000	6.4221
Water						0.0000	0.0000		0.0000	0.0000	0.0998	0.4633	0.5631	0.0103	2.5000e-004	0.8942
Total	0.1767	0.4768	1.6557	4.7100e-003	0.3983	6.5300e-003	0.4048	0.1070	6.1800e-003	0.1132	2.6920	460.3053	462.9973	0.1827	7.1000e-004	467.7771

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	7/1/2017	7/12/2017	5	8	
2	Site Preparation	Site Preparation	7/13/2017	7/13/2017	5	1	
3	Grading	Grading	7/14/2017	7/17/2017	5	2	
4	Building Construction	Building Construction	7/18/2017	11/20/2017	5	90	
5	Paving	Paving	11/21/2017	11/24/2017	5	4	
6	Architectural Coating	Architectural Coating	11/25/2017	11/29/2017	5	3	

Acres of Grading (Site Preparation Phase): 1.5

Acres of Grading (Grading Phase): 1

Acres of Paving: 2.98

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 5,010; Non-Residential Outdoor: 1,670; Striped Parking Area:

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Building Construction	Cranes	1	8.00	231	0.29
Building Construction	Forklifts	2	7.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Building Construction	Welders	3	8.00	46	0.45
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Rubber Tired Dozers	1	8.00	247	0.40
Demolition	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Grading	Graders	1	8.00	187	0.41
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	8.00	9	0.56
Paving	Pavers	1	8.00	130	0.42
Paving	Paving Equipment	1	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Site Preparation	Graders	1	8.00	187	0.41
Site Preparation	Scrapers	1	8.00	367	0.48
Site Preparation	Tractors/Loaders/Backhoes	1	7.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Architectural Coating	1	11.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	8	56.00	22.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Demolition	5	13.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

Grading	4	10.00	0.00	625.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	3	8.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2017

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	0.0111	0.1070	0.0622	1.0000e-004		6.5900e-003	6.5900e-003		6.1600e-003	6.1600e-003	0.0000	8.7867	8.7867	2.2200e-003	0.0000	8.8423
Total	0.0111	0.1070	0.0622	1.0000e-004		6.5900e-003	6.5900e-003		6.1600e-003	6.1600e-003	0.0000	8.7867	8.7867	2.2200e-003	0.0000	8.8423

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	1.9000e-004	1.4000e-004	1.4300e-003	0.0000	4.1000e-004	0.0000	4.1000e-004	1.1000e-004	0.0000	1.1000e-004	0.0000	0.3746	0.3746	1.0000e-005	0.0000	0.3748
Total	1.9000e-004	1.4000e-004	1.4300e-003	0.0000	4.1000e-004	0.0000	4.1000e-004	1.1000e-004	0.0000	1.1000e-004	0.0000	0.3746	0.3746	1.0000e-005	0.0000	0.3748

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	0.0111	0.1070	0.0622	1.0000e-004		6.5900e-003	6.5900e-003		6.1600e-003	6.1600e-003	0.0000	8.7867	8.7867	2.2200e-003	0.0000	8.8423
Total	0.0111	0.1070	0.0622	1.0000e-004		6.5900e-003	6.5900e-003		6.1600e-003	6.1600e-003	0.0000	8.7867	8.7867	2.2200e-003	0.0000	8.8423

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	1.9000e-004	1.4000e-004	1.4300e-003	0.0000	4.1000e-004	0.0000	4.1000e-004	1.1000e-004	0.0000	1.1000e-004	0.0000	0.3746	0.3746	1.0000e-005	0.0000	0.3748
Total	1.9000e-004	1.4000e-004	1.4300e-003	0.0000	4.1000e-004	0.0000	4.1000e-004	1.1000e-004	0.0000	1.1000e-004	0.0000	0.3746	0.3746	1.0000e-005	0.0000	0.3748

3.3 Site Preparation - 2017

Unmitigated Construction On-Site

Off-Road	1.0700e-003	0.0134	7.2100e-003	1.0000e-005		5.5000e-004	5.5000e-004		5.1000e-004	5.1000e-004	0.0000	1.1378	1.1378	3.5000e-004	0.0000	1.1465
Total	1.0700e-003	0.0134	7.2100e-003	1.0000e-005	8.0000e-004	5.5000e-004	1.3500e-003	9.0000e-005	5.1000e-004	6.0000e-004	0.0000	1.1378	1.1378	3.5000e-004	0.0000	1.1465

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	1.0000e-005	1.0000e-005	1.1000e-004	0.0000	3.0000e-005	0.0000	3.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0288	0.0288	0.0000	0.0000	0.0288
Total	1.0000e-005	1.0000e-005	1.1000e-004	0.0000	3.0000e-005	0.0000	3.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0288	0.0288	0.0000	0.0000	0.0288

3.4 Grading - 2017

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					6.8400e-003	0.0000	6.8400e-003	3.4100e-003	0.0000	3.4100e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.3200e-003	0.0262	0.0108	2.0000e-005		1.3000e-003	1.3000e-003		1.1900e-003	1.1900e-003	0.0000	1.9161	1.9161	5.9000e-004	0.0000	1.9308
Total	2.3200e-003	0.0262	0.0108	2.0000e-005	6.8400e-003	1.3000e-003	8.1400e-003	3.4100e-003	1.1900e-003	4.6000e-003	0.0000	1.9161	1.9161	5.9000e-004	0.0000	1.9308

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	3.9400e-003	0.1254	0.0430	2.7000e-004	5.2300e-003	7.3000e-004	5.9600e-003	1.4400e-003	7.0000e-004	2.1400e-003	0.0000	27.2103	27.2103	3.1700e-003	0.0000	27.2895
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.0000e-005	3.0000e-005	2.7000e-004	0.0000	8.0000e-005	0.0000	8.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0720	0.0720	0.0000	0.0000	0.0721
Total	3.9800e-003	0.1254	0.0432	2.7000e-004	5.3100e-003	7.3000e-004	6.0400e-003	1.4600e-003	7.0000e-004	2.1600e-003	0.0000	27.2824	27.2824	3.1700e-003	0.0000	27.3616

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					6.8400e-003	0.0000	6.8400e-003	3.4100e-003	0.0000	3.4100e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.3200e-003	0.0262	0.0108	2.0000e-005		1.3000e-003	1.3000e-003		1.1900e-003	1.1900e-003	0.0000	1.9161	1.9161	5.9000e-004	0.0000	1.9308
Total	2.3200e-003	0.0262	0.0108	2.0000e-005	6.8400e-003	1.3000e-003	8.1400e-003	3.4100e-003	1.1900e-003	4.6000e-003	0.0000	1.9161	1.9161	5.9000e-004	0.0000	1.9308

Mitigated Construction Off-Site

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

Hauling	3.9400e-003	0.1254	0.0430	2.7000e-004	5.2300e-003	7.3000e-004	5.9600e-003	1.4400e-003	7.0000e-004	2.1400e-003	0.0000	27.2103	27.2103	3.1700e-003	0.0000	27.2895
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.0000e-005	3.0000e-005	2.7000e-004	0.0000	8.0000e-005	0.0000	8.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0720	0.0720	0.0000	0.0000	0.0721
Total	3.9800e-003	0.1254	0.0432	2.7000e-004	5.3100e-003	7.3000e-004	6.0400e-003	1.4600e-003	7.0000e-004	2.1600e-003	0.0000	27.2824	27.2824	3.1700e-003	0.0000	27.3616

3.5 Building Construction - 2017

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	0.1504	1.0363	0.7340	1.1300e-003		0.0661	0.0661		0.0633	0.0633	0.0000	95.8377	95.8377	0.0213	0.0000	96.3713
Total	0.1504	1.0363	0.7340	1.1300e-003		0.0661	0.0661		0.0633	0.0633	0.0000	95.8377	95.8377	0.0213	0.0000	96.3713

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	6.1200e-003	0.1446	0.0553	2.7000e-004	6.4500e-003	1.3300e-003	7.7800e-003	1.8700e-003	1.2700e-003	3.1400e-003	0.0000	26.9728	26.9728	2.4400e-003	0.0000	27.0338
Worker	9.2800e-003	6.9000e-003	0.0691	2.0000e-004	0.0198	1.3000e-004	0.0200	5.2800e-003	1.2000e-004	5.4000e-003	0.0000	18.1521	18.1521	4.8000e-004	0.0000	18.1640
Total	0.0154	0.1515	0.1244	4.7000e-004	0.0263	1.4600e-003	0.0278	7.1500e-003	1.3900e-003	8.5400e-003	0.0000	45.1249	45.1249	2.9200e-003	0.0000	45.1978

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	0.1504	1.0363	0.7340	1.1300e-003		0.0661	0.0661		0.0633	0.0633	0.0000	95.8376	95.8376	0.0213	0.0000	96.3712
Total	0.1504	1.0363	0.7340	1.1300e-003		0.0661	0.0661		0.0633	0.0633	0.0000	95.8376	95.8376	0.0213	0.0000	96.3712

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	6.1200e-003	0.1446	0.0553	2.7000e-004	6.4500e-003	1.3300e-003	7.7800e-003	1.8700e-003	1.2700e-003	3.1400e-003	0.0000	26.9728	26.9728	2.4400e-003	0.0000	27.0338
Worker	9.2800e-003	6.9000e-003	0.0691	2.0000e-004	0.0198	1.3000e-004	0.0200	5.2800e-003	1.2000e-004	5.4000e-003	0.0000	18.1521	18.1521	4.8000e-004	0.0000	18.1640
Total	0.0154	0.1515	0.1244	4.7000e-004	0.0263	1.4600e-003	0.0278	7.1500e-003	1.3900e-003	8.5400e-003	0.0000	45.1249	45.1249	2.9200e-003	0.0000	45.1978

3.6 Paving - 2017

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	3.3200e-003	0.0334	0.0244	4.0000e-005		2.0700e-003	2.0700e-003		1.9000e-003	1.9000e-003	0.0000	3.2700	3.2700	9.8000e-004	0.0000	3.2946
Paving	3.9000e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	7.2200e-003	0.0334	0.0244	4.0000e-005		2.0700e-003	2.0700e-003		1.9000e-003	1.9000e-003	0.0000	3.2700	3.2700	9.8000e-004	0.0000	3.2946

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	1.1000e-004	8.0000e-005	8.2000e-004	0.0000	2.4000e-004	0.0000	2.4000e-004	6.0000e-005	0.0000	6.0000e-005	0.0000	0.2161	0.2161	1.0000e-005	0.0000	0.2162
Total	1.1000e-004	8.0000e-005	8.2000e-004	0.0000	2.4000e-004	0.0000	2.4000e-004	6.0000e-005	0.0000	6.0000e-005	0.0000	0.2161	0.2161	1.0000e-005	0.0000	0.2162

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	3.3200e-003	0.0334	0.0244	4.0000e-005		2.0700e-003	2.0700e-003		1.9000e-003	1.9000e-003	0.0000	3.2700	3.2700	9.8000e-004	0.0000	3.2946

Paving	3.9000e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	7.2200e-003	0.0334	0.0244	4.0000e-005		2.0700e-003	2.0700e-003		1.9000e-003	1.9000e-003	0.0000	3.2700	3.2700	9.8000e-004	0.0000	3.2946

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	1.1000e-004	8.0000e-005	8.2000e-004	0.0000	2.4000e-004	0.0000	2.4000e-004	6.0000e-005	0.0000	6.0000e-005	0.0000	0.2161	0.2161	1.0000e-005	0.0000	0.2162
Total	1.1000e-004	8.0000e-005	8.2000e-004	0.0000	2.4000e-004	0.0000	2.4000e-004	6.0000e-005	0.0000	6.0000e-005	0.0000	0.2161	0.2161	1.0000e-005	0.0000	0.2162

3.7 Architectural Coating - 2017

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	0.0445					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	5.0000e-004	3.2800e-003	2.8000e-003	0.0000		2.6000e-004	2.6000e-004		2.6000e-004	2.6000e-004	0.0000	0.3830	0.3830	4.0000e-005	0.0000	0.3840
Total	0.0450	3.2800e-003	2.8000e-003	0.0000		2.6000e-004	2.6000e-004		2.6000e-004	2.6000e-004	0.0000	0.3830	0.3830	4.0000e-005	0.0000	0.3840

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.0000e-005	5.0000e-005	4.5000e-004	0.0000	1.3000e-004	0.0000	1.3000e-004	3.0000e-005	0.0000	4.0000e-005	0.0000	0.1189	0.1189	0.0000	0.0000	0.1189
Total	6.0000e-005	5.0000e-005	4.5000e-004	0.0000	1.3000e-004	0.0000	1.3000e-004	3.0000e-005	0.0000	4.0000e-005	0.0000	0.1189	0.1189	0.0000	0.0000	0.1189

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	0.0445					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	5.0000e-004	3.2800e-003	2.8000e-003	0.0000		2.6000e-004	2.6000e-004		2.6000e-004	2.6000e-004	0.0000	0.3830	0.3830	4.0000e-005	0.0000	0.3840
Total	0.0450	3.2800e-003	2.8000e-003	0.0000		2.6000e-004	2.6000e-004		2.6000e-004	2.6000e-004	0.0000	0.3830	0.3830	4.0000e-005	0.0000	0.3840

Mitigated Construction Off-Site

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

Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.0000e-005	5.0000e-005	4.5000e-004	0.0000	1.3000e-004	0.0000	1.3000e-004	3.0000e-005	0.0000	4.0000e-005	0.0000	0.1189	0.1189	0.0000	0.0000	0.1189
Total	6.0000e-005	5.0000e-005	4.5000e-004	0.0000	1.3000e-004	0.0000	1.3000e-004	3.0000e-005	0.0000	4.0000e-005	0.0000	0.1189	0.1189	0.0000	0.0000	0.1189

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.1502	0.4727	1.6509	4.6900e-003	0.3983	6.2200e-003	0.4045	0.1070	5.8700e-003	0.1129	0.0000	428.1072	428.1072	0.0173	0.0000	428.5398
Unmitigated	0.1502	0.4727	1.6509	4.6900e-003	0.3983	6.2200e-003	0.4045	0.1070	5.8700e-003	0.1129	0.0000	428.1072	428.1072	0.0173	0.0000	428.5398

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Automobile Care Center	0.00	0.00	0.00		
Gasoline/Service Station	504.00	504.00	504.00	1,074,472	1,074,472
Parking Lot	0.00	0.00	0.00		
Total	504.00	504.00	504.00	1,074,472	1,074,472

4.3 Trip Type Information

	Miles	Trip %	Trip Purpose %
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Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Automobile Care Center	9.50	7.30	7.30	33.00	48.00	19.00	21	51	28
Gasoline/Service Station	9.50	7.30	7.30	2.00	79.00	19.00	73	27	0
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Parking Lot	0.508680	0.049272	0.242166	0.132717	0.018469	0.006106	0.019850	0.006168	0.003703	0.003432	0.008335	0.000401	0.000701
Automobile Care Center	0.508680	0.049272	0.242166	0.132717	0.018469	0.006106	0.019850	0.006168	0.003703	0.003432	0.008335	0.000401	0.000701
Gasoline/Service Station	0.508680	0.049272	0.242166	0.132717	0.018469	0.006106	0.019850	0.006168	0.003703	0.003432	0.008335	0.000401	0.000701

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	27.3066	27.3066	1.8400e-003	3.8000e-004	27.4663
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	27.3066	27.3066	1.8400e-003	3.8000e-004	27.4663
NaturalGas Mitigated	4.5000e-004	4.0700e-003	3.4100e-003	2.0000e-005		3.1000e-004	3.1000e-004		3.1000e-004	3.1000e-004	0.0000	4.4257	4.4257	8.0000e-005	8.0000e-005	4.4520
NaturalGas Unmitigated	4.5000e-004	4.0700e-003	3.4100e-003	2.0000e-005		3.1000e-004	3.1000e-004		3.1000e-004	3.1000e-004	0.0000	4.4257	4.4257	8.0000e-005	8.0000e-005	4.4520

5.2 Energy by Land Use - NaturalGas

Unmitigated

	Natural Gas 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					
Automobile Care Center	40870.2	2.2000e-004	2.0000e-003	1.6800e-003	1.0000e-005		1.5000e-004	1.5000e-004		1.5000e-004	1.5000e-004	0.0000	2.1810	2.1810	4.0000e-005	4.0000e-005	2.1940
Gasoline/Service Station	42064.5	2.3000e-004	2.0600e-003	1.7300e-003	1.0000e-005		1.6000e-004	1.6000e-004		1.6000e-004	1.6000e-004	0.0000	2.2447	2.2447	4.0000e-005	4.0000e-005	2.2581
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		4.5000e-004	4.0600e-003	3.4100e-003	2.0000e-005		3.1000e-004	3.1000e-004		3.1000e-004	3.1000e-004	0.0000	4.4257	4.4257	8.0000e-005	8.0000e-005	4.4520

Mitigated

	Natural Gas 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					
Automobile Care Center	40870.2	2.2000e-004	2.0000e-003	1.6800e-003	1.0000e-005		1.5000e-004	1.5000e-004		1.5000e-004	1.5000e-004	0.0000	2.1810	2.1810	4.0000e-005	4.0000e-005	2.1940
Gasoline/Service Station	42064.5	2.3000e-004	2.0600e-003	1.7300e-003	1.0000e-005		1.6000e-004	1.6000e-004		1.6000e-004	1.6000e-004	0.0000	2.2447	2.2447	4.0000e-005	4.0000e-005	2.2581
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		4.5000e-004	4.0600e-003	3.4100e-003	2.0000e-005		3.1000e-004	3.1000e-004		3.1000e-004	3.1000e-004	0.0000	4.4257	4.4257	8.0000e-005	8.0000e-005	4.4520

5.3 Energy by Land Use - Electricity

Unmitigated

Electricity Use	Total CO2	CH4	N2O	CO2e
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Land Use	kWh/yr	MT/yr			
Automobile Care Center	12674.2	2.4700	1.7000e-004	3.0000e-005	2.4844
Gasoline/Service Station	13044.6	2.5421	1.7000e-004	4.0000e-005	2.5570
Parking Lot	114400	22.2944	1.5000e-003	3.1000e-004	22.4248
Total		27.3066	1.8400e-003	3.8000e-004	27.4663

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Automobile Care Center	12674.2	2.4700	1.7000e-004	3.0000e-005	2.4844
Gasoline/Service Station	13044.6	2.5421	1.7000e-004	4.0000e-005	2.5570
Parking Lot	114400	22.2944	1.5000e-003	3.1000e-004	22.4248
Total		27.3066	1.8400e-003	3.8000e-004	27.4663

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
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Category	tons/yr										MT/yr					
	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Mitigated	0.0260	1.0000e-005	1.3400e-003	0.0000			0.0000	0.0000		0.0000	0.0000	2.5700e-003	2.5700e-003	1.0000e-005	0.0000	2.7400e-003
Unmitigated	0.0260	1.0000e-005	1.3400e-003	0.0000			0.0000	0.0000		0.0000	0.0000	2.5700e-003	2.5700e-003	1.0000e-005	0.0000	2.7400e-003

6.2 Area by SubCategory

Unmitigated

SubCategory	tons/yr										MT/yr					
	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Architectural Coating	4.4500e-003						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0215						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.3000e-004	1.0000e-005	1.3400e-003	0.0000			0.0000	0.0000		0.0000	0.0000	2.5700e-003	2.5700e-003	1.0000e-005	0.0000	2.7400e-003
Total	0.0260	1.0000e-005	1.3400e-003	0.0000			0.0000	0.0000		0.0000	0.0000	2.5700e-003	2.5700e-003	1.0000e-005	0.0000	2.7400e-003

Mitigated

SubCategory	tons/yr										MT/yr					
	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Architectural Coating	4.4500e-003						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0215						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.3000e-004	1.0000e-005	1.3400e-003	0.0000			0.0000	0.0000		0.0000	0.0000	2.5700e-003	2.5700e-003	1.0000e-005	0.0000	2.7400e-003

Total	0.0260	1.0000e-005	1.3400e-003	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.5700e-003	2.5700e-003	1.0000e-005	0.0000	2.7400e-003
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7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.5631	0.0103	2.5000e-004	0.8942
Unmitigated	0.5631	0.0103	2.5000e-004	0.8942

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Automobile Care Center	0.155234 / 0.0951433	0.2778	5.0700e-003	1.2000e-004	0.4412
Gasoline/Service Station	0.159383 / 0.0976861	0.2853	5.2100e-003	1.3000e-004	0.4530
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		0.5631	0.0103	2.5000e-004	0.8943

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Automobile Care Center	0.155234 / 0.0951433	0.2778	5.0700e-003	1.2000e-004	0.4412
Gasoline/Service Station	0.159383 / 0.0976861	0.2853	5.2100e-003	1.3000e-004	0.4530
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		0.5631	0.0103	2.5000e-004	0.8943

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	2.5922	0.1532	0.0000	6.4221
Unmitigated	2.5922	0.1532	0.0000	6.4221

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Automobile Care Center	6.3	1.2788	0.0756	0.0000	3.1683
Gasoline/Service Station	6.47	1.3134	0.0776	0.0000	3.2538
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		2.5922	0.1532	0.0000	6.4221

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Automobile Care Center	6.3	1.2788	0.0756	0.0000	3.1683
Gasoline/Service Station	6.47	1.3134	0.0776	0.0000	3.2538
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		2.5922	0.1532	0.0000	6.4221

9.0 Operational Offroad

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

Fire Pumps and Emergency Generators

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

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

Equipment Type	Number
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11.0 Vegetation

SSF Costco - San Mateo County, Annual

SSF Costco - Construction TAC
San Mateo County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Parking Lot	130.00	1000sqft	2.98	130,000.00	0
Automobile Care Center	1.65	1000sqft	0.00	2,280.00	0
Gasoline/Service Station	12.00	Pump	0.00	1,694.10	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	70
Climate Zone	5			Operational Year	2018
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	429.64	CH4 Intensity (lb/MWhr)	0.029	N2O Intensity (lb/MWhr)	0.006

1.3 User Entered Comments & Non-Default Data

Land Use - New tire bays = auto care center

Construction Phase - 5 month construction schedule starting July 2017, adjusted based on CalEEMod default durations for a 5-month construction period

Off-road Equipment - default

Grading - 5,000cy export

Trips and VMT - 0.5mi trip lengths for risk assessment

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	10.00	3.00
tblConstructionPhase	NumDays	220.00	90.00
tblConstructionPhase	NumDays	20.00	8.00
tblConstructionPhase	NumDays	6.00	2.00
tblConstructionPhase	NumDays	10.00	4.00
tblConstructionPhase	NumDays	3.00	1.00
tblConstructionPhase	PhaseEndDate	4/6/2017	11/29/2017
tblConstructionPhase	PhaseEndDate	3/28/2017	11/20/2017
tblConstructionPhase	PhaseEndDate	11/17/2016	7/12/2017
tblConstructionPhase	PhaseEndDate	11/22/2016	7/17/2017
tblConstructionPhase	PhaseEndDate	4/3/2017	11/24/2017
tblConstructionPhase	PhaseEndDate	11/18/2016	7/13/2017
tblConstructionPhase	PhaseStartDate	4/4/2017	11/25/2017
tblConstructionPhase	PhaseStartDate	11/23/2016	7/18/2017
tblConstructionPhase	PhaseStartDate	11/8/2016	7/1/2017
tblConstructionPhase	PhaseStartDate	11/19/2016	7/14/2017
tblConstructionPhase	PhaseStartDate	3/29/2017	11/21/2017
tblConstructionPhase	PhaseStartDate	11/18/2016	7/13/2017
tblGrading	MaterialExported	0.00	5,000.00
tblLandUse	BuildingSpaceSquareFeet	1,650.00	1,646.00
tblLandUse	LandUseSquareFeet	1,650.00	1,646.00
tblLandUse	LotAcreage	0.04	0.00
tblLandUse	LotAcreage	0.04	0.00
tblProjectCharacteristics	CO2IntensityFactor	641.35	429.64
tblTripsAndVMT	HaulingTripLength	20.00	0.50
tblTripsAndVMT	HaulingTripLength	20.00	0.50
tblTripsAndVMT	HaulingTripLength	20.00	0.50
tblTripsAndVMT	HaulingTripLength	20.00	0.50

tblTripsAndVMT	HaulingTripLength	20.00	0.50
tblTripsAndVMT	HaulingTripLength	20.00	0.50
tblTripsAndVMT	VendorTripLength	7.30	0.50
tblTripsAndVMT	VendorTripLength	7.30	0.50
tblTripsAndVMT	VendorTripLength	7.30	0.50
tblTripsAndVMT	VendorTripLength	7.30	0.50
tblTripsAndVMT	VendorTripLength	7.30	0.50
tblTripsAndVMT	VendorTripLength	7.30	0.50
tblTripsAndVMT	WorkerTripLength	10.80	0.50
tblTripsAndVMT	WorkerTripLength	10.80	0.50
tblTripsAndVMT	WorkerTripLength	10.80	0.50
tblTripsAndVMT	WorkerTripLength	10.80	0.50
tblTripsAndVMT	WorkerTripLength	10.80	0.50
tblTripsAndVMT	WorkerTripLength	10.80	0.50
tblTripsAndVMT	WorkerTripLength	10.80	0.50
tblVehicleTrips	PB_TP	59.00	0.00
tblVehicleTrips	PR_TP	14.00	73.00
tblVehicleTrips	ST_TR	23.72	0.00
tblVehicleTrips	ST_TR	168.56	42.00
tblVehicleTrips	SU_TR	11.88	0.00
tblVehicleTrips	SU_TR	168.56	42.00
tblVehicleTrips	WD_TR	23.72	0.00
tblVehicleTrips	WD_TR	168.56	42.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
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Year	tons/yr										MT/yr					
2017	0.2233	1.3198	0.8980	1.3900e-003	9.2200e-003	0.0772	0.0864	3.9400e-003	0.0736	0.0775	0.0000	120.7117	120.7117	0.0269	0.0000	121.3831
Maximum	0.2233	1.3198	0.8980	1.3900e-003	9.2200e-003	0.0772	0.0864	3.9400e-003	0.0736	0.0775	0.0000	120.7117	120.7117	0.0269	0.0000	121.3831

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					
2017	0.2233	1.3198	0.8980	1.3900e-003	9.2200e-003	0.0772	0.0864	3.9400e-003	0.0736	0.0775	0.0000	120.7116	120.7116	0.0269	0.0000	121.3830
Maximum	0.2233	1.3198	0.8980	1.3900e-003	9.2200e-003	0.0772	0.0864	3.9400e-003	0.0736	0.0775	0.0000	120.7116	120.7116	0.0269	0.0000	121.3830

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	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)
3	5-8-2017	8-7-2017	0.4356	0.4356
4	8-8-2017	9-30-2017	0.5402	0.5402
		Highest	0.5402	0.5402

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
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1	Demolition	Demolition	7/1/2017	7/12/2017	5	8
2	Site Preparation	Site Preparation	7/13/2017	7/13/2017	5	1
3	Grading	Grading	7/14/2017	7/17/2017	5	2
4	Building Construction	Building Construction	7/18/2017	11/20/2017	5	90
5	Paving	Paving	11/21/2017	11/24/2017	5	4
6	Architectural Coating	Architectural Coating	11/25/2017	11/29/2017	5	3

Acres of Grading (Site Preparation Phase): 1.5

Acres of Grading (Grading Phase): 1

Acres of Paving: 2.98

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 5,010; Non-Residential Outdoor: 1,670; Striped Parking Area:

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Building Construction	Cranes	1	8.00	231	0.29
Building Construction	Forklifts	2	7.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Building Construction	Welders	3	8.00	46	0.45
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Rubber Tired Dozers	1	8.00	247	0.40
Demolition	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Grading	Graders	1	8.00	187	0.41
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	8.00	9	0.56
Paving	Pavers	1	8.00	130	0.42
Paving	Paving Equipment	1	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38

Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Site Preparation	Graders	1	8.00	187	0.41
Site Preparation	Scrapers	1	8.00	367	0.48
Site Preparation	Tractors/Loaders/Backhoes	1	7.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Architectural Coating	1	11.00	0.00	0.00	0.50	0.50	0.50	LD_Mix	HDT_Mix	HHDT
Building Construction	8	56.00	22.00	0.00	0.50	0.50	0.50	LD_Mix	HDT_Mix	HHDT
Demolition	5	13.00	0.00	0.00	0.50	0.50	0.50	LD_Mix	HDT_Mix	HHDT
Grading	4	10.00	0.00	625.00	0.50	0.50	0.50	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	0.50	0.50	0.50	LD_Mix	HDT_Mix	HHDT
Site Preparation	3	8.00	0.00	0.00	0.50	0.50	0.50	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2017

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	0.0111	0.1070	0.0622	1.0000e-004		6.5900e-003	6.5900e-003		6.1600e-003	6.1600e-003	0.0000	8.7867	8.7867	2.2200e-003	0.0000	8.8423
Total	0.0111	0.1070	0.0622	1.0000e-004		6.5900e-003	6.5900e-003		6.1600e-003	6.1600e-003	0.0000	8.7867	8.7867	2.2200e-003	0.0000	8.8423

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.0000e-005	3.0000e-005	3.5000e-004	0.0000	2.0000e-005	0.0000	2.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0279	0.0279	0.0000	0.0000	0.0280
Total	6.0000e-005	3.0000e-005	3.5000e-004	0.0000	2.0000e-005	0.0000	2.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0279	0.0279	0.0000	0.0000	0.0280

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	0.0111	0.1070	0.0622	1.0000e-004		6.5900e-003	6.5900e-003		6.1600e-003	6.1600e-003	0.0000	8.7867	8.7867	2.2200e-003	0.0000	8.8423
Total	0.0111	0.1070	0.0622	1.0000e-004		6.5900e-003	6.5900e-003		6.1600e-003	6.1600e-003	0.0000	8.7867	8.7867	2.2200e-003	0.0000	8.8423

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
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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
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.0000e-005	3.0000e-005	3.5000e-004	0.0000	2.0000e-005	0.0000	2.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0279	0.0279	0.0000	0.0000	0.0280
Total	6.0000e-005	3.0000e-005	3.5000e-004	0.0000	2.0000e-005	0.0000	2.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0279	0.0279	0.0000	0.0000	0.0280

3.3 Site Preparation - 2017

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					8.0000e-004	0.0000	8.0000e-004	9.0000e-005	0.0000	9.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.0700e-003	0.0134	7.2100e-003	1.0000e-005		5.5000e-004	5.5000e-004		5.1000e-004	5.1000e-004	0.0000	1.1378	1.1378	3.5000e-004	0.0000	1.1465
Total	1.0700e-003	0.0134	7.2100e-003	1.0000e-005	8.0000e-004	5.5000e-004	1.3500e-003	9.0000e-005	5.1000e-004	6.0000e-004	0.0000	1.1378	1.1378	3.5000e-004	0.0000	1.1465

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	3.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	2.1500e-003	2.1500e-003	0.0000	0.0000	2.1500e-003

Total	0.0000	0.0000	3.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	2.1500e-003	2.1500e-003	0.0000	0.0000	2.1500e-003
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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					8.0000e-004	0.0000	8.0000e-004	9.0000e-005	0.0000	9.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.0700e-003	0.0134	7.2100e-003	1.0000e-005		5.5000e-004	5.5000e-004		5.1000e-004	5.1000e-004	0.0000	1.1378	1.1378	3.5000e-004	0.0000	1.1465
Total	1.0700e-003	0.0134	7.2100e-003	1.0000e-005	8.0000e-004	5.5000e-004	1.3500e-003	9.0000e-005	5.1000e-004	6.0000e-004	0.0000	1.1378	1.1378	3.5000e-004	0.0000	1.1465

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	3.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	2.1500e-003	2.1500e-003	0.0000	0.0000	2.1500e-003
Total	0.0000	0.0000	3.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	2.1500e-003	2.1500e-003	0.0000	0.0000	2.1500e-003

3.4 Grading - 2017

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					6.8400e-003	0.0000	6.8400e-003	3.4100e-003	0.0000	3.4100e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.3200e-003	0.0262	0.0108	2.0000e-005		1.3000e-003	1.3000e-003		1.1900e-003	1.1900e-003	0.0000	1.9161	1.9161	5.9000e-004	0.0000	1.9308
Total	2.3200e-003	0.0262	0.0108	2.0000e-005	6.8400e-003	1.3000e-003	8.1400e-003	3.4100e-003	1.1900e-003	4.6000e-003	0.0000	1.9161	1.9161	5.9000e-004	0.0000	1.9308

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	8.9000e-004	0.0323	0.0101	3.0000e-005	1.4000e-004	6.0000e-005	2.0000e-004	4.0000e-005	6.0000e-005	1.0000e-004	0.0000	2.7236	2.7236	4.3000e-004	0.0000	2.7344
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	1.0000e-005	1.0000e-005	7.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	5.3700e-003	5.3700e-003	0.0000	0.0000	5.3800e-003
Total	9.9000e-004	0.0323	0.0102	3.0000e-005	1.4000e-004	6.0000e-005	2.0000e-004	4.0000e-005	6.0000e-005	1.0000e-004	0.0000	2.7289	2.7289	4.3000e-004	0.0000	2.7398

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					6.8400e-003	0.0000	6.8400e-003	3.4100e-003	0.0000	3.4100e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.3200e-003	0.0262	0.0108	2.0000e-005		1.3000e-003	1.3000e-003		1.1900e-003	1.1900e-003	0.0000	1.9161	1.9161	5.9000e-004	0.0000	1.9308
Total	2.3200e-003	0.0262	0.0108	2.0000e-005	6.8400e-003	1.3000e-003	8.1400e-003	3.4100e-003	1.1900e-003	4.6000e-003	0.0000	1.9161	1.9161	5.9000e-004	0.0000	1.9308

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	8.9000e-004	0.0323	0.0101	3.0000e-005	1.4000e-004	6.0000e-005	2.0000e-004	4.0000e-005	6.0000e-005	1.0000e-004	0.0000	2.7236	2.7236	4.3000e-004	0.0000	2.7344
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	1.0000e-005	1.0000e-005	7.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	5.3700e-003	5.3700e-003	0.0000	0.0000	5.3800e-003
Total	9.9000e-004	0.0323	0.0102	3.0000e-005	1.4000e-004	6.0000e-005	2.0000e-004	4.0000e-005	6.0000e-005	1.0000e-004	0.0000	2.7289	2.7289	4.3000e-004	0.0000	2.7398

3.5 Building Construction - 2017

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	0.1504	1.0363	0.7340	1.1300e-003		0.0661	0.0661		0.0633	0.0633	0.0000	95.8377	95.8377	0.0213	0.0000	96.3713
Total	0.1504	1.0363	0.7340	1.1300e-003		0.0661	0.0661		0.0633	0.0633	0.0000	95.8377	95.8377	0.0213	0.0000	96.3713

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	2.3900e-003	0.0667	0.0285	5.0000e-005	4.7000e-004	1.8000e-004	6.5000e-004	1.4000e-004	1.7000e-004	3.1000e-004	0.0000	5.2441	5.2441	8.0000e-004	0.0000	5.2641
Worker	2.8000e-003	1.2900e-003	0.0172	2.0000e-005	9.4000e-004	2.0000e-005	9.6000e-004	2.5000e-004	2.0000e-005	2.7000e-004	0.0000	1.3524	1.3524	9.0000e-005	0.0000	1.3547
Total	5.1900e-003	0.0680	0.0457	7.0000e-005	1.4100e-003	2.0000e-004	1.6100e-003	3.9000e-004	1.9000e-004	5.8000e-004	0.0000	6.5965	6.5965	8.9000e-004	0.0000	6.6188

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	0.1504	1.0363	0.7340	1.1300e-003		0.0661	0.0661		0.0633	0.0633	0.0000	95.8376	95.8376	0.0213	0.0000	96.3712
Total	0.1504	1.0363	0.7340	1.1300e-003		0.0661	0.0661		0.0633	0.0633	0.0000	95.8376	95.8376	0.0213	0.0000	96.3712

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
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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	2.3900e-003	0.0667	0.0285	5.0000e-005	4.7000e-004	1.8000e-004	6.5000e-004	1.4000e-004	1.7000e-004	3.1000e-004	0.0000	5.2441	5.2441	8.0000e-004	0.0000	5.2641
Worker	2.8000e-003	1.2900e-003	0.0172	2.0000e-005	9.4000e-004	2.0000e-005	9.6000e-004	2.5000e-004	2.0000e-005	2.7000e-004	0.0000	1.3524	1.3524	9.0000e-005	0.0000	1.3547
Total	5.1900e-003	0.0680	0.0457	7.0000e-005	1.4100e-003	2.0000e-004	1.6100e-003	3.9000e-004	1.9000e-004	5.8000e-004	0.0000	6.5965	6.5965	8.9000e-004	0.0000	6.6188

3.6 Paving - 2017

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	3.3200e-003	0.0334	0.0244	4.0000e-005		2.0700e-003	2.0700e-003		1.9000e-003	1.9000e-003	0.0000	3.2700	3.2700	9.8000e-004	0.0000	3.2946
Paving	3.9000e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	7.2200e-003	0.0334	0.0244	4.0000e-005		2.0700e-003	2.0700e-003		1.9000e-003	1.9000e-003	0.0000	3.2700	3.2700	9.8000e-004	0.0000	3.2946

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	3.0000e-005	2.0000e-005	2.0000e-004	0.0000	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0161	0.0161	0.0000	0.0000	0.0161

Total	3.0000e-005	2.0000e-005	2.0000e-004	0.0000	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0161	0.0161	0.0000	0.0000	0.0161
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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	3.3200e-003	0.0334	0.0244	4.0000e-005		2.0700e-003	2.0700e-003		1.9000e-003	1.9000e-003	0.0000	3.2700	3.2700	9.8000e-004	0.0000	3.2946
Paving	3.9000e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	7.2200e-003	0.0334	0.0244	4.0000e-005		2.0700e-003	2.0700e-003		1.9000e-003	1.9000e-003	0.0000	3.2700	3.2700	9.8000e-004	0.0000	3.2946

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	3.0000e-005	2.0000e-005	2.0000e-004	0.0000	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0161	0.0161	0.0000	0.0000	0.0161
Total	3.0000e-005	2.0000e-005	2.0000e-004	0.0000	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0161	0.0161	0.0000	0.0000	0.0161

3.7 Architectural Coating - 2017

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	0.0445					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	5.0000e-004	3.2800e-003	2.8000e-003	0.0000		2.6000e-004	2.6000e-004		2.6000e-004	2.6000e-004	0.0000	0.3830	0.3830	4.0000e-005	0.0000	0.3840
Total	0.0450	3.2800e-003	2.8000e-003	0.0000		2.6000e-004	2.6000e-004		2.6000e-004	2.6000e-004	0.0000	0.3830	0.3830	4.0000e-005	0.0000	0.3840

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	1.0000e-005	1.1000e-004	0.0000	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0000	0.0000	0.0000	8.8500e-003	8.8500e-003	0.0000	0.0000	8.8700e-003
Total	2.0000e-005	1.0000e-005	1.1000e-004	0.0000	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0000	0.0000	0.0000	8.8500e-003	8.8500e-003	0.0000	0.0000	8.8700e-003

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	0.0445					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	5.0000e-004	3.2800e-003	2.8000e-003	0.0000		2.6000e-004	2.6000e-004		2.6000e-004	2.6000e-004	0.0000	0.3830	0.3830	4.0000e-005	0.0000	0.3840
Total	0.0450	3.2800e-003	2.8000e-003	0.0000		2.6000e-004	2.6000e-004		2.6000e-004	2.6000e-004	0.0000	0.3830	0.3830	4.0000e-005	0.0000	0.3840

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	1.0000e-005	1.1000e-004	0.0000	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0000	0.0000	0.0000	8.8500e-003	8.8500e-003	0.0000	0.0000	8.8700e-003
Total	2.0000e-005	1.0000e-005	1.1000e-004	0.0000	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0000	0.0000	0.0000	8.8500e-003	8.8500e-003	0.0000	0.0000	8.8700e-003

Costco Fueling Expansion, South San Francisco, CA

Costco Fueling Expansion, South San Francisco, CA

Proposed Facility - DPM Construction Emissions and Modeling Emission Rates - Unmitigated

Proposed Facility - PM2.5 Fugitive Dust Construction Emissions for Modeling - Unmitigated

Construction Year	Activity	DPM (ton/year)	Area Source	DPM Emissions			Modeled Area (m ²)	DPM Emission Rate (g/s/m ²)
				(lb/yr)	(lb/hr)	(g/s)		
2017	Construction	0.0701	DPMNEW	140.2	0.03841	4.84E-03	13,359	3.62E-07
Total		0.0701		140	0.0384	0.0048		

Construction Year	Activity	Area Source	PM2.5 Emissions				Modeled Area (m ²)	PM2.5 Emission Rate (g/s/m ²)
			(ton/year)	(lb/yr)	(lb/hr)	(g/s)		
2017	Construction	FUCNEW	0.0039	7.9	0.00216	2.72E-04	13,359	2.04E-08
Total			0.0039	7.9	0.0022	0.0003		

Construction Hours

hr/day = 10 (8am - 6pm)
 days/yr = 365
 hours/year = 3650

Construction Hours

hr/day = 10 (8am - 6pm)
 days/yr = 365
 hours/year = 3650

Existing Facility - DPM Construction Emissions and Modeling Emission Rates - Unmitigated

Existing Facility - PM2.5 Fugitive Dust Construction Emissions for Modeling - Unmitigated

Construction Year	Activity	DPM (ton/year)	Area Source	DPM Emissions			Modeled Area (m ²)	DPM Emission Rate (g/s/m ²)
				(lb/yr)	(lb/hr)	(g/s)		
2017	Construction	0.0071	DPMEXIST	14.2	0.00389	4.90E-04	4,456	1.10E-07
Total		0.0071		14	0.0039	0.0005		

Construction Year	Activity	Area Source	PM2.5 Emissions				Modeled Area (m ²)	PM2.5 Emission Rate (g/s/m ²)
			(ton/year)	(lb/yr)	(lb/hr)	(g/s)		
2017	Construction	FUGEXIST	0.0000	0.0	0.00000	0.00E+00	4,456	0.00E+00
Total			0.0000	0.0	0.0000	0.0000		

Construction Hours

hr/day = 10 (8am - 6pm)
 days/yr = 365
 hours/year = 3650

Construction Hours

hr/day = 10 (8am - 6pm)
 days/yr = 365
 hours/year = 3650

Costco Fueling Expansion, South San Francisco, CA - Project Construction Health Impact Summary

Maximum Impacts at Off-Site Residences

Construction Year	Unmitigated					
	Maximum Concentrations		Cancer Risk		Hazard Index (-)	Maximum Annual PM2.5 Concentration (µg/m ³)
	Exhaust PM10/DPM (µg/m ³)	Fugitive PM2.5 (µg/m ³)	Child (per million)	Adult (per million)		
2017	0.0493	0.0041	8.09	0.14	0.010	0.053
Total	-	-	8.1	0.1	-	-
Maximum Annual	0.0493	0.0041	-	-	0.010	0.053

Costco Fueling Expansion, South San Francisco, CA - Construction Impacts - Unmitigated Emissions

Maximum DPM Cancer Risk Calculations From Construction

Off-Site Residential Receptor Locations - 1.5 meters

Cancer Risk (per million) = CPF x Inhalation Dose x ASF x ED/AT x FAH x 1.0E6

- Where: CPF = Cancer potency factor (mg/kg-day)⁻¹
 ASF = Age sensitivity factor for specified age group
 ED = Exposure duration (years)
 AT = Averaging time for lifetime cancer risk (years)
 FAH = Fraction of time spent at home (unitless)

Inhalation Dose = C_{air} x DBR x A x (EF/365) x 10⁻⁶

- Where: C_{air} = concentration in air (µg/m³)
 DBR = daily breathing rate (L/kg body weight-day)
 A = Inhalation absorption factor
 EF = Exposure frequency (days/year)
 10⁻⁶ = Conversion factor

Values

Parameter	Infant/Child			Adult
	Age -> 3rd Trimester	0 - 2	2 - 16	16 - 30
ASF =	10	10	3	1
CPF =	1.10E+00	1.10E+00	1.10E+00	1.10E+00
DBR* =	361	1090	572	261
A =	1	1	1	1
EF =	350	350	350	350
AT =	70	70	70	70
FAH =	1.00	1.00	1.00	0.73

* 95th percentile breathing rates for infants and 80th percentile for children and adults

Construction Cancer Risk by Year - Maximum Impact Receptor Location

Exposure Year	Exposure Duration (years)	Infant/Child - Exposure Information				Infant/Child Cancer Risk (per million)	Adult - Exposure Information			Fugitive PM2.5	Total PM2.5	
		Age	DPM Conc (ug/m3)		Age		Modeled		Age			
			Year	Annual			Factor	Year				Annual
0	0.25	-0.25 - 0*		0.0000	10	0.00		0.0000	-	-	-	
1	1	0 - 1	2017	0.0493	10	8.09	2017	0.0493	1	0.14	0.0041	0.053
2	1	1 - 2		0.0000	10	0.00		0.0000	1	0.00		
3	1	2 - 3		0.0000	3	0.00		0.0000	1	0.00		
4	1	3 - 4		0.0000	3	0.00		0.0000	1	0.00		
5	1	4 - 5		0.0000	3	0.00		0.0000	1	0.00		
6	1	5 - 6		0.0000	3	0.00		0.0000	1	0.00		
7	1	6 - 7		0.0000	3	0.00		0.0000	1	0.00		
8	1	7 - 8		0.0000	3	0.00		0.0000	1	0.00		
9	1	8 - 9		0.0000	3	0.00		0.0000	1	0.00		
10	1	9 - 10		0.0000	3	0.00		0.0000	1	0.00		
11	1	10 - 11		0.0000	3	0.00		0.0000	1	0.00		
12	1	11 - 12		0.0000	3	0.00		0.0000	1	0.00		
13	1	12 - 13		0.0000	3	0.00		0.0000	1	0.00		
14	1	13 - 14		0.0000	3	0.00		0.0000	1	0.00		
15	1	14 - 15		0.0000	3	0.00		0.0000	1	0.00		
16	1	15 - 16		0.0000	3	0.00		0.0000	1	0.00		
17	1	16-17		0.0000	1	0.00		0.0000	1	0.00		
18	1	17-18		0.0000	1	0.00		0.0000	1	0.00		
19	1	18-19		0.0000	1	0.00		0.0000	1	0.00		
20	1	19-20		0.0000	1	0.00		0.0000	1	0.00		
21	1	20-21		0.0000	1	0.00		0.0000	1	0.00		
22	1	21-22		0.0000	1	0.00		0.0000	1	0.00		
23	1	22-23		0.0000	1	0.00		0.0000	1	0.00		
24	1	23-24		0.0000	1	0.00		0.0000	1	0.00		
25	1	24-25		0.0000	1	0.00		0.0000	1	0.00		
26	1	25-26		0.0000	1	0.00		0.0000	1	0.00		
27	1	26-27		0.0000	1	0.00		0.0000	1	0.00		
28	1	27-28		0.0000	1	0.00		0.0000	1	0.00		
29	1	28-29		0.0000	1	0.00		0.0000	1	0.00		
30	1	29-30		0.0000	1	0.00		0.0000	1	0.00		
Total Increased Cancer Risk						8.1				0.14		

* Third trimester of pregnancy

Fueling Evaporative Emissions and Risk Calculations

South San Francisco Costco Fuel Station - Projected Benzene Emissions

Estimated Annual Gasoline Throughput = 20,000,000 gallons/year

TOG Emission Factors and Annual Emissions

Emission Source	TOG¹ Emission Factor (lb/10³ gallon)	TOG Annual Emissions (lb/year)
Fueling		
Non-ORVR Vehicles	0.42	1,680.0
ORVR Vehicles	0.021	336.0
Bulk Transfer Losses	0.15	3,000.0
Pressure Driven Losses	0.024	480.0
Fueling - Spillage	0.24	4,800.0
Gasoline Hose Losses	0.009	180.0
Total	0.532	10,476.0

TOG = total organic gas

ORVR = onboard refueling vapor recovery

1. Emission factors from CARB "Revised Emissions Factors for Gasoline Marketing Operations at California Gasoline Dispensing Facilities". December 23, 2013 (CARB, 2013). Assumes use of enhanced vapor recovery systems.

Benzene Emissions

Source	Annual Gasoline Throughput (gallons/year)	Annual TOG Emissions (lb/year)	Percent¹ Benzene in Vapor (%)	Operation² Schedule (days/year)	Benzene Emissions	
					Annual Average (lb/year)	Average Daily (lb/day)
Fuel Station	20,000,000	10,476	0.3%	365	31.43	0.08610

Notes:

- CAPCOA Air Toxics "Hot Spots" Program, Gasoline Service Station Industrywide Risk Assessment Guidelines, November 1997.
- Daily operation assumed to be 365 days per year

Plant #: _____

Plant Name: SSF Costco

Number of Sources:

Pollutant Name	Emission/lbs per day	Chronic Hazard
ACETALDEHYDE	0	0
ACROLEIN		0
ACRYLONITRILE		0
AMMONIA		0
ARSENIC AND COMPOUNDS (INORGANIC)1,2		0
ARSINE		0
BENZENE1	8.61E-02	0.002709091
BERYLLIUM AND COMPOUNDS2		0
1,3-BUTADIENE		0
CADMIUM AND COMPOUNDS2		0
CARBON DISULFIDE1		0
CARBON TETRACHLORIDE1 (Tetrachloromethane)		0
CHLORINE		0
CHLORINE DIOXIDE		0
CHLOROBENZENE		0
CHLOROFORM1		0
2,3,4,6-Tetrachlorophenol		0
CHLOROPICRIN		0
CHROMIUM 6+2		0
Barium chromate2		0
Calcium chromate2		0
Lead chromate2		0
Sodium dichromate2		0
Strontium chromate2		0
CHROMIC TRIOXIDE (as chromic acid mist)		0
CRESOLS		0
M-CRESOL		0
O-CRESOL		0
P-CRESOL		0
Cyanide And Compounds (inorganic)		0
HYDROGEN CYANIDE (Hydrocyanic acid)		0
1,4-DICHLOROBENZENE		0
DIETHANOLAMINE		0
DIMETHYLAMINE		0
N,N-DIMETHYL FORMAMIDE		0
1,4-DIOXANE (1,4-Diethylene dioxide)		0
EPICHLOROHYDRIN (1-Chloro-2,3-epoxypropane)		0
1,2-EPOXYBUTANE		0
ETHYL BENZENE		0
ETHYL CHLORIDE (Chloroethane)		0
ETHYLENE DIBROMIDE (1,2-Dibromoethane)		0
ETHYLENE DICHLORIDE (1,2-Dichloroethane)		0
ETHYLENE GLYCOL		0
ETHYLENE OXIDE (1,2-Epoxyethane)		0
Fluorides		0
HYDROGEN FLUORIDE (Hydrofluoric acid)		0
FORMALDEHYDE		0
GASOLINE VAPORS		0
GLUTARALDEHYDE		0
ETHYLENE GLYCOL ETHYL ETHER – EGEE1		0
ETHYLENE GLYCOL ETHYL ETHER ACETATE – EGEEA1		0
ETHYLENE GLYCOL METHYL ETHER – EGME1		0
ETHYLENE GLYCOL METHYL ETHER ACETATE – EGMEA		0
n-HEXANE		0
HYDRAZINE		0
HYDROCHLORIC ACID (Hydrogen chloride)		0
HYDROGEN SULFIDE		0
ISOPHORONE		0
ISOPROPYL ALCOHOL (Isopropanol)		0
MALEIC ANHYDRIDE		0
MANGANESE AND COMPOUNDS		0
MERCURY AND COMPOUNDS (INORGANIC) values also apply to:		0
Mercuric chloride		0
METHANOL		0
METHYL BROMIDE (Bromomethane)		0
METHYL tertiary-BUTYL ETHER		0
METHYL CHLOROFORM (1,1,1-Trichloroethane)		0
METHYL ISOCYANATE		0
METHYLENE CHLORIDE (Dichloromethane)		0
4,4'-METHYLENE DIANILINE (AND ITS DICHLORIDE)		0
METHYLENE DIPHENYL ISOCYANATE		0
NICKEL AND COMPOUNDS2 (values also apply to):		0
Nickel acetate2		0
Nickel carbonate2		0
Nickel carbonyl2		0
Nickel hydroxide2		0
Nickelocene2		0
NICKEL OXIDE2		0
Nickel refinery dust from the pyrometallurgical process2		0
Nickel subsulfide2		0
NITROGEN DIOXIDE		0
PARTICULATE EMISSIONS FROM DIESEL-FUELED ENGINES		0
PERCHLOROETHYLENE (Tetrachloroethylene)		0
PHENOL		0
PHOSPHINE		0
PHOSPHORIC ACID		0
PHOSPHORUS (WHITE)		0
PHTHALIC ANHYDRIDE		0
POLYCHLORINATED DIBENZO-P-DIOXINS (PCDD)AS		0
2,3,7,8-PCDD EQUIV) 2,7		0
2,3,7,8-TETRACHLORODIBENZO-P-DIOXIN2,7		0
1,2,3,7,8-PENTACHLORODIBENZO-P-DIOXIN2,7		0
1,2,3,4,7,8-HEXACHLORODIBENZO-P-DIOXIN2,7		0
1,2,3,6,7,8-HEXACHLORODIBENZO-P-DIOXIN2,7		0
1,2,3,7,8,9-HEXACHLORODIBENZO-P-DIOXIN2,7		0
1,2,3,4,6,7,8-HEPTACHLORODIBENZO-P-DIOXIN2,7		0
1,2,3,4,6,7,8,9-OCTACHLORODIBENZO-P-DIOXIN2,7		0
POLYCHLORINATED DIBENZOFURANS (PCDF)AS		0
2,3,7,8-PCDD EQUIV) 2,7		0
2,3,7,8-TETRACHLORODIBENZOFURAN2,7		0
1,2,3,7,8-PENTACHLORODIBENZOFURAN2,7		0
2,3,4,7,8-PENTACHLORODIBENZOFURAN2,7		0
1,2,3,4,7,8-HEXACHLORODIBENZOFURAN2,7		0
1,2,3,6,7,8-HEXACHLORODIBENZOFURAN2,7		0
1,2,3,7,8,9-HEXACHLORODIBENZOFURAN2,7		0
2,3,4,6,7,8-HEPTACHLORODIBENZOFURAN2,7		0
1,2,3,4,6,7,8,9-HEPTACHLORODIBENZOFURAN2,7		0
1,2,3,4,7,8,9-HEPTACHLORODIBENZOFURAN2,7		0
1,2,3,4,6,7,8,9-OCTACHLORODIBENZOFURAN2,7		0
NAPHTHALENE		0
PROPYLENE (PROPENE)		0
PROPYLENE GLYCOL MONOMETHYL ETHER		0
PROPYLENE OXIDE		0
SELENIUM AND COMPOUNDS		0
Selenium sulfide		0
SILICA (Crystalline, Respirable)		0
STYRENE		0
SULFUR DIOXIDE		0
SULFURIC ACID AND OLEUM		0
SULFURIC ACID		0
SULFUR TRIOXIDE		0
OLEUM		0
TOLUENE		0
Toluene diisocyanates		0
TOLUENE-2,4-DIISOCYANATE		0
TOLUENE-2,6-DIISOCYANATE		0
TRICHLOROETHYLENE		0
TRIETHYLAMINE		0
VINYL ACETATE		0
VINYLDENE CHLORIDE (1,1-Dichloroethylene)		0
XYLENES (mixed isomers)		0
m-XYLENE		0
o-XYLENE		0
p-XYLENE		0
TOTAL:		2.71E-03

Plant #:

Plant Name:

Number of Sources:

SSF Costco

Pollutant Name	Emission/lbs per day	Acute Hazard
ACETALDEHYDE	0	0
ACROLEIN		0
ACRYLIC ACID		0
AMMONIA		0
ARSENIC AND COMPOUNDS (INORGANIC)1,2		0
ARSINE		0
BENZENE1	8.61E-02	0.00125035
BENZYL CHLORIDE		0
CARBON DISULFIDE1		0
CARBON MONOXIDE		0
CARBON TETRACHLORIDE1 (Tetrachloromethane)		0
CHLORINE		0
CHLOROFORM1		0
CHLOROPICRIN		0
COPPER AND COMPOUNDS		0
<i>Cyanide And Compounds (inorganic)</i>		0
HYDROGEN CYANIDE (Hydrocyanic acid)		0
1,4-DIOXANE (1,4-Diethylene dioxide)		0
EPICHLOROHYDRIN (1-Chloro-2,3-epoxypropane)		0
<i>Fluorides</i>		0
HYDROGEN FLUORIDE (Hydrofluoric acid)		0
FORMALDEHYDE		0
ETHYLENE GLYCOL BUTYL ETHER – EGBE		0
ETHYLENE GLYCOL ETHYL ETHER – EGEE1		0
ETHYLENE GLYCOL ETHYL ETHER ACETATE – EGEEA1		0
ETHYLENE GLYCOL METHYL ETHER – EGME1		0
HYDROCHLORIC ACID (Hydrogen chloride)		0
HYDROGEN SULFIDE		0
ISOPROPYL ALCOHOL (Isopropanol)		0
MERCURY AND COMPOUNDS (INORGANIC) values also apply to:		0
<i>Mercuric chloride</i>		0
METHANOL		0
METHYL BROMIDE (Bromomethane)		0
METHYL CHLOROFORM (1,1,1-Trichloroethane)		0
METHYL ETHYL KETONE (2-Butanone)		0
METHYLENE CHLORIDE (Dichloromethane)		0
NICKEL AND COMPOUNDS2 (values also apply to:)		0
<i>Nickel acetate2</i>		0
<i>Nickel carbonate2</i>		0
<i>Nickel carbonyl2</i>		0
<i>Nickel hydroxide2</i>		0

<i>Nickelocene</i> 2		0
NICKEL OXIDE2		0
<i>Nickel refinery dust from the pyrometallurgical process</i> 2		0
<i>Nickel subsulfide</i> 2		0
NITRIC ACID		0
OZONE		0
PROPYLENE OXIDE		0
HYDROGEN SELENIDE		0
SODIUM HYDROXIDE		0
STYRENE		0
SULFATES		0
SULFUR DIOXIDE		0
SULFURIC ACID AND OLEUM		0
<i>SULFURIC ACID</i>		0
<i>SULFUR TRIOXIDE</i>		0
<i>OLEUM</i>		0
TOLUENE		0
TRIETHYLAMINE		0
<i>Vanadium (fume or dust)</i>		0
VANADIUM PENTOXIDE		0
VINYL CHLORIDE (Chloroethylene)		0
XYLENES (mixed isomers)		0
m-XYLENE		0
o-XYLENE		0
p-XYLENE		0
	TOTAL:	1.25E-03

APPENDIX C

**Biological Resources Assessment
WRA, Inc., November 2016**



November 11, 2016

Adena Freidman
City of South San Francisco
Economic & Community Development Department
P.O. Box 711
South San Francisco, CA 94083-0711

Re: Biological Resources Assessment: Costco Fueling Facility Relocation, Parking Expansion, and Tire Center & Dairy Cooler Addition Project, 1600 El Camino Real, South San Francisco, CA

Dear Ms. Friedman,

The purpose of this letter is to inform you of the results of the biological resources assessment and routine wetland delineation for the Costco Fueling Facility Relocation, Parking Expansion, and Tire Center & Dairy Cooler Addition (Project), located at 1600 El Camino Real (APN # 010-212-070) South San Francisco, San Mateo County, California (Figure 1, attached). The WRA site visit took place on June 17, 2016 and was conducted by a qualified biologist experienced in similar site inspections.

The Study Area is comprised predominantly of developed and disturbed areas, which include an existing parking lot in the southern portion of the Study Area, and a disturbed, vacant lot in the northern portion of the Study Area. A concrete-lined, trapezoidal stormwater drainage channel (Colma Creek) splits the Study Area from west to east. The Study Area is bound on all sides by commercial and residential uses. In the greater landscape context, the Study Area occurs within a developed area of South San Francisco and does not provide habitat connections to or from open space in the area (e.g. San Bruno Mountain).

The proposed project includes the relocation of the existing fueling facility, a parking lot expansion, and the addition of a tire center and produce cooler within the existing Costco development. The parking lot expansion would include installation of a box culvert in Colma Creek. The culvert would be designed in accordance with the San Mateo County Flood Control District standards for peak events.

Methods

Prior to the site visit, background literature was reviewed to determine potential presence of sensitive vegetation types, aquatic communities, and special-status plant and wildlife species. Resources reviewed for sensitive vegetation communities and aquatic features include aerial photography (Google Earth 2016), mapped soil types (CSRL 2016), the California Department of Fish and Wildlife's (CDFW) California Natural Diversity Database (CNDDB), the California Native Plant Society's (CNPS) Electronic Inventory (CNPS 2016), the U.S. Fish and Wildlife Service's National Wetlands Inventory (USFWS 2016a), and Information for Planning and Conservation (IPaC) Database (USFWS 2016b), and the San Francisco South USGS 7.5'

quadrangle (USGS 2015). Background information regarding special-status plant and wildlife species was obtained through review of the CNDDDB, CNPS Online Inventory, and USFWS IPaC Database for the San Francisco South USGS 7.5' quadrangle. Available aerial photography, and species habitat requirements as noted in available literature were also collected.

On June 17, 2016, WRA traversed the Study Area on foot to evaluate the potential presence of sensitive vegetation communities and aquatic features, and evaluate on-site habitat to determine the potential for occurrence of special-status plant and wildlife species. Observed plant communities, aquatic features, and plant and wildlife species were noted. Site conditions were noted as they relate to habitat requirements of special-status plant and wildlife species known to occur in the vicinity, as determined by the background literature research.

Results

Vegetation Communities

The Study Area is composed of approximately 3.45 acres of developed/landscaped areas, including an existing parking lot and pedestrian walkway in the southern portion. Additionally, there is approximately 0.68 acre of disturbed/ruderal areas including a vacant lot in the northern portion of the Study Area. Landscaped areas are limited to parking lot medians in the southern portion of the Study Area, which contain an array of planted ornamental shrubs and trees including oleander (*Nerium oleander*), and pear (*Pyrus* sp.). The northern portion of the Study Area contains ruderal vegetation composed of predominantly non-native, invasive grasses and forb species, with scattered ornamental trees.

Dominant vegetation within the disturbed/ruderal area included non-native, invasive grasses and forbs including slim oat (*Avena barbata*), wild radish (*Raphanus sativus*) and prickly lettuce (*Lactuca serriola*), with scattered ornamental and/or naturalized trees including lollypop tree (*Myoporum laetum*), Monterey pine (*Pinus radiata*), and one native red willow (*Salix laevigata*) tree, located in the uplands above the top of bank of the concrete channel of Colma Creek.

Aquatic communities within the Study Area include open waters associated with the concrete-lined channel of Colma Creek, discussed in detail below.

Wetlands and Non-Wetland Waters of the US

Wetlands are not present in the Study Area. However, approximately 0.16 acre (615 linear feet) of non-wetland waters were observed within the Study Area, associated with Colma Creek (Figures 2 and 3). The channel of Colma Creek is a concrete trapezoidal flood control and stormwater drainage channel, comprised of a concrete bed and banks with no natural substrates. This perennial channel is fed by many storm drain outlets of varying sizes along its length and contained standing water with algal blooms during the site visit.

Because the concrete channel carries a natural watercourse (Colma Creek), contains an identifiable ordinary high water mark (OHWM) and is a tributary of San Francisco Bay, a traditional navigable water body, the channel was determined to be potentially jurisdictional under Section 404 of the Clean Water Act (CWA) based on current U.S. Army Corps of Engineers (Corps) guidance. Colma Creek may also be considered Regional Water Quality Control Board (RWQCB) jurisdiction under Section 401 of the CWA and the Porter-Cologne Act, and CDFW jurisdiction under Section 1600-1616 of the California Fish and Game Code (CFGC). The extent of Corps and RWQCB jurisdiction within the Study Area extends to the

OHW of Colma Creek, as shown on Figure 3. CDFW jurisdiction within the Study Area extends to the top of bank of Colma Creek (Figure 3). Waters in the channel within the Study Area are not tidal and occur approximately 3.9 river-miles from the San Francisco Bay.

	
<p>Photograph facing southeast towards the trapezoidal channel of Colma Creek, carrying potential waters of the U.S.</p>	<p>Photograph taken in the northwest corner of the Study Area facing east towards the concrete flood control channel of Colma Creek, carrying potential waters of the U.S.</p>

Special-Status Plant Species

Forty-two special-status plant species are known to occur in the vicinity of the Study Area (CDFW 2016, CNPS 2016). No special-status plant species were observed during the site visit. Two Monterey pine (CNPS Rank 1B.1) trees were observed within the Study Area; however, only native occurrences of this species are considered special-status and the Study Area is not located at the site of a native occurrence (CNPS 2016). Monterey pine is widely naturalized throughout coastal California, and is considered invasive outside of its native range (Cal-IPC 2016). Current conditions in the Study Area do not contain suitable habitat for special-status plant species known to occur in the vicinity, based on the highly disturbed and developed conditions of the site, and dominance of non-native, invasive species. There is no potential for the Study Area to support special-status plant species.

Special-Status Wildlife Species

Twenty-nine special-status wildlife species are known to occur in the vicinity of the Study Area. No special-status wildlife species have the potential to occur within the Study Area due to disturbed and developed site conditions. The Study Area does not contain suitable habitat for any special-status wildlife species. Callippe silverspot butterfly (*Speyeria callippe callippe*), and Mission blue butterfly (*Icaricia [Plebejus] icarioides missionensis*) have been documented within 1 mile of the Study Area on San Bruno Mountain. However, the Study Area has no potential to support these species due to the highly disturbed and developed conditions of the site, dominance of non-native invasive plant species, and lack of larval host plants (e.g. *Viola pedunculata* and *Lupinus* spp.) and preferred nectar plants (e.g. *Heterotheca villosa*, *Dichelostemma capitatum*). Colma Creek, which runs from south to north in the site, is a concrete stormwater drainage channel that lacks natural substrate and vegetation and thus lacks suitable habitat for anadromous fish species or special-status amphibians. There is no

potential for special-status amphibian or fish species to occur, nor is there essential fish habitat (EFH) present within the concrete channel. The closest EFH is located approximately 2.8 miles east of the Study Area, i.e. the high-tide line of San Francisco Bay (NOAA 2016).

Non-Special-Status Birds and Bats

Nesting birds have potential to occur within some areas of the Study Area including in trees, shrubs, and along existing structures. No trees, structures, or culverts observed within the Study Area provide suitable roost habitat for bat species; therefore, there is no potential for bats to roost within the Study Area.

Protected Trees

The Study Area may contain trees protected per the City of South San Francisco Tree Protection Ordinance. The City of South San Francisco encourages the protection and preservation of trees within its city limits. The City of South San Francisco Tree Preservation Ordinance declares it unlawful to prune or remove a “protected tree” without a permit. Protected trees are defined as those with a minimum circumference of 48 inches (15.28 inches diameter) when measured at 54 inches above natural grade.

Impacts and Mitigation Summary

Based on the results of the site visit, the Study Area contains a concrete drainage channel (Colma Creek) that is potentially jurisdictional as “Waters of the U.S” by the Corps, and as “Waters of the State” by the RWQCB. Colma Creek may also be considered CDFW jurisdiction under Sections 1600-1616 of the CFGC. Impacts to Colma Creek associated with the Project may require a Section 404 Corps permit, RWQCB Section 401 Water Quality Certification, and a Section 1602 Streambed Alteration Agreement from CDFW. Regulatory permits are anticipated to be required from these regulatory agencies for potential impacts to up to 0.11 acres (415 linear feet) of Colma Creek. Despite its current condition, Colma Creek would also be considered a sensitive natural community by CDFW due to its hydrological connectivity and open channel form. Mitigation for these impacts will require creation of perennial stream at a minimum of a 1:1 ratio for impacts, or restoration of a perennial stream that would provide equivalent biological function to the impacted creek segment. The RWQCB will also require their review and approval of stormwater plans associated with the entirety of the Project and may require additional stormwater treatment and/or mitigation for potential increases in impervious surfaces.

Dewatering of Colma Creek is also anticipated prior to work planned in the stream channel. Based on the lack of habitat fish, wildlife, and plants within the concrete lined channel, potential impacts due to dewatering are less than significant. Colma Creek, runs beneath paved and developed areas for miles upstream of the project area, is culverted beneath the South San Francisco BART station for several thousand feet downstream of the project area, and is not in a condition that can support fish, wildlife or plant species. Based on these conditions, the creek does not provide a corridor suitable for movement of wildlife or distribution of plant species.

The Study Area may contain trees protected per the City of South San Francisco Tree Preservation Ordinance, as described above. Trimming a protected tree is allowed without a permit; however, removing a protected tree requires a tree removal permit from the City of South San Francisco Parks and Recreation Department. Trimming is defined as the removal of less than one third of the crown or existing foliage of the tree or less than one third of the root system. Prior to the removal of any trees within the Study Area, a tree survey should be completed to confirm whether any trees are protected and would require a tree removal permit from the City.

The Study Area does not have the potential to support special-status plant or wildlife species. However, trees and shrubs in the Study Area do have the potential to support nesting birds protected by the Migratory Bird Treaty Act. To comply with the Migratory Bird Treaty Act, pre-construction breeding bird surveys completed by a qualified biologist are recommended if construction activity is initiated or if trees and shrubs are removed between February 15 and August 31 (the dates of the breeding bird season in this vicinity). If nesting birds are observed during the preconstruction surveys, the biologist will set appropriate buffers surrounding active nests based on the species present, generally between 50 and 100 feet given the urban environment present. Construction and vegetation removal within those buffers would be allowed only if nests are monitored periodically by a qualified biologist. If nesting birds are showing signs of distress, construction may need to be stopped until appropriate measures are implemented to avoid disturbance or the young birds have fled the nest. Removing trees and shrubs and initiating construction between September 1 and February 14 (outside of the breeding bird season) would also avoid affecting nesting birds.

While Colma Creek is in a condition that is wholly unsuitable to meaningfully support any biological resources, it is potentially jurisdictional under several state and federal laws, and is therefore subject to permitting requirements described above, and requires evaluation under the California Environmental Quality Act commensurate with these conditions. Please feel free to contact me should you have any questions or concerns.

Sincerely,



Justin Semion
Principal, Aquatic Ecologist

Enclosures: References Cited
 Appendix A – Project Figures:
 Figure 1. Study Area Location Map
 Figure 2. Biological Communities within the Study Area
 Figure 3. Wetlands and Non-Wetland Waters within the Study Area
 Appendix B – List of Observed Species

References Cited

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- U.S. Geological Survey (USGS). 2015. San Francisco South 7.5 minute topographic map

Appendix A –
Project Figures



Figure 1. Study Area Location Map

Costco Fueling Facility Relocation,
 Parking Expansion, and Tire Center &
 Produce Cooler Addition Project
 City of South San Francisco
 San Mateo County, California

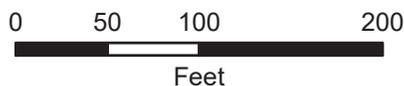


Map Prepared Date: 10/6/2016
 Map Prepared By: fhourigan
 Base Source: Esri Streaming - National Geographic
 Data Source(s): WRA



Figure 2. Biological Communities within the Study Area

Costco Fueling Facility Relocation,
 Parking Expansion, and Tire Center &
 Produce Cooler Addition Project
 City of South San Francisco
 San Mateo County, California



Map Prepared Date: 10/14/2016
 Map Prepared By: fhourigan
 Base Source: USGS EROS 1'
 Data Source(s): WRA

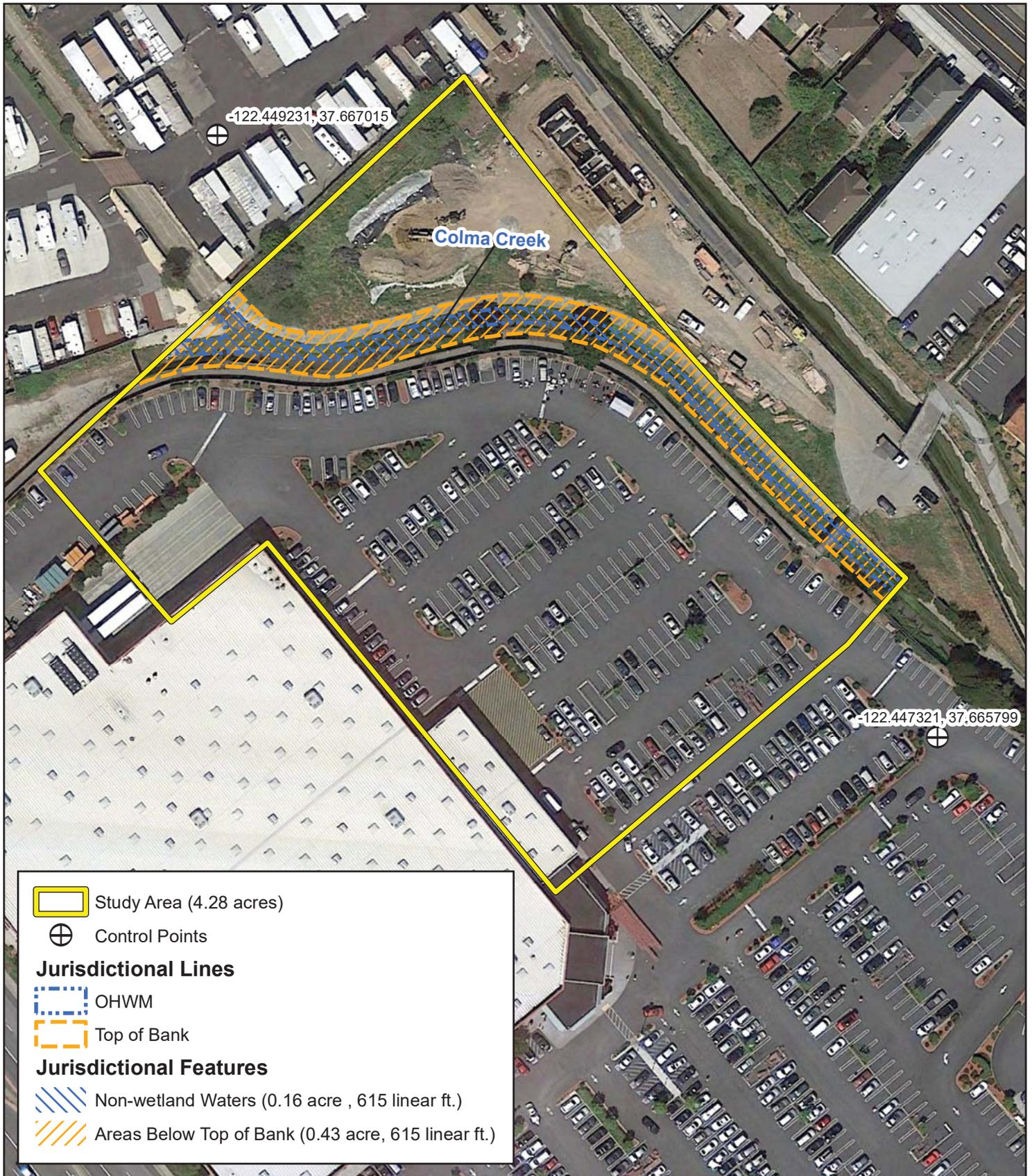


Figure 3. Jurisdictional Areas within the Study Area

Costco Fueling Facility Relocation,
 Parking Expansion, and Tire Center &
 Produce Cooler Addition Project
 City of South San Francisco
 San Mateo County, California



0 25 50 100
 Feet

Map Prepared Date: 10/14/2016
 Map Prepared By: fhourigan
 Base Source: USGS EROS 1'
 Data Source(s): WRA

Appendix B –
List of Observed Plant Species

List of Observed wildlife and plant species during the June 17, 2016 site visit

Common Name	Scientific Name
Wildlife	
Mallard	<i>Anas platyrhynchos</i>
Kildeer	<i>Charadrius vociferous</i>
Mourning dove	<i>Zenaida macroura</i>
Plants	
Acacia-	<i>Acacia</i> sp.
Slim oat	<i>Avena barbata</i>
Coyote brush	<i>Baccharis pilularis</i>
Ripgut brome	<i>Bromus diandrus</i>
Italian thistle	<i>Carduus pycnocephalus</i> ssp. <i>pycnocephalus</i>
Andean pampas grass	<i>Cortaderia jubata</i>
Tall cyperus	<i>Cyperus eragrostis</i>
Upright veldt grass	<i>Ehrharta erecta</i>
Slender willow herb	<i>Epilobium ciliatum</i>
California poppy	<i>Eschscholzia californica</i>
Italian rye grass	<i>Festuca perennis</i>
Fennel	<i>Foeniculum vulgare</i>
English ivy	<i>Hedera helix</i>
Common velvetgrass	<i>Holcus lanatus</i>
Foxtail barley	<i>Hordeum murinum</i>
Prickly lettuce	<i>Lactuca serriola</i>
Bird's foot trefoil	<i>Lotus corniculatus</i>
Dwarf mallow	<i>Malva neglecta</i>
Sweetclover	<i>Melilotus</i> sp.
Lollypop tree	<i>Myoporum laetum</i>

Common Name	Scientific Name
Oleander	<i>Nerium oleander</i>
Garden geranium	<i>Pelargonium sp.</i>
Monterey pine	<i>Pinus radiata</i>
Ribwort	<i>Plantago lanceolata</i>
Jointed charlock	<i>Raphanus sativus</i>
Himalayan blackberry	<i>Rubus armeniacus</i>
Sheep sorrel	<i>Rumex acetosella</i>
Red willow	<i>Salix laevigata</i>
Coast redwood	<i>Sequoia sempervirens</i>
Sow thistle	<i>Sonchus oleraceus</i>
Garden nasturtium	<i>Tropaeolum majus</i>

APPENDIX D

**Traffic Impact Analysis Memorandum
Kittelson & Associates, Inc., August
2016**



MEMORANDUM

Date: August 18, 2016 Project #: 18552
To: Adena Friedman, City of South San Francisco
Sam Bautista, City of South San Francisco
CC: John Ellingsen, Ellingsen & Co
Sean Anderson, Barghausen Consulting Engineers
Jonathan Hidalgo, WRA
From: Joe Bessman, Chris Tiesler, and Lillian Tsang, PE
Project: South San Francisco (El Camino) Costco Fuel Station On-Site Relocation & Expansion
Subject: Traffic Impact Analysis Memorandum

EXECUTIVE SUMMARY

The proposed project will relocate and expand the existing 16-position fuel center at the South San Francisco Costco, replacing it with a 24-position fuel center. The site is located along El Camino Real Boulevard near the Hickey Boulevard intersection. The on-site relocation will add a third row of fuel dispensers, allowing the three vehicles to simultaneously fuel in each fuel line. Studies of similar fuel center expansions have documented reduced wait/idling times and queuing, while showing only an incremental increase in overall trips. Key findings of the study are summarized below:

- The relocation and expansion will increase the queue storage area from approximately 105 feet to 130 feet and provides a dedicated tank delivery area for fuel trucks that does not impede operations.
- Based on before and after surveys of other fuel center expansions there is a nominal projected increase of 62 new trips on the system during the weekday PM peak hour and 66 new trips during the Saturday midday peak hour (roughly one car per minute during peak hours), with half of the new trips inbound and half outbound.
- Relocation and expansion of the fuel station and on-site parking will result in a minor shift in inbound traffic volumes from the signalized southern access toward the unsignalized right-in, right-out driveway.
- The southbound left-turn pocket at the intersection of El Camino Real/Costco South Driveway is adequate to serve the left-turning vehicles for both the Existing Conditions and the Existing plus Project Conditions.
- Maximum observed northbound left-turn queues (100th percentile) at the El Camino Real/Hickey Boulevard intersection occasionally block the northern Costco right-in, right-out access while remaining within the left-turn bay. Delays during blockages are low as motorists

accept courtesy gaps or wait for the queue area to clear on green. The relocation will have a negligible effect on outbound trips or queue lengths.

- No operational deficiencies were identified at the site accesses or the nearby intersection of El Camino Real/Hickey Boulevard in the no-build or with-project scenarios, during either the weekday PM or Saturday midday peak periods.
- The net increase in on-site parking supply reduces on-site circulation and maneuvering during the peak periods.

Additional details on the data collection methods, analysis procedures, and detailed documentation of the findings and results are summarized herein.

INTRODUCTION

This memorandum presents the findings of the transportation impact analysis conducted for the El Camino Costco Fuel Station On-Site Relocation & Expansion in South San Francisco, California (“Project”). This memorandum also addresses the transportation related comments from WRA Environmental Consultants on the original trip generation memorandum prepared by Kittelson & Associates, Inc. for the project on February 24, 2016.

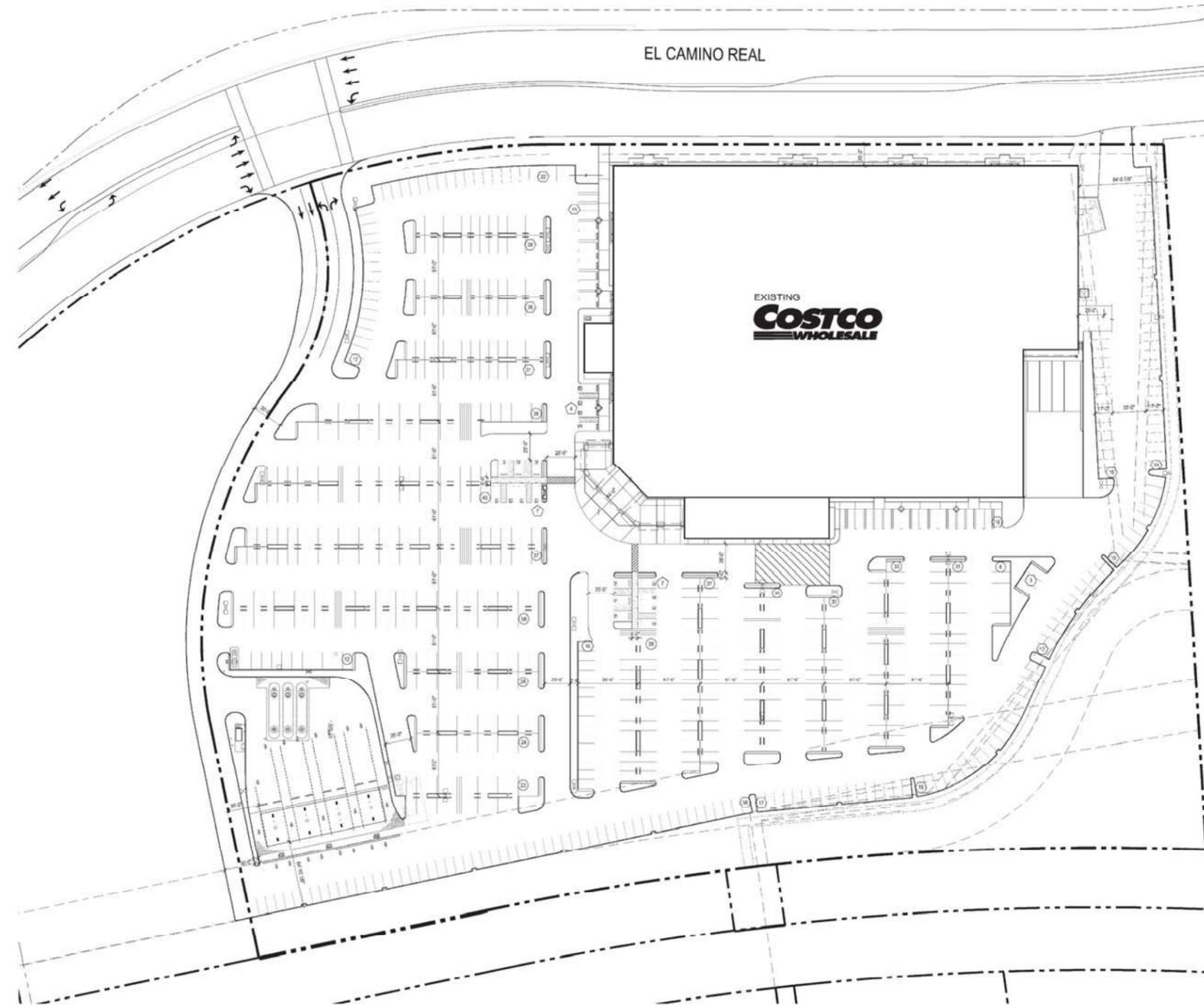
The existing Costco site plan is provided in Figure 1. The on-site relocation and expansion plan is shown in Figure 2. A detailed view of the fuel station expansion is provided in Figure 3.

Costco Fuel Station On-Site Relocation & Expansion

The existing El Camino Costco fuel station consists of four islands (eight dispensers) with a total of sixteen (16) vehicle fueling positions in the southeastern portion of the site. The project will relocate the fuel station on-site to the north directly adjacent to the existing warehouse. At the same time, Costco plans to add additional fuel dispensers (eight additional fueling positions) for **a new total of twenty-four (24) vehicle fueling positions**. The on-site relocation and expansion of the Costco fuel station facility is intended to improve circulation, provide additional queue space, and reduce waiting/idling time for Costco patrons, particularly during peak hours of the day.

Analysis Approach

In consultation with the City of South San Francisco staff and WRA, the environmental consultant preparing the Environmental Impact Review (EIR) document, the scope of the traffic impact study was developed, which includes the analysis to assess the Project’s potential effects on vehicular traffic. The study does not assume any modifications to the existing and planned roadway network as part of the Project, except as necessary to accommodate the Project components.



PROJECT DATA

CLIENT: COSTCO WHOLESALE
 999 LAKE DRIVE
 ISSAQUAH, WA 98027

PROJECT ADDRESS: 1600 EL CAMINO REAL
 S. SAN FRANCISCO, CA 94080

SITE DATA:
 TOTAL SITE AREA: 15.12 ACRES (658,797 S.F.)
 JURISDICTION: SOUTH SAN FRANCISCO

SETBACKS: REQUIRED	ACTUAL
FRONT: 20' 0"	FRONT: TBD
SIDE: TBD	SIDE: TBD
REAR: TBD	REAR: TBD

BOUNDARIES INFORMATION:
 THIS PLAN HAS BEEN PREPARED BY USING
 KIER & WRIGHT
 CIVIL ENGINEERS
 DRAWINGS DATED: 5-29-07

BUILDING DATA:
 TOTAL BUILDING AREA: 148,032 S.F.

INCLUDES:	
EXISTING WAREHOUSE MAIN LEVEL	140,927 S.F.
EXISTING TIME CENTER	4,719 S.F.
EXISTING FOOD SERVICE	1,387 S.F.

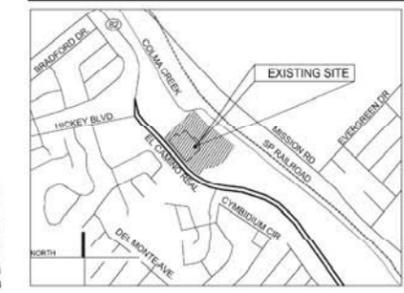
PARKING DATA:
 TOTAL EXISTING PARKING: 829 STALLS

INCLUDES:	
MAIN LEVEL PARKING PROVIDED:	
○ 18' WIDE STALLS	474 STALLS
○ 9' WIDE STALLS	337 STALLS
○ ACCESSIBLE STALLS (1 PER 100)	18 STALLS

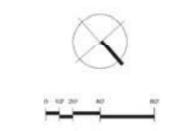
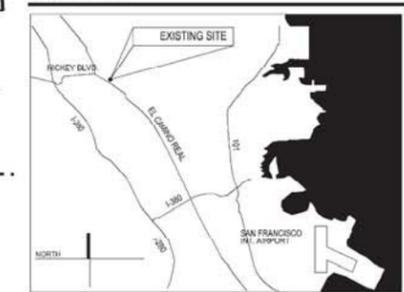
NO. OF EXISTING STALLS PER 1000 SF OF BUILDING AREA: 5.60 STALLS

PARKING NEEDED TO MAINTAIN 5.0 / 1000 S.F.: 733 STALLS

VICINITY MAP



REGIONAL MAP



COSTCO WHOLESALE
 EL CAMINO REAL, CA #475

1600 EL CAMINO REAL
 SOUTH SAN FRANCISCO, CA 94080

MULVANNY G2
 1110 152TH AVE NE | SUITE 800
 BELLEVUE, WA | 98004
 (425) 483-2000 | (425) 483-2002
 MulvannyG2.com

97-1810
 JANUARY 17, 2015
 EXISTING SITE PLAN

EX11

SCOPE	DATE	UPDATED BY	PROJ. NO.	SCOPE DESCRIPTION
A	2/07	ANTHONY L.	ROBERT M.	NEW WAREHOUSE
B	8/01	TATSUNE M.	RISA Y.	NEW GAS STATION
	7/2003	RICHE B.	ROBERT M.	UPDATE BLDG S.F. & TITLE BLOCK
11	12/2011	RICHE B.	KEN L.	FOOD SERVICE ADDITION
	05-15	AKO		FULL ADDITIVE TANK

NOTE: EXISTING CONDITIONS TO BE FIELD VERIFIED

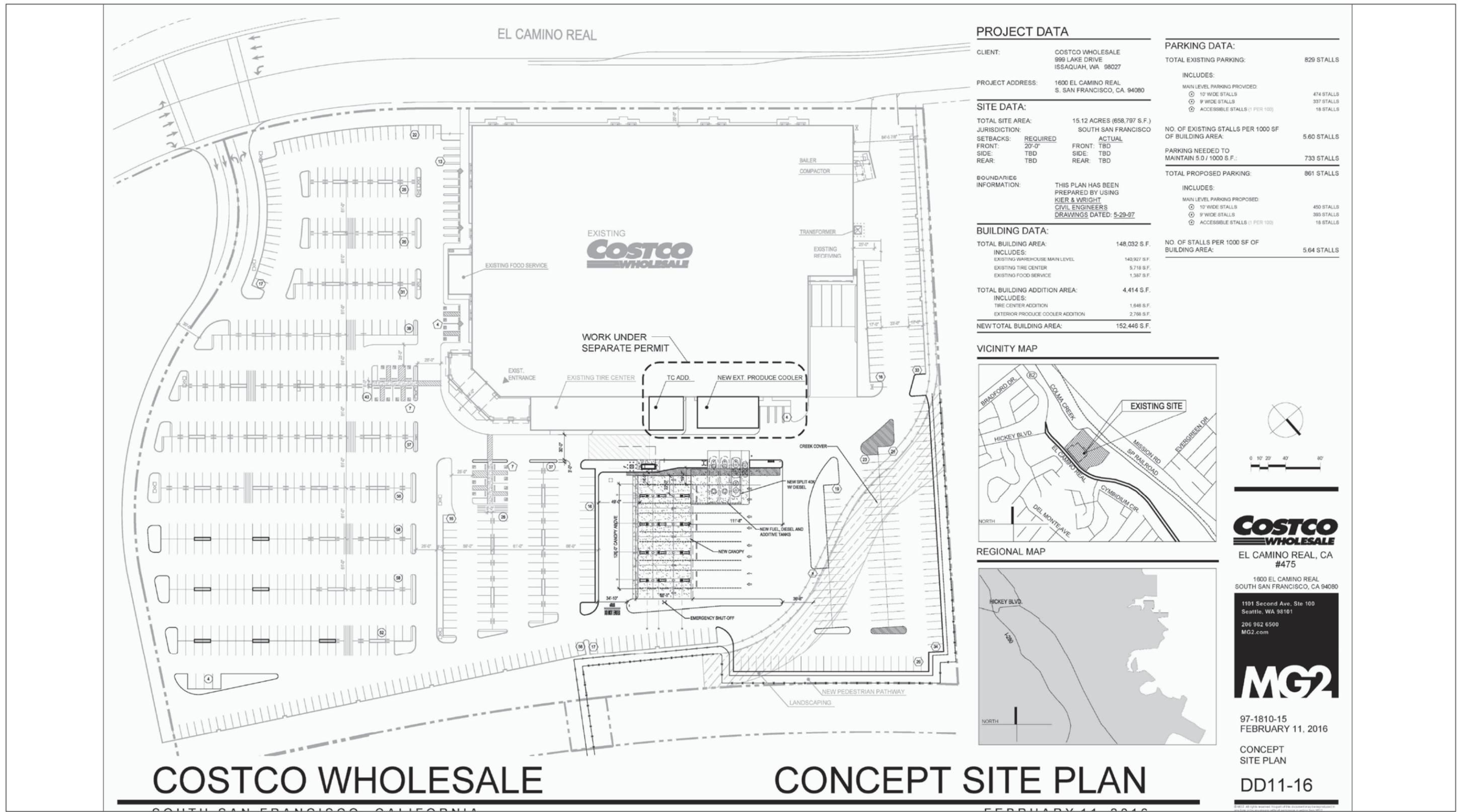
COSTCO WHOLESALE
 SOUTH SAN FRANCISCO, CA

EXISTING SITE PLAN
 JANUARY 17, 2015

Existing Site Plan
 South San Francisco, California

Figure
1

C:\Projects2\Costco\18552 SSF El Camino Costco Expansion\Portland\dwgs\Figs\18552_Figs.dwg Aug 14, 2016 - 10:46pm - Itsong Layout Tab: Fig01



PROJECT DATA

CLIENT: COSTCO WHOLESAL
 999 LAKE DRIVE
 ISSAQUAH, WA 98027

PROJECT ADDRESS: 1600 EL CAMINO REAL
 S. SAN FRANCISCO, CA 94080

SITE DATA:

TOTAL SITE AREA: 15.12 ACRES (658,797 S.F.)
 JURISDICTION: SOUTH SAN FRANCISCO

SETBACKS: REQUIRED ACTUAL
 FRONT: 20'-0" FRONT: TBD
 SIDE: TBD SIDE: TBD
 REAR: TBD REAR: TBD

BOUNDARIES INFORMATION:

THIS PLAN HAS BEEN PREPARED BY USING
 KIER & WRIGHT
 CIVIL ENGINEERS
 DRAWINGS DATED: 5-29-07

BUILDING DATA:

TOTAL BUILDING AREA: 148,032 S.F.

INCLUDES:
 EXISTING WAREHOUSE MAIN LEVEL 140,927 S.F.
 EXISTING TIRE CENTER 5,718 S.F.
 EXISTING FOOD SERVICE 1,387 S.F.

TOTAL BUILDING ADDITION AREA: 4,414 S.F.

INCLUDES:
 TIRE CENTER ADDITION 1,848 S.F.
 EXTERIOR PRODUCE COOLER ADDITION 2,788 S.F.

NEW TOTAL BUILDING AREA: 152,446 S.F.

PARKING DATA:

TOTAL EXISTING PARKING: 829 STALLS

INCLUDES:
 MAIN LEVEL PARKING PROVIDED:
 10' WIDE STALLS 474 STALLS
 9' WIDE STALLS 337 STALLS
 ACCESSIBLE STALLS (1 PER 100) 18 STALLS

NO. OF EXISTING STALLS PER 1000 SF OF BUILDING AREA: 5.60 STALLS

PARKING NEEDED TO MAINTAIN 5.0 / 1000 S.F.: 733 STALLS

TOTAL PROPOSED PARKING: 861 STALLS

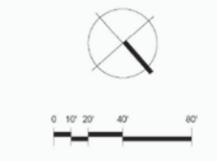
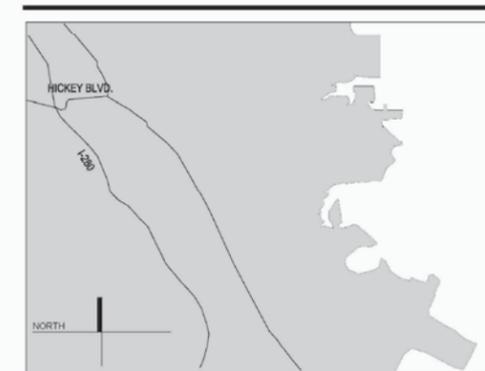
INCLUDES:
 MAIN LEVEL PARKING PROPOSED:
 10' WIDE STALLS 450 STALLS
 9' WIDE STALLS 393 STALLS
 ACCESSIBLE STALLS (1 PER 100) 18 STALLS

NO. OF STALLS PER 1000 SF OF BUILDING AREA: 5.64 STALLS

VICINITY MAP



REGIONAL MAP



COSTCO WHOLESAL
 EL CAMINO REAL, CA #475

1600 EL CAMINO REAL
 SOUTH SAN FRANCISCO, CA 94080

1101 Second Ave, Ste 100
 Seattle, WA 98101
 206 962 6500
 MG2.com



97-1810-15
 FEBRUARY 11, 2016

CONCEPT
 SITE PLAN

DD11-16

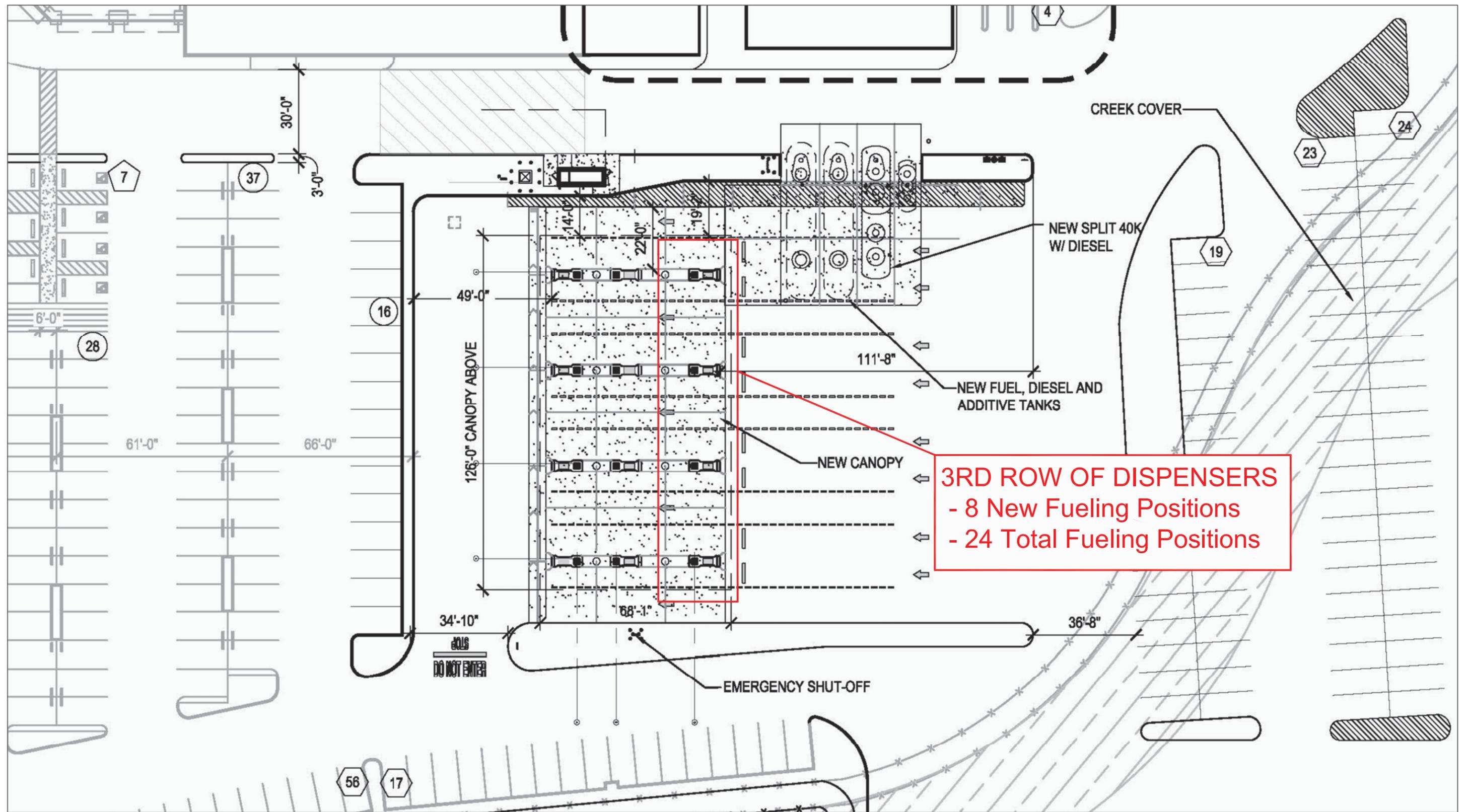
COSTCO WHOLESAL

CONCEPT SITE PLAN

Proposed Fuel Station On-Site Relocation & Expansion
 South San Francisco, California

Figure
 2

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3RD ROW OF DISPENSERS
 - 8 New Fueling Positions
 - 24 Total Fueling Positions

**Relocation & Expansion Detail
 South San Francisco, California**

**Figure
 3**

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Analysis Scenarios

A traffic operations analysis was performed to assess the performance of the circulation system for the peak hours occurring during the weekday PM (4:00 – 7:00 PM) and Saturday midday (11:00 AM – 3:00 PM) peak periods, for the following scenarios:

- Existing (2016) Conditions
- Existing (2016) plus Project Conditions

Study Locations

A set of intersections were selected for analysis in collaboration with City of South San Francisco staff based upon the anticipated volumes and distributional patterns of Project traffic. The intersection locations are listed below and shown on Figure 4.

Intersection Analysis

1. El Camino Real & Hickey Boulevard
2. El Camino Real & Costco North Driveway
3. El Camino Real & Costco South Driveway

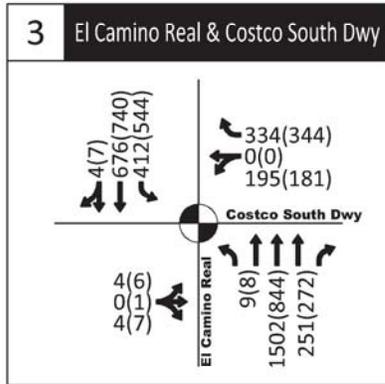
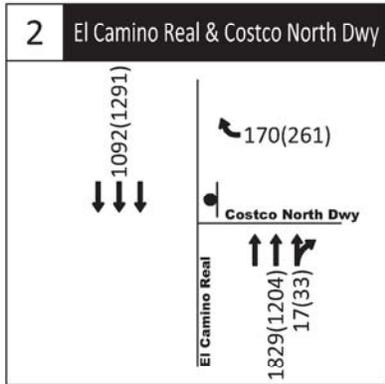
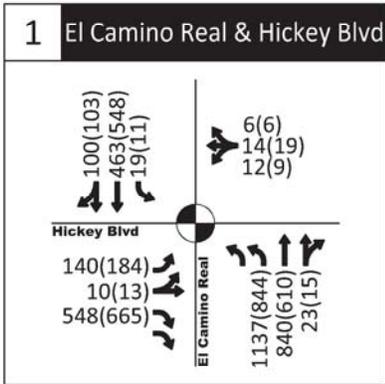
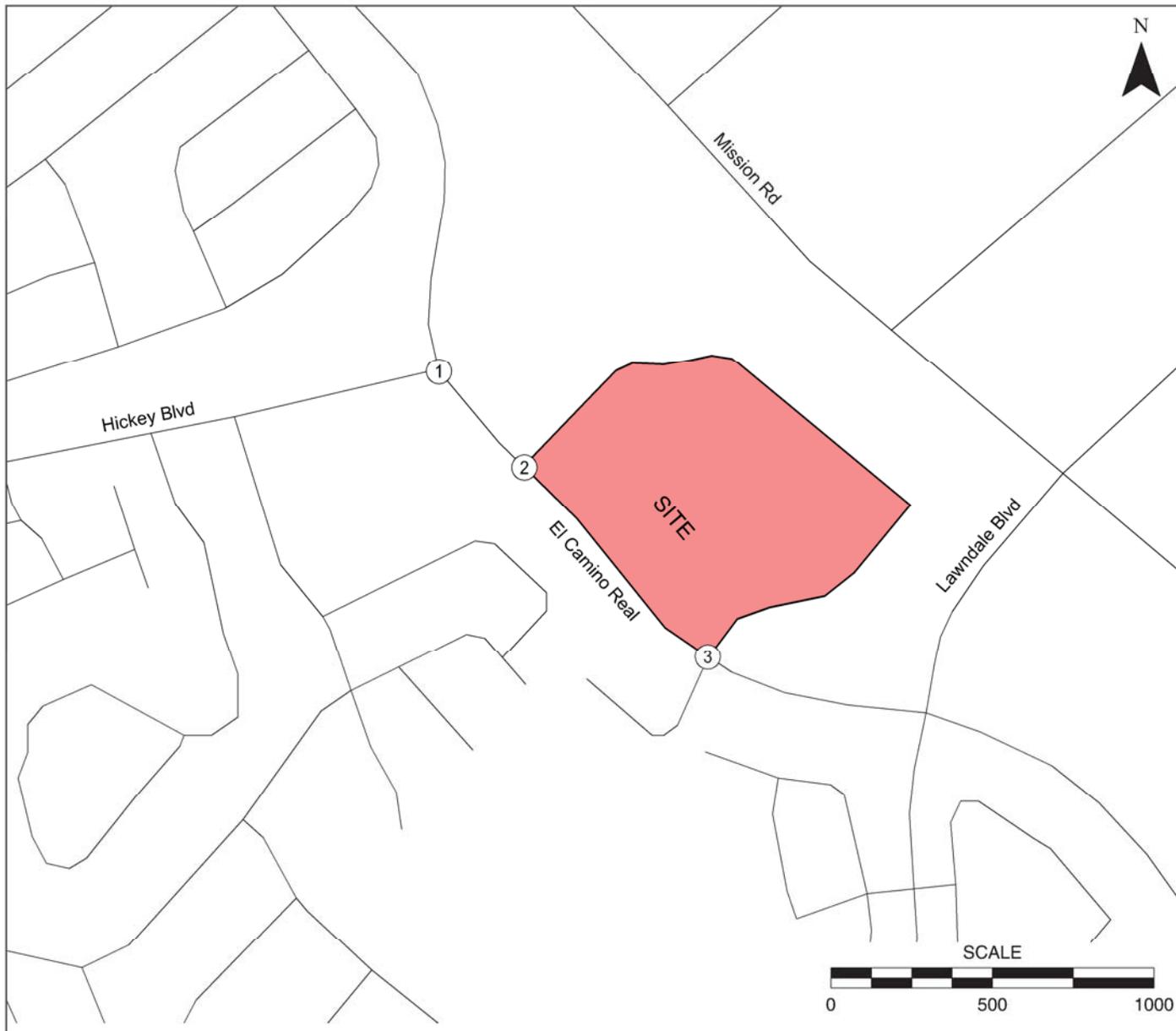
METHODOLOGY

This section presents the methodology used to determine the transportation conditions for each scenario described above. It includes the descriptions of the data requirements, the analysis methodologies, and the application level of service standards.

Data Requirements

The data required for the analysis were obtained from new traffic counts, and information provided by the City of South San Francisco and Caltrans. The following data was collected from these sources:

- Existing Weekday PM peak hour traffic counts (4:00 to 7:00 PM)
- Existing Saturday midday peak hour traffic counts (11:00 AM to 3:00 PM)
- Existing lane configurations
- Existing signal timing and phasing



- XX - PM Peak Hour
- (XX) - SAT Peak Hour
- ⬇ - Stop Sign
- ⦿ - Traffic Signal

**Weekday PM & Saturday
Existing Peak Hour Volumes
South San Francisco, California**

**Figure
4**

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Intersection turning movement counts were collected at the three study intersections in July, 2016. The vehicle queue lengths for the following two movements were also observed during the same time periods:

- Northbound left on El Camino Real at Hickey Boulevard
- Southbound left on El Camino Real at Costco South Driveway

Analysis Methodologies and Level of Service Standards

“Levels of service” describes the operating conditions experienced by users of a facility. Level of service (LOS) is a qualitative measure of the effect of a number of factors, including speed and travel time, traffic interruptions, freedom to maneuver, driving comfort and convenience. Levels of service are designated "A" through "F" from best to worst, which cover the entire range of traffic operations that might occur. Level of Service "A" through "E" generally represents traffic volumes at less than roadway capacity, while LOS "F" represents over capacity and/or forced flow conditions. In general, LOS D or better is considered acceptable while LOS E or LOS F is not.

Intersection Analysis

Intersection analyses for both signalized and unsignalized intersections were conducted using the operational methodology outlined in the 2000 Highway Capacity Manual (HCM) (Transportation Research Board, Washington, D.C., 2000) as implemented by the Synchro Version 8 analysis tool. The following summarizes the HCM methodologies for signalized and unsignalized intersections, respectively.

Signalized intersections. The HCM procedure calculates a weighted average stop delay in seconds per vehicle at a signalized intersection, and assigns a level of service designation based upon the average delay.

Unsignalized intersections. For two-way stop controlled intersections, the HCM methodology provides an LOS for each controlled turn movement, but does not report an overall average LOS for the entire intersection.

Table 1 presents the relationship of average delay to level of service for both signalized and unsignalized intersections.

Table 1: Level-of-Service Definitions

Signalized Intersection			Unsignalized Intersection
Average Delay Per Vehicle (Seconds)	LOS	Description of Traffic Conditions	Average Delay Per Vehicle (Seconds)
≤10.0	A	Free flowing. Most vehicles do not have to stop.	≤10.0
>10.0 and ≤20.0	B	Minimal delays. Some vehicles have to stop, although waits are not bothersome.	>10.0 and ≤15.0
>20.0 and ≤35.0	C	Acceptable delays. Significant numbers of vehicles have to stop because of steady, high traffic volumes. Still, many pass without stopping.	>15.0 and ≤25.0
>35.0 and ≤55.0	D	Tolerable delays. Many vehicles have to stop. Drivers are aware of heavier traffic. Cars may have to wait through more than one red light. Queues begin to form, often on more than one approach.	>25.0 and ≤35.0
>55.0 and ≤80.0	E	Significant delays. Cars may have to wait through more than one red light. Long queues form, sometimes on several approaches.	>35.0 and ≤50.0
>80.0	F	Excessive delays. Intersection is jammed. Many cars have to wait through more than one red light, or more than 60 seconds. Traffic may back up into “up-stream” intersections.	>50.0

Source: Transportation Research Board, Highway Capacity Manual, Washington, D.C., 2000.

Significant Impact Criteria

The project impact is considered to be significant if it would:

Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeway, pedestrian and bicycle path, and mass transit.

Intersection Operations:

South San Francisco uses LOS D as the standard according to Chapter 4 of the General Plan. LOS E or F are accepted after finding that there is no practical and feasible way to mitigate the lower level of service; and the uses resulting in the lower level of service are clear, overall public benefit.

Based on these criteria and for the purposes of this study, significant traffic impacts at intersections in the study area are identified if the Project causes:

- To worsen from LOS D or better to LOS E or F for overall intersection delay; or
- An increase in overall average delay for intersections that operate below the LOS standard under No Project conditions.

EXISTING CONDITIONS

Existing Intersection Levels of Service

The existing operations of the study intersections were assessed for the weekday PM peak hour (the peak hour of the afternoon commute period) and Saturday midday peak hour (the peak hour of the midday commute peak period). The existing intersection volumes and lane configurations are shown in Figure 4. As shown in Table 2, all study intersections operate at LOS D or better under the Existing Conditions.

Table 2: Existing Intersection Level-of-Service

#	North/South Street	East/West Street	Control	Weekday PM Peak Hour		Saturday Midday Peak Hour	
				Delay (s)	LOS	Delay (s)	LOS
1	El Camino Real	Hickey Boulevard	Signalized	39.9	D	29.4	C
2	El Camino Real	Costco North Driveway	Two-Way Stop*	11.0	B	10.6	B
3	El Camino Real	Costco South Driveway	Signalized	30.5	C	33.2	C

Source: Kittelson & Associates, Inc. 2016

*Two-way Stop Controlled Intersection – delay reported is for the worst approach.

Signalized and Unsignalized intersections are analyzed using HCM 2000 methodologies

Cells shaded in GREY indicate LOS exceeding standards

Table 3 provides the existing maximum queue lengths for the two left-turn movements listed above during the weekday PM peak hour and the Saturday midday peak hour.

Table 3: Existing Maximum Queue Length

	Max Queue (veh)		Total Turn Pocket Length (ft) ¹	Max Queue Length (ft)	
	Inner Lane	Outer Lane		Inner Lane	Outer Lane
Northbound Left-Turn at El Camino Real/Hickey Blvd					
Weekday PM Peak Hour	19	18	700 ¹ / 1,550 ²	475	450
Saturday Midday Peak Hour	17	15		425	375
Southbound Left-Turn at El Camino Real/ Costco South Driveway					
Weekday PM Peak Hour	21		1,100	525	
Saturday Midday Peak Hour	24			600	

¹ The turn pocket length listed is not the entire turn pocket length; this is the length up to the intersection of El Camino Real/Costco North Driveway. There are two left turn lane with a total of 700 feet of queue storage up to the intersection of El Camino Real/Costco North Driveway, or 350 feet per lane.

² The turn pocket length listed is the entire turn pocket length which includes the dual left turn lanes: the inner turn lane has a length of 450 feet, and the outer turn lane has a length of 1,100 feet.

As shown in Table 3, the northbound left-turn at the intersection of El Camino Real/Hickey Boulevard has a maximum observed queue length of 475 feet and 425 feet for the Weekday PM peak hour and Saturday midday peak hour, respectively. The total storage for the northbound left-turn is 1,550 feet. The turn pocket length of 700 feet listed for this intersection does not represent the entire length of the available turn pocket, but instead only includes the total length up to the intersection of El Camino Real/Costco North Driveway (or 350 feet per turn lane). During peak hours, the existing northbound left-turn queue can occasionally extend beyond the Costco North Driveway. The northbound left-turn queue does clear every cycle. Within the peak hour, there are approximately 30 cycles, and the queue on the outer turn lane would extend beyond the Costco North Driveway for three cycles within the entire hour. This intermittent condition does not appear to negatively affect the safety or operation of the driveway under current conditions as drivers wait for the queue to clear before proceeding.

For the intersection of El Camino Real/Costco South Driveway, the existing southbound left-turn maximum queue length is 525 feet and 600 feet for the weekday PM peak hour and Saturday midday peak hour, respectively. These maximum queue lengths are able to be stored in the available turn pocket length.

FUEL STATION EXPANSION TRIP GENERATION ESTIMATE

In developing a trip generation estimate for fuel station expansion, it is important to recognize that the fuel station exists on site today and the project is an expansion to this existing use, not the addition of a new use. Furthermore, the market area of the El Camino Costco is already defined through existing membership and operations. As such, it is unlikely that trip generation of the fuel

station will increase directly in proportion to the increased number of fueling positions. More likely is that the additional fueling positions will serve to more efficiently and effectively process the current peak demand at the fuel station, thus reducing wait times, vehicle queuing, and vehicle idling.

Although the standard reference manual ITE *Trip Generation* currently reports trip generation for gasoline fuel stations based on the independent variable of fueling positions, more recent transportation studies indicate that other variables besides the specific number of fueling pumps have a much larger influence on trip generation. As such, the profession is moving towards modifying this for the gasoline fuel station land use codes and working on studies that include different independent variables.

Before & After Fuel Expansion Data Summary

As Costco fueling center characteristics also vary from other commercial fuel suppliers (membership requirements, higher number of fueling positions than provided in ITE), before and after data from other comparable Costco fuel station expansion sites was reviewed to determine a more representative relationship between new trip generation and the addition of fueling positions to the existing station.

KAI worked with Costco to identify nine other Costco fuel station locations that have expanded in size, including the South San Francisco Airport Boulevard Costco site, which was expanded from 16 fueling positions to 20 fueling positions in late 2014/early 2015. There are several examples where Costco fuel stations had been expanded from three islands (12 fueling positions) to four islands (16 fueling positions), one other example of expanding from 16 to 20 positions, and one example of expanding from 12 to 20 positions. The comparable expansion sites identified were:

- Kona, Hawaii
- Orem, Utah
- Vancouver, Washington
- Concord, California
- South San Francisco, California
- Folsom, California
- Waipio, Hawaii
- Issaquah, Washington
- Salem, Oregon

In order to work with a representative sample size, Costco provided fuel transaction data collected on an hourly basis for a period before and after the expansion at each of these locations. Only data that was collected during similar months of the year prior to and after the expansion was included in this summary (for example, fuel transactions for the months of March and April before the expansion were compared to fuel transactions for the months of March and April after the expansion). At the request of the City the results of this before and after comparison for the nine listed sites were reviewed for the peak hours only, with summaries provided in Table 4 and Table 5.

Table 4: Weekday PM Peak Hour Fuel Transactions Before & After Data Summary

Location	Average Weekday PM Peak Hour Fuel Transactions		
	Before Expansion	After Expansion	% Difference
Salem, OR	160	185	15.6%
Kona, HI	195	214	9.7%
Orem, UT	190	225	18.4%
Concord, CA	182	209	14.8%
Folsom, CA	177	216	22.0%
Vancouver, WA	186	237	27.4%
Waipio, HI ¹	260	309	18.8%
Issaquah, WA ²	200	249	24.5%
South San Francisco, CA ¹	257	300	16.7%
Average			18.7%

¹ Expansion from 16 fueling positions to 20 fueling positions

² Expansion from 12 fueling positions to 20 fueling positions

All other examples are expansions from 12 to 16 fueling positions

Table 5: Saturday Midday Peak Hour Fuel Transactions Before & After Data Summary

Location	Average Saturday Midday Peak Hour Fuel Transactions		
	Before Expansion	After Expansion	% Difference
Salem, OR	174	207	19.0%
Kona, HI	200	218	9.0%
Orem, UT	147	170	15.6%
Concord, CA	187	221	18.2%
Folsom, CA	188	242	28.7%
Vancouver, WA	191	246	28.8%
Waipio, HI ¹	273	323	18.3%
Issaquah, WA ²	208	299	43.8%
South San Francisco, CA ¹	252	303	20.2%
Average			22.4%

¹ Expansion from 16 fueling positions to 20 fueling positions

² Expansion from 12 fueling positions to 20 fueling positions

All other examples are expansions from 12 to 16 fueling positions

As shown in Table 4 and Table 5, each of the sites recorded an increase in the number of Average Peak Hour Fuel Transactions. However, the increase measured in all situations is significantly less than what would be calculated from a direct linear relationship to the number of vehicle fueling positions. Using a linear relationship, expanding the fuel station from 12 to 16 fueling positions would equate to an increase in activity or trip generation of 33%, expanding from 16 to 20 positions would equate to an increase of 25%, and expanding from 12 to 20 would equate to an increase of 67%. However, the actual before and after data only shows an average increase of 18.7% in weekday PM peak hour fuel transactions, and an average increase of 22.4% in the Saturday midday peak hour fuel transactions. Lesser increases are noted on a daily basis.

This data demonstrates that increasing the number of fueling positions at the El Camino Costco fuel station facility will not result in a direct linear increase in trip generation. The before and after data captures the change in demand that results from reducing peak hour queues and wait times at the fuel stations due to the effect of latent demand and more efficient peak operations. In all cases, peak queues and wait times are significantly reduced and those members who previously chose not to purchase fuel because of the wait times will likely do so in either case once the operations are improved.

Costco Historical Transaction Records

Costco transaction records were obtained for the El Camino Real fuel station and the warehouse for three consecutive Thursdays and three consecutive Saturdays in May 2016. Table 6 summarizes the percentage of customers who shopped at both the fuel station and the Costco warehouse within the 4-hour PM peak period on a Thursday in May, 2016, and within the 4-hour Saturday midday peak period in May, 2016, at the El Camino Real site. This was to understand the interaction between the Costco Warehouse and fuel center to better understand internalization between these two uses.

Table 6: Existing Peak Period Internal Percentage

Thursday PM Peak Period (3pm-7pm)		Saturday Midday Peak Period (11am-3pm)	
May 5, 2016	34.1%	May 7, 2016	38.0%
May 12, 2016	37.5%	May 14, 2016	38.4%
May 19, 2016	34.0%	May 21, 2016	38.0%
Average	35%	Average	38%

*Data were taken at South San Francisco El Camino Real site.

Of the customers who shopped at both the fuel station and the Costco warehouse within the peak periods, some would shop at the fuel station first, whereas some would shop at the Costco warehouse first. Table 7 presents the summary of this analysis. Approximately 84% and 86% of the customers who shopped at both the fuel station and the Costco warehouse would shop at the fuel station first during the weekday PM peak period and the Saturday midday peak period, respectively.

Table 7: Existing Fuel Station Transaction - Order of Transaction: Fuel vs. Warehouse

Thursday PM Peak Period (3pm-7pm)			Saturday Midday Peak Period (11am-3pm)		
Date	Fuel First	Warehouse First	Date	Fuel First	Warehouse First
May 5, 2016	85.7%	14.3%	May 7, 2016	86.1%	13.9%
May 12, 2016	84.4%	15.6%	May 14, 2016	86.2%	13.8%
May 19, 2016	83.0%	17.0%	May 21, 2016	84.9%	15.1%
Average	84%	16%	Average	86%	14%

*Data was collected at South San Francisco El Camino Real site.

Fuel Station Expansion Trip Generation Estimate

The inbound and outbound traffic counts at the El Camino Real fuel station driveway were collected during the PM 4-hour peak period (3pm-7pm) on Thursday, July 7, 2016 and during the Saturday midday 4-hour peak period (11am-3pm) on Saturday, July 9, 2016. The inbound vehicle trip represents the demand at the fuel station, whereas the outbound vehicle trip is a function of how fast the demand is being served. Based on the traffic counts collected, the fuel station facility generates approximately 508 total trip ends (or 254 vehicles) during the weekday PM peak hour, and 482 total trip ends (or 241 vehicles) during the Saturday midday peak hour. Applying the observed increase in activity from other Costco fuel station expansion sites (as shown in Table 4 and Table 5) to the existing trip generation provides an estimate of the expected number of additional total trips that will result from the fueling position expansion to the El Camino Costco Gasoline facility. Applying the determined 18.8% increase in activity due to the expansion for the average weekday PM peak hour and 22.4% increase in activities for the average Saturday midday peak hour, the new total trip generation estimate is summarized in Table 8.

As can be seen from Table 8, the additional fueling positions are estimated to generate approximately 95 additional weekday PM peak hour total trip ends. However, only approximately 39 of these trip ends (20 in/19 out) would be net new trips of the surrounding transportation system. For Saturday midday peak hour, the additional fueling positions are estimated to generate approximately 108 additional total trip ends, where only approximately 42 (21 in/21 out) of these trip ends would be net new trips of the surrounding transportation system. In both cases, the number of additional external trips equate to an average increase of approximately one vehicle per minute experienced at the site driveways.

Table 8: El Camino Costco Fuel Station Expansion Trip Generation Estimate

	Weekday PM Peak Hour Trip Ends (Inbound and Outbound total)		Saturday Midday Peak Hour Trip Ends (Inbound and Outbound total)	
	Existing	Expected Increase 18.7% ¹	Existing	Expected Increase 22.4% ¹
Total Trip Ends ²	508	95	482	108
Internal Trips ³ (35% Weekday / 38% Saturday)	(180)	(33)	(180)	(42)
External Trips	328	62	302	66
Pass-by Trips (37%)	(120)	(23)	(110)	(24)
Net New Trip Ends⁴	208	39	192	42

1. % Increase is based on historical Costco transaction data from nine different sites with fuel station expansion.
2. Total trip ends are data collected on site in July 2016.
3. Internal Trips % are based on transaction data provided by Costco for the South San Francisco El Camino site. The data obtained is an average of three consecutive Thursdays and 3 consecutive Saturdays in May 2016, based on the number of total gas transactions made during the Thursday PM peak period, and the Saturday midday peak period, as well as the number of transactions made at the warehouse by the same member/household during the same time period.
4. Note that the net new trip ends account for internal trips (between the Costco warehouse and fuel station) and pass-by trips from the adjacent streets but did not reduce by any factors to account for any diverted trips in order to be conservative.

EXISTING PLUS PROJECT CONDITIONS

As discussed previously, the Project includes two components:

1. The relocation of the Fuel Station; and
2. The expansion of the Fuel Station.

Relocation of the Fuel Station

The relocation of the fuel station from the southeast corner of the site (as shown in Figure 1) to the northeast corner of the site (as shown in Figure 2) would eliminate some of the existing parking stalls in the new fuel station location, and replace the existing fuel station location with new parking stalls. The number of existing parking stalls is 829, and the fuel station relocation will provide 861, resulting in an addition of 32 parking stalls on site.

The relocation of the fuel station and the parking stall locations would potentially change some of the inbound and outbound traffic patterns to the site, depending on whether the inbound traffic is going

to the fuel station or the warehouse, and whether the outbound traffic is leaving from the fuel station or the warehouse.

Inbound Traffic

Given the existing location of the fuel station and its proximity to the two site driveways, it is assumed none of the inbound traffic at the intersection of El Camino Real/Costco North Driveway would be destined for the fuel station. Using the data tabulated in Table 6, Table 7, and Table 8, the number of inbound vehicles at the intersection of El Camino Real/Costco South Driveway, and the corresponding destination by movement are shown in Table 9 and Table 10. For the weekday PM peak hour, approximately 63.8% of the incoming traffic would have the warehouse as the first or only destination, and 36.2% of the inbound traffic would have the fuel station as the first or the only destination. For the Saturday midday peak hour, approximately 72.1% of the incoming traffic would have the warehouse as the first or only destination, and 27.9% of the inbound traffic would have the fuel station as the first or only destination.

Table 9: Existing Weekday PM Peak Hour Inbound Traffic Destination: Warehouse vs. Gas

El Camino Real/ Costco North Driveway– Inbound Traffic*		Fuel Station Traffic			Warehouse Only Traffic	First or Only Destination				
		Gas Only (65%)	Both (35%)			Warehouse		Gas		
			Gas First (84%)	Warehouse First (16%)		Trips	%	Trips	%	
SBL	412	102	47	9	254	263	63.8%	149	36.2%	
EBT	0	0	0	0	0			0		
NBR	251	63	28	5	155			160		91
Total	663	254			409			423		240

*Traffic counts and transaction data were taken at South San Francisco El Camino Real site.

Table 10: Existing Saturday Midday Peak Hour Inbound Traffic Destination: Warehouse vs. Gas

El Camino Real/ Costco North Driveway – Inbound Traffic*		Fuel Station Traffic			Warehouse Only Traffic	First or Only Destination			
		Gas Only (62%)	Both (38%)			Warehouse		Gas	
			Gas First (86%)	Warehouse First (14%)		Trips	%	Trips	%
SBL	544	99	53	9	383	392	72.1%	152	27.9%
EBT	1	0	0	0	1			0	
NBR	272	50	26	4	192			76	
Total	817	241			576			589	

*Traffic counts and transaction data were taken at South San Francisco El Camino Real site.

When the fuel station is relocated, it is assumed some inbound traffic coming from the south would shift from using the Costco South Driveway to the Costco North Driveway. A 50% shift in fuel station inbound traffic is assumed only for the northbound right movement at the Costco South driveway, but not from the other approaches. For people who would shop at both the fuel station and the warehouse, the 50% shift is only applied to the trips that would go to the fuel station before the warehouse. The 50% shift assumption is based on the convenience of the right-in-right-out access at the Costco North Driveway to the relocated fuel station. Table 11 and Table 12 show the shift in traffic by movement for the two driveways for the weekday PM peak hour and Saturday midday peak hour, respectively.

Table 11: Weekday PM Peak Hour – Inbound Traffic Shift with Fuel Station Relocation

		Gasoline Station Traffic			Shift in Traffic with Gasoline Station Relocation			
		Gas Only	Gas First	Warehouse First	Gas Only	Gas First	Warehouse First	Total
Costco North Driveway	NBR	0	0	0	+32	+14	--	+46
	SBL	102	47	9	--	--	--	--
Costco South Driveway	EBT	0	0	0	--	--	--	--
	NBR	63	28	5	-32(-50%)	-14(-50%)	--	-46
Total		254			--	--	--	--

Table 12: Saturday Midday Peak Hour – Inbound Traffic Shift with Fuel Station Relocation

		Gasoline Station Traffic			Shift in Traffic with Gasoline Station Relocation			
		Gas Only	Gas First	Warehouse First	Gas Only	Gas First	Warehouse First	Total
Costco North Driveway	NBR	0	0	0	+25	+13	--	+38
	SBL	99	53	9	--	--	--	--
Costco South Driveway	EBT	0	0	0	--	--	--	--
	NBR	50	26	4	-25(-50%)	-13 (-50%)	--	-38
Total		241			--	--	--	--

Outbound Traffic

Using the data tabulated in Table 6, Table 7, and Table 8, the number of outbound vehicles at the two Costco driveways and the corresponding destination by movement are shown in Table 13 and Table 14 for the weekday PM peak hour and the Saturday midday peak hour, respectively. For the weekday PM peak hour, approximately 74.4% of the outgoing traffic would have the warehouse as the last or only destination, and 25.6% of the outbound traffic would have the fuel station as the last or the only destination. For the Saturday midday peak hour, approximately 79.4% of the outgoing traffic would have the warehouse as the last or only destination, and 20.6% of the outbound traffic would have the fuel station as the last or the only destination.

When the fuel station is relocated, it is assumed some outbound traffic heading to northbound El Camino Real (the westbound right movement) would shift from one driveway to another. All of the traffic heading to the south is assumed to continue to use the Costco South Driveway by making a westbound left at the intersection of El Camino Real/Costco South Driveway. A 20% shift in fuel station outbound traffic is assumed only for the westbound right movement from the Costco South Driveway to the Costco North Driveway. For people who would shop at both the fuel station and the warehouse, the 20% shift is applied to the trips that would shop at the warehouse before the fuel station. The 20% shift assumption is made based on the new fuel station location relative to the exit path, and comparing that to the existing fuel station location and the current exit path. The two exit paths are quite similar. The new location would have a shorter exit path via the North Driveway if vehicles were to head north on El Camino Real, but these vehicles would have to maneuver between the other fuel station traffics, which might not be as attractive as exiting via the Costco South Driveway.

In addition, given the relocation of the parking stalls due to the new fuel station location, a shift in the warehouse outbound traffic is also assumed. A 20% shift in warehouse outbound traffic is assumed only for the westbound right movement from the Costco North Driveway to the Costco South Driveway since the parking stalls would now be closer to the Costco South Driveway. For people who would shop at both the fuel station and the warehouse, the 20% shift is also applied to the trips that would shop at the fuel station before the warehouse. The 20% shift assumption is based on the changes in the parking stalls quantity and the location of the fuel station after the relocation. Table 15 and Table 16 show the shift in traffic by movement for the two driveways for the weekday PM peak hour and Saturday midday peak hour, respectively.

Table 13: Weekday PM Peak Hour Peak Hour Outbound Traffic: Warehouse vs. Gas

Outbound Traffic			Fuel Station Traffic			Warehouse Only Traffic	Last or Only Destination			
			Gas Only (65%)	Both (35%)			Warehouse		Gas	
				Warehouse Last (84%)	Gas Last (16%)		Trips	%	Trips	%
Costco North Driveway	WBR	170	40	18	3	109	127	74.4%	44	25.6%
	WBL	195	46	21	4	124	145		50	
Costco South Driveway	WBT	0	0	0	0	0	0		0	
	WBR	334	79	36	7	212	248		86	
Total		699	254			445	520		179	

*Traffic counts and transaction data were taken at South San Francisco El Camino Real site.

Table 14: Saturday Midday Peak Hour Peak Hour Outbound Traffic: Warehouse vs. Gas

Outbound Traffic			Fuel Station Traffic			Warehouse Only Traffic	Last or Only Destination				
			Gas Only (62%)	Both (38%)			Trips	Warehouse		Gas	
				Warehouse Last (86%)	Gas Last (14%)			Trips	%	Trips	%
Costco North Driveway	WBR	261	50	26	4	181	207	79.4%	54	20.6%	
	Costco South Driveway	WBL	181	34	18	3			126		144
WBT		0	0	0	0	0			0		0
WBR		344	65	35	6	238			273		71
Total		786	241			545	624		162		

*Traffic counts and transaction data were taken at South San Francisco El Camino Real site.

Table 15: Weekday PM Peak Hour – Outbound Traffic Shift with Gasoline Fuel Station Relocation

Outbound Traffic			Shift in Gas Last Traffic with Gasoline Station Relocation			Shift in Warehouse Last Traffic with Gasoline Station Relocation		
			Gas Only	Warehouse First, Gas Last	Total	Warehouse Only	Gas First, Warehouse Last	Total
Costco North Driveway	WBR	170	+16	+1	+17	-22 (-20%)	-4 (-20%)	-26
	Costco South Driveway	WBL	195	--	--	--	--	--
WBT		0	--	--	--	--	--	--
WBR		334	-16 (-20%)	-1 (-20%)	-17	+22	+4	+26
Total		699	--	--	--	--	--	--

Table 16: Saturday Midday Peak Hour – Outbound Traffic Shift with Gasoline Fuel Station Relocation

Outbound Traffic			Shift in Gas Last Traffic with Gasoline Station Relocation			Shift in Warehouse Last Traffic with Gasoline Station Relocation		
			Gas Only	Warehouse First, Gas Last	Total	Warehouse Only	Gas First, Warehouse Last	Total
Costco North Driveway	WBR	261	+13	+1	+14	-36 (-20%)	-5 (-20%)	-41
Costco South Driveway	WBL	181	--	--	--	--	--	--
	WBT	0	--	--	--	--	--	--
	WBR	344	-13 (-20%)	-1 (-20%)	-14	+36	+5	+41
Total		786	--	--	--	--	--	--

Expansion of the Fuel Station

As shown in Table 8, the expansion of the fuel station would increase the number of trips at the site. External trips, which include the net new trips and the pass-by trips, would be trips added to the Costco driveways and the surrounding transportation system. Internal trips, on the other hand, are existing Costco warehouse trips which decide to shop at the fuel station as well. These internal trips would not be considered as new trips to the Costco driveways and the surrounding transportation system. For the weekday PM peak hour, the expansion of the fuel station would add 62 external trips, which is equivalent to 31 inbound trips and 31 outbound trips. For the Saturday midday peak hour, the expansion of the gasoline fuel station would add 67 external trips, which is equivalent to 33 inbound trips and 33 outbound trips.

Table 17 and Table 18 show the inbound trips added due to the expansion of the fuel station at various driveways. Table 19 and Table 20 present the outbound trips added due to the expansion of the fuel station.

Table 17: Weekday PM Peak Hour – Additional Inbound Fuel Station Trips

		Additional Fuel Station Traffic*					Total
		External Trips Gas Only	Internal Trips				
			Gas First	Warehouse First	Warehouse Only**		
Costco North Driveway	NBR	+6	+3	--	-3	+6	
	SBL	+19	+9	+2	-11	+19	
Costco South Driveway	EBT	--	--	--	--	--	
	NBR	+6	+2	+1	-3	+6	
Total		+31	+14	+3	-17	+31	

*Trips are allocated to the various inbound movements based on the new fuel station location.

**Trips switching from “Warehouse Only” to trips that shop at both the fuel station and the warehouse with the additional fuel pumps.

Table 18: Saturday Midday Peak Hour – Additional Inbound Fuel Station Trips

		Additional Gasoline Fuel Station Traffic*					Total
		External Trips Gas Only	Internal Trips				
			Gas First	Warehouse First	Warehouse Only**		
Costco North Driveway	NBR	+6	+3	--	-3	+6	
	SBL	+22	+12	+2	-14	+22	
Costco South Driveway	EBT	--	--	--	--	--	
	NBR	+5	+3	+1	-4	+5	
Total		+33	+18	+3	-21	+33	

*Trips are allocated to the various inbound movements based on the new fuel station location.

**Trips switching from “Warehouse Only” to trips that shop at both the fuel station and the warehouse with the additional fuel pumps.

Table 19: Weekday PM Peak Hour – Additional Outbound Fuel Station Trips

		Additional Gasoline Fuel Station Traffic*					Total
		External Trips Gas Only	Internal Trips				
			Warehouse Last	Gas Last	Warehouse Only**		
Costco North Driveway	WBR	+10	+3	+1	-4	+10	
	WBL	+9	+4	+1	-5	+9	
Costco South Driveway	WLT	--	--	--	--	--	
	WBR	+12	+7	+1	-8	+12	
Total		+31	+14	+3	-17	+31	

*Trips are allocated to the various inbound movements based on the new fuel station location.

**Trips switching from “Warehouse Only” to trips that shop at both the fuel station and the warehouse with the additional fuel pumps.

Table 20: Saturday Midday Peak Hour – Additional Outbound Fuel Station Trips

		Additional Gasoline Fuel Station Traffic*					Total
		External Trips Gas Only	Internal Trips				
			Warehouse Last	Gas Last	Warehouse Only**		
Costco North Driveway	WBR	+14	+7	+1	-8	+14	
	WBL	+8	+5	+1	-6	+8	
Costco South Driveway	WBT	--	--	--	--	--	
	WBR	+11	+6	+1	-7	+11	
Total		+33	+18	+3	-18	+33	

*Trips are allocated to the various inbound movements based on the new fuel station location.

**Trips switching from “Warehouse Only” to trips that shop at both the fuel station and the warehouse with the additional fuel pumps.

Project Trips and Existing Plus Project Volumes

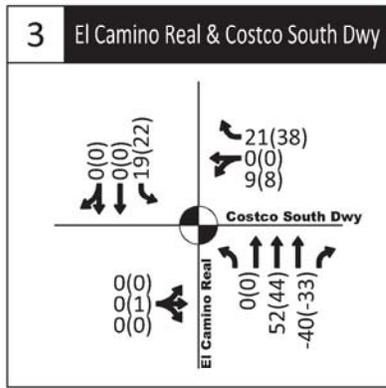
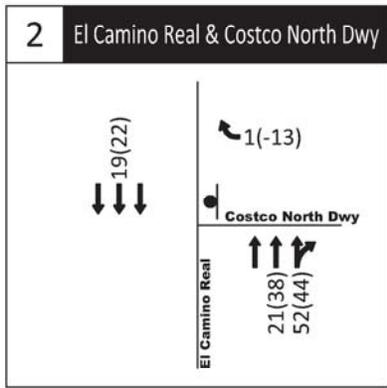
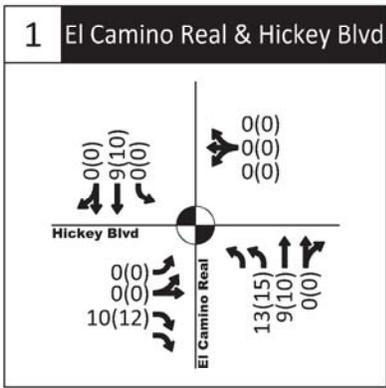
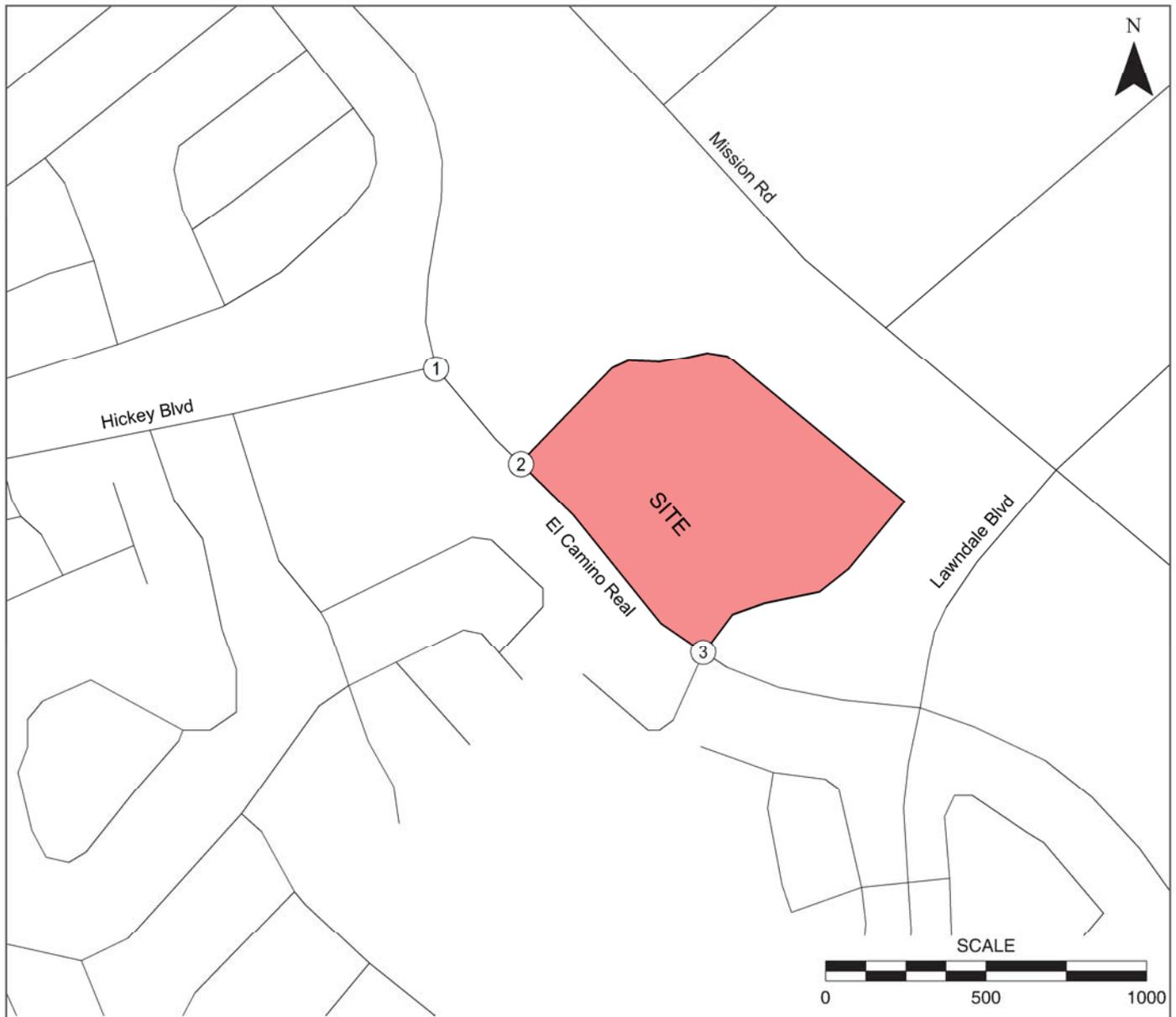
The project trips is a sum of the trips diverted due to the relocation of the fuel station and the new external trips added due to the expansion of the gasoline facility, and they are shown in Table 21 and Table 22. The project trips, as represented in Figure 5, are added to the Existing traffic volumes to obtain the Existing plus Project traffic volumes. The weekday PM peak hour and Saturday midday peak hour Existing plus Project intersection traffic volumes for the Proposed Project are shown in Figure 6.

Table 21: Weekday PM Peak Hour – Existing Plus Project Volumes

		Existing	Shift in Traffic with Station Relocation		Added Traffic with Fuel Station Expansion	Project Trips	Existing Plus Project
Inbound Trips							
Costco North Driveway	NBR	17	+46		+6	+52	69
	SBL	412	--		+19	+19	431
Costco South Driveway	EBT	0	--		--	0	0
	NBR	251	-46		+6	-40	211
Total Inbound Trips		680	0		+31	+31	711
Outbound Trips							
Costco North Driveway	WBR	170	+17	-26	+10	+1	171
	WBL	195	--	--	+9	+9	204
Costco South Driveway	WBT	0	--	--	--	0	0
	WBR	334	-17	+26	+12	+21	355
Total Outbound Trips		699	0	0	+31	+31	730

Table 22: Saturday Midday Peak Hour – Existing Plus Project Volumes

		Existing	Shift in Traffic with Station Relocation		Added Traffic with Fuel Station Expansion	Project Trips	Existing Plus Project
Inbound Trips							
Costco North Driveway	NBR	33	+38		+6	+44	77
	SBL	544	--		+22	+22	566
Costco South Driveway	EBT	1	--		--	0	1
	NBR	272	-38		+5	-33	239
Total Inbound Trips		850	0		+33	+33	883
Outbound Trips							
Costco North Driveway	WBR	261	+14	-41	+14	-13	248
	WBL	181	--	--	+8	+8	189
Costco South Driveway	WBT	0	--	--	--	0	0
	WBR	344	-14	+41	+11	+38	382
Total Outbound Trips		786	0	0	+33	+33	819

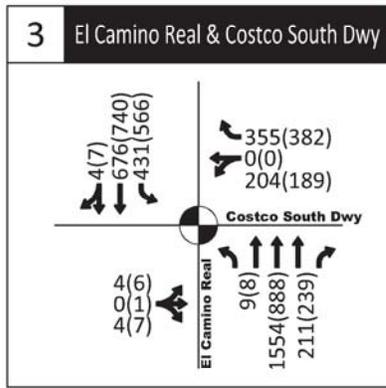
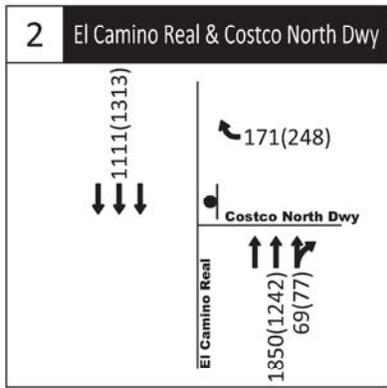
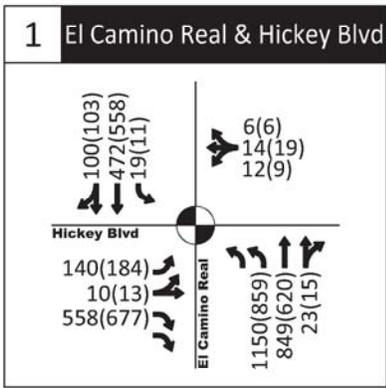
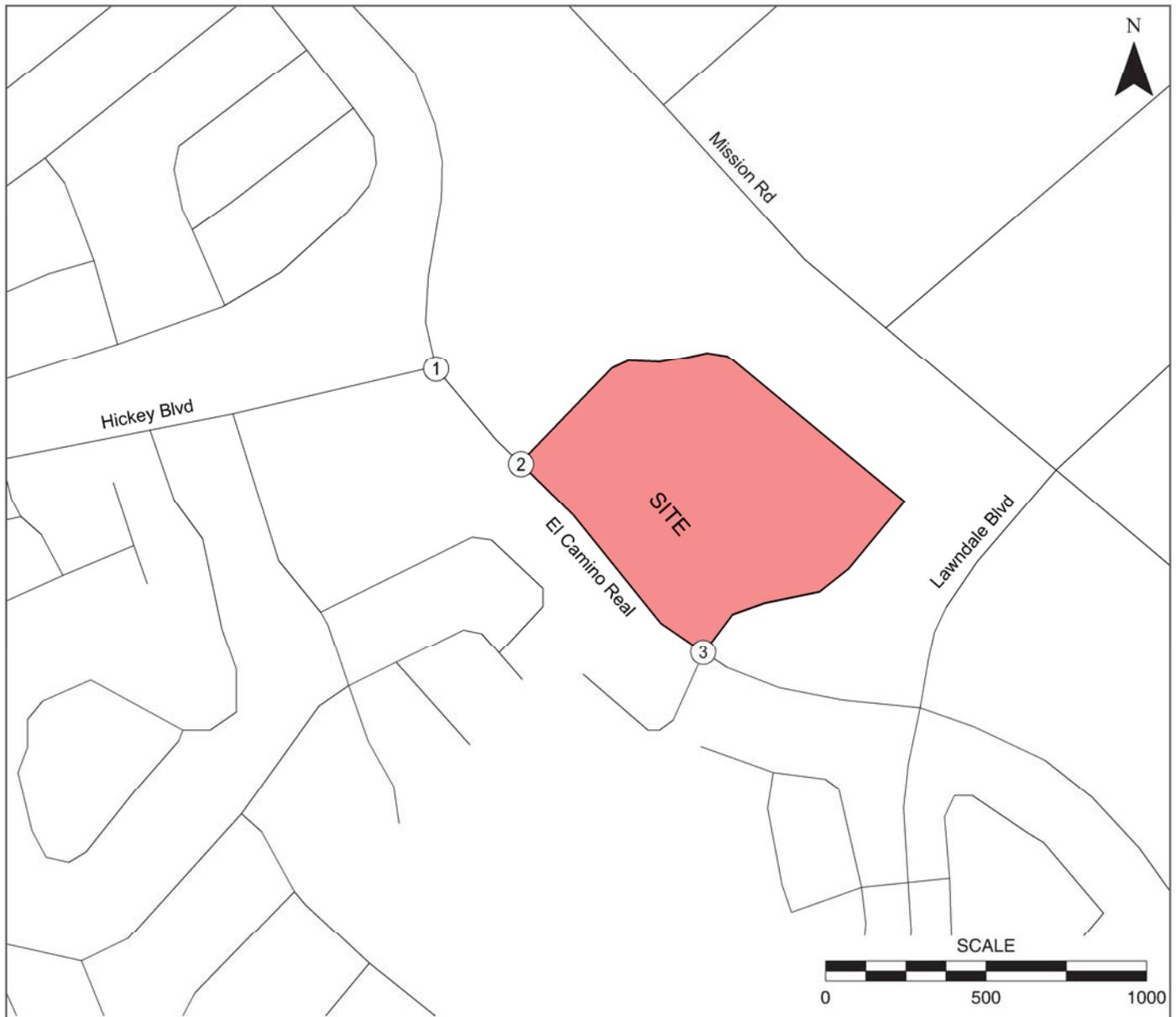


- XX - PM Peak Hour
- (XX) - SAT Peak Hour
- ⊕ - Stop Sign
- ⊙ - Traffic Signal

**Weekday PM & Saturday
Project Trips
South San Francisco, California**

**Figure
5**

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- XX - PM Peak Hour
- (XX) - SAT Peak Hour
- ⬇ - Stop Sign
- ⊙ - Traffic Signal

**Weekday PM & Saturday
Existing Plus Project Peak Hour Volumes
South San Francisco, California**

**Figure
6**

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Existing plus Project Intersection Analysis

The results of the intersection LOS analysis under the Existing plus Project Conditions are summarized in Table 23 and Table 24. The results indicate that all study intersections would operate at LOS D or better during both the weekday PM peak hour and the Saturday midday peak hour, in compliance with the City’s Significant Impact Criteria.

Table 23: Intersection Level-of-Service – Existing plus Project Conditions – Weekday PM Peak Hour

#	North/South Street	East/West Street	Control	Existing		Existing plus Project	
				Delay (s)	LOS	Delay (s)	LOS
1	El Camino Real	Hickey Boulevard	Signalized	39.9	D	41.5	D
2	El Camino Real	Costco North Driveway	Two-Way Stop*	11.0	B	11.2	B
3	El Camino Real	Costco South Driveway	Signalized	30.5	C	32.4	C

Source: Kittelson & Associates, Inc. 2016

*Two-way Stop Controlled Intersection – delay reported is for the critical (highest-delay) approach.
 Signalized and Unsignalized intersections are analyzed using HCM 2000 methodologies

Table 24: Intersection Level-of-Service – Existing plus Project Conditions – Saturday Midday Peak Hour

#	North/South Street	East/West Street	Control	Existing		Existing plus Project	
				Delay (s)	LOS	Delay (s)	LOS
1	El Camino Real	Hickey Boulevard	Signalized	29.4	C	29.9	C
2	El Camino Real	Costco North Driveway	Two-Way Stop*	10.6	B	10.6	B
3	El Camino Real	Costco South Driveway	Signalized	33.2	C	36.9	D

Source: Kittelson & Associates, Inc. 2016

*Two-way Stop Controlled Intersection – delay reported is for the critical (highest-delay) approach.
 Signalized and Unsignalized intersections are analyzed using HCM 2000 methodologies

Table 25 provides the maximum queue length for the two left-turn pockets of interest. Under both the Existing PM and Saturday peak hour conditions, the northbound left-turn queues at the intersection of El Camino Real/Hickey Boulevard has a maximum queue length of 475 feet and 425 feet, respectively, and it occasionally extends back beyond the Costco North Driveway. Under the Existing plus Project Conditions, the maximum queue length would be 487 feet and 439 feet, for the PM peak hour and Saturday midday peak hour, respectively. Similar to the Existing Conditions, the queue would occasionally extends back beyond the Costco North Driveway, but it is assumed that the queue would be cleared every cycle, which would not have an impact beyond what is already in existence.

For southbound left-turn movement at the intersection of El Camino Real/Costco South Driveway, with the Project, the maximum queue length is 565 feet and 645 feet for the weekday PM peak hour and Saturday midday peak hour, respectively. These maximum queue lengths are shorter than the available turn pocket length.

Table 25: Maximum Queue Length – Existing plus Project Conditions

	Max Queue (veh)				Turn Pocket Length (ft /lane)	Max Queue Length (ft)			
	Existing		Existing plus Project			Existing		Existing plus Project	
	Inner Lane	Outer Lane	Inner Lane	Outer Lane		Inner Lane	Outer Lane	Inner Lane	Outer Lane
NBL at El Camino Real/Hickey Blvd									
Weekday PM Peak Hour	19	18	20 ³		700 ¹ / 1,550 ²	475	450	487 ³	
Saturday Midday Peak Hour	17	15	18 ³			425	375	439 ³	
SBL at El Camino Real/ Costco South Driveway									
Weekday PM Peak Hour	21		23		1,100	525		565	
Saturday Midday Peak Hour	24		26			600		645	

¹ The turn pocket length listed is not the entire turn pocket length; this is the length up to the intersection of El Camino Real/Costco North Driveway. There are two left turn lane with a total of 700 feet up to the intersection of El Camino Real/Costco North Driveway, or 350 feet per lane.

² The turn pocket length listed is the entire turn pocket length with include the dual left turn lanes: the inner turn lane has a length of 450 feet, and the outer turn lane has a length of 1,100 feet.

³ Synchro only reports the maximum queue in the same lane group.

SITE CIRCULATION

Existing Conditions

Under the Existing Conditions, the fuel station is located in the southeast corner of the Costco site. Based on the turning movement counts collected and Costco transaction data, more than 95% of inbound traffics enter the Costco Site via the driveway on the south. For the outbound traffic, approximately 25%-33% of the outbound traffics exit the site via the driveway to the north, and the remaining 67%-75% of the outbound traffics exit the site via the driveway to the south. Most of the existing site traffics circulate near the driveway to the south, making the southern portion of the site disproportionately busy.

Conditions After Fuel Station Relocation

When the fuel station is relocated to the north directly adjacent to the existing warehouse, the following key elements are identified:

- Approximately 50% of the inbound traffic from the northbound right movement will shift to access the site from the driveway on the south to the driveway on the north, relieving some of traffic load on the driveway to the south. No inbound shifts for other movements are assumed given vehicles are unlikely to make an U-turn at the Costco South Driveway and enter via the Costco North Driveway.
- The relocation of the fuel station has a nominal effect on the outbound distribution of traffic.
- When the fuel center is relocated, the queuing orientation will also be changed to allow more storage without blocking the primary route on the site periphery.
- The relocation of the fuel center will reduce the emphasis on the traffic signal and provide increased reliance on the right-in, right-out access from El Camino Real. This will better disperse warehouse and fuel center trips onto the system.
- No direct routes are provided within the parking lot from the traffic signal directly to the fuel center that pass the main entrance. This is intended to reduce speeds near the entrance doors and encourage use of the periphery roadway.
- A new pathway will replace the existing pathway along Colma Creek that extends to El Camino Real.
- Given the Project will increase the total number of parking spaces on site, it will be easier for vehicles to find parking and less maneuvering within the site will be needed.
- Parking is prohibited opposite the fuel center queue area with exception of a limited number of stalls that will be designated for employee use. This will reduce backing maneuvers within the fuel center queue storage area.
- The area surrounding the truck loading bays contains striping in lieu of raised channelization. This will allow delivery trucks to maneuver into and out of the site more easily.

SUMMARY OF FINDINGS

Based on the results of this transportation assessment, the transportation system can adequately support the expansion and on-site relocation of the existing Costco fuel station at the El Camino Costco. Key findings are summarized below.

- The relocation and expansion will increase the queue storage area from approximately 105 feet to 130 feet and provides a dedicated tank delivery area for fuel trucks that does not impede operations.
- Based on before and after surveys of other fuel center expansions there is a nominal projected increase of 62 new trips on the system during the weekday p.m. peak hour and 66 new trips during the Saturday midday peak hour (roughly one car per minute during peak hours), with half of the new trips inbound and half outbound.

- Relocation and expansion of the fuel station and on-site parking will result in a minor shift in inbound traffic volumes from the signalized southern access toward the unsignalized right-in, right-out driveway.
- The southbound left-turn pocket at the intersection of El Camino Real/Costco South Driveway is adequate to serve the left-turning vehicles for both the Existing Conditions and the Existing plus Project Conditions.
- Maximum observed northbound left-turn queues (100th percentile) at the El Camino Real/Hickey Boulevard intersection occasionally block the northern Costco right-in, right-out access while remaining within the left-turn bay. Delays during blockages are low as motorists accept courtesy gaps or wait for the queue area to clear on green. The relocation will have a negligible effect on outbound trips or queue lengths.
- No operational deficiencies were identified at the site accesses or the nearby intersection of El Camino Real/Hickey Boulevard in the no-build or with-project scenarios, during either the weekday p.m. or Saturday midday peak periods.
- The net increase in on-site parking supply reduces on-site circulation and maneuvering during the peak periods.
- Given the relocation and expansion of the fuel station does not trigger new impact and will not significantly degrade intersection operations as compared to the City's Significant Impact Criteria, no mitigation is required for this Project.

We trust that this memorandum provide transportation related analyses that support the CEQA document for this project. If you have any questions about this memorandum, or if you require additional information, please contact us at (510) 433-8088 or itsang@kittelson.com.