DRAFT

ENVIRONMENTAL IMPACT REPORT FOR

Costco/Vineyard II Retail Development Project

State Clearinghouse No. 2018061602
Development Plan 2018-1652 (Costco)
Conditional Use Permit 2018-1653
Tentative Tract Map No. 37511
Development Plan 2018-1656 (Vineyard II)

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May 20, 2020

Printed on 30% post-consumer recycled material.

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Acronyms and Abbreviations

Acronym/Abbreviation	Definition
µg/m^3	micrograms per cubic meter
AB	Assembly Bill
ADT	average daily traffic
AFY	acre-feet per year
AQMP	air quality management plan
Basin Plan	Water Quality Control Plan for the San Diego Region
BMP	best management practice
CAAQS	California Ambient Air Quality Standards
CalEEMod	California Emissions Estimator Model
CAL FIRE	California Department of Forestry and Fire Protection
CalEPA	California Environmental Protection Agency
CALGreen	California Green Building Standards
CALINE4	California LINE Source Dispersion Model
CalRecycle	California Department of Resources Recycling and Recovery
Caltrans	California Department of Transportation
CAP	Climate Action Plan
CARB	California Air Resources Board
CBC	California Building Code
CCR	California Code of Regulations
CDFW	California Department of Fish and Wildlife
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CESA	California Endangered Species Act
CH_4	methane
City	City of Murrieta
CIWMB	California Integrated Waste Management Board
CMP	Congestion Management Plan
CNEL	community noise equivalent level
CNRA	California Natural Resources Agency
CO	carbon monoxide
CO_2	carbon dioxide
CO_2e	carbon dioxide equivalent
Costco	Costco Wholesale
County	County of Riverside
CPTED	Crime Prevention Through Environmental Design
CPUC	California Public Utilities Commission
CRHR	California Register of Historical Resources
CWA	Clean Water Act
dB	decibel
dBA	A-weighted decibel
DIF	Development Impact Fee
DPM	diesel particulate matter
DTSC	Department of Toxic Substances Control

Acronym/Abbreviation	Definition
EDR	Environmental Data Resources Inc.
EMWD	Eastern Municipal Water District
EIC	Eastern Information Center
EIR	Environmental Impact Report
EISA	Energy Independence and Security Act
EO	Executive Order
EOP	Emergency Operations Plan
EPA	U.S. Environmental Protection Agency
EV	electric vehicle
EVR	enhanced vapor recovery
FEMA	Federal Emergency Management Agency
FESA	Federal Endangered Species Act
FHSZ	fire hazard severity zone
GHG	greenhouse gas
GWP	global warming potential
HAP	hazardous air pollutant
HCM	Highway Capacity Manual
HCS	Highway Capacity Software
HFC	hydrofluorocarbon
HRA	health risk assessment
HVAC	heating, ventilation, and air conditioning
I	Interstate
in/sec	inches per second
IRWMP	Integrated Regional Water Management Plan
kBTU	thousand British thermal units
LCFS	Low Carbon Fuel Standard
L_{dn}	day–night average noise level
L_{eq}	equivalent noise level
LOS	level of service
LST	Localized Significance Threshold
MFD	Murrieta Fire Department
MM	Mitigation Measure
MMT	million metric tons
MPD	Murrieta Police Department
MS4	municipal separate storm sewer system
MSHCP	Western Riverside County Multiple Species Habitat Conservation Plan
MT	metric ton
MWD	Metropolitan Water District
N_2O	nitrous oxide
NAAQS	National Ambient Air Quality Standards
NAHC	Native American Heritage Commission
NF_3	nitrogen trifluoride
NHTSA	National Highway Traffic Safety Administration
NO_2	nitrogen dioxide
NO	nitric oxide
NOP	Notice of Preparation
NO_x	oxides of nitrogen

Acronym/Abbreviation	Definition
NPDES	National Pollutant Discharge Elimination System
O_3	ozone
OSHA	Occupational Safety and Health Administration
P-E	population to employment ratio
PCB	polychlorinated biphenyl
PDF	project design feature
PFC	perfluorocarbon
$PM_{2.5}$	particulate matter less than 2.5 microns in diameter
PM_{10}	particulate matter less than 10 microns in diameter
PMA	Primary Market Area
POC	Point of Comparison
ppb	parts per billion
ppm	parts per million
PPV	peak particle velocity
PRC	California Public Resources Code
project	Costco/Vineyard Phase II Retail Development Project
RCP	Regional Comprehensive Plan
RCTC	Riverside County Transportation Commission
RFS	Renewable Fuel Standard
RIRO	right-in/right-out
RPS	Renewables Portfolio Standard
RTIP	Regional Transportation Improvement Program
RTP	Regional Transportation Plan
RWQCB	Regional Water Quality Control Boards
RWRF	regional water reclamation facility
s/veh	seconds of delay per vehicle
SB	Senate Bill
SCAB	South Coast Air Basin
SCAG	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District
SCE	Southern California Edison
SCS	Sustainable Communities Strategy
SF_6	sulfur hexafluoride
SGMA	Sustainable Groundwater Management Act
SHMA	Seismic Hazards Mapping Act
SMA	Secondary Market Area
SO_2	sulfur dioxide
SoCalGas	Southern California Gas Company
SRA	source-receptor area
STIP	State Transportation Improvement Program
SWMP	Stormwater Management Plan
SWPPP	Stormwater Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TAC	toxic air contaminant
TCR	Tribal Cultural Resource
TIA	traffic impact analysis
TMDL	total maximum daily load

Acronym/Abbreviation	Definition
TUMF	Transportation Uniform Mitigation Fee
TWSC	two-way stop control
USC	United States Code
USFWS	U.S. Fish and Wildlife Service
UST	underground storage tank
UWMP	Urban Water Management Plan
v/c	vehicle-to-capacity ratio
VMT	vehicle miles traveled
VOC	volatile organic compound
WDR	waste discharge requirement
WQMP	Water Quality Management Plan
WRCOG	Western Riverside Council of Governments

1 Summary

This section provides a summary for the Draft Environmental Impact Report (EIR) for the proposed Costco/Vineyard II Retail Development Project (project). In addition, this section provides a summary of the project location and proposed project; areas of known controversy and issues to be resolved; a summary of project alternatives; and a summary of all project impacts, associated mitigation measures, and the level of significance after mitigation is applied.

1.1 Introduction

This Draft EIR was prepared by the City of Murrieta (City) as lead agency pursuant to the California Environmental Quality Act (CEQA) Public Resources Code 21000 et seq., and the State CEQA Guidelines (California Code of Regulations, Section 15000 et seq.). This EIR has been prepared to evaluate the environmental effects of the project. The purpose of this EIR is to focus the discussion on those potential effects on the environment of the project that the lead agency has determined may be significant. In addition, feasible mitigation measures are recommended, when applicable, that could reduce or avoid significant environmental impacts.

1.2 Project Location

The project site is located in the northern portion of the City in Riverside County, and contains approximately 26.3 acres of vacant land composed of Assessor's Parcel Numbers 392-290-025-4, 392-290-026-5, 392-290-028-7, and 392-290-029-8, and portions of 392-270-033, 392-270-030, and 392-290-051in the northeastern corner of the vacated Antelope Road and 250 feet north of Clinton Keith Road, east of Interstate 215 (see Figure 3-1, Project Location, in Chapter 3, Project Description, of this EIR).

The project site is surrounded by commercial development, residential development, a high school, and vacant land. Single- and multiple-family residential development occurs adjacent to the site on the east. Vacant land abuts the southern site boundary, with Clinton Keith Road south of the project site and Vista Murrieta High School south of Clinton Keith Road. Antelope Road forms the western site boundary, with Interstate 215 immediately west of Antelope Road. Vacant land occurs east of Interstate 215 and west of Antelope Road. Project location is further discussed in Chapter 3 of this EIR.

1.3 Project Description

The proposed project would include construction and operation of a new retail development consisting of 225,262 square feet of development including a Costco Wholesale (Costco) warehouse and fuel station, and in adjoining parcels, standalone retail and fitness center buildings and inline stores, one casual dining restaurant with drive-through and window service, and one drive-through fast-food restaurant. The project would include 1,215 parking spaces adjoining the retail and warehouse uses, as shown in Figure 3-2, Proposed Site Plan, in Chapter 3. The project would require a conditional use permit for the Costco tire center, a development plan, and tentative tract map.

The 153,362-square-foot Costco warehouse building and associated parking would be situated on an approximately 16.4-acre parcel on the western side of the project site. A separate gas station would be developed with a 32-pump facility with overhead canopy. The 72,000-square-foot Vineyard II retail development would be constructed concurrently to the east of the proposed Costco location, within the same shopping center. Warm

Springs Parkway, a four-lane road with bike lanes and sidewalks, would be constructed from Clinton Keith Road to the north project boundary as part of the project. The roadway would be stubbed at the north site boundary for future extension. Landscaping, lighting, stormwater drainage, and circulation improvements would also be implemented as part of the project.

1.4 Project Objectives

The project was designed to meet the following objectives:

- Provide a mix of retail, restaurant, and anchor tenants that provide residents with additional shopping, dining, and fueling options in a location that is convenient for its customers and employees to travel to shop and work
- Enhance the City with an economically viable development by establishing anchored retail required to support brick and mortar retail in the current online-oriented retail environment
- Provide a gasoline fueling station adjacent to major roadways and the regional highway system
- Generate additional revenues to the City in the form of increased sales and property tax revenues
- Create jobs in the City and improve the local job/housing balance
- Design a project that is consistent with the City's General Plan and Development Code
- Create a new opportunity for a wide range of integrated retail goods and services to meet the needs of the growing Murrieta community
- Design a site plan that minimizes circulation conflicts between automobiles and pedestrians

1.5 Areas of Controversy

A public scoping meeting was held at the City Fire Station No. 4 on July 10, 2018. The purpose of this meeting was to seek input from public agencies and the general public regarding the environmental issues and concerns that may potentially result from the project. Approximately 12 people attended the scoping meeting. Comment letters were also received in response to the Notice of Preparation for the project. Copies of comment letters are available in Appendix A and are described in Chapter 2 of this EIR. The primary areas of controversy identified by the public and agencies included the following potential issues. The EIR section that addresses the issue raised is provided in parentheses.

- Impacts related to the scenic quality of the surrounding area, appearance of the project, nighttime use, and lighting. Further, impacts related to growth inducement and the potential to change the character and quality of the City (Section 4.1, Aesthetics; Section 4.10, Population and Housing).
- Impacts related to air quality and greenhouse gas emissions as a result of project construction and operation, such as mobile source emissions due to an increase in traffic (Section 4.2, Air Quality; Section 4.6, Greenhouse Gas Emissions; Section 4.13, Transportation).
- Impacts related to noise as a result of project construction. Additionally, operational noise impacts to nearby residents as a result of night activity, hours of operation, delivery trucks, and other project operations (Section 4.9, Noise).
- Impacts related to increased traffic. Particular concerns related to the addition of project and cumulative traffic to Clinton Keith Road, roads within neighboring jurisdictions, and Riverside County roads, and

impacts on neighboring schools. Other concerns are related to intersection delays and signal timing, and the location of the main entrances to the project. Further, site access points, accessibility via alternative transportation, the construction of Warm Springs Parkway, and future connectivity to the north are addressed (Section 4.13, Traffic and Circulation).

- Impacts to a wide variety of resources evaluated in CEQA by the Southwest Regional Council of Carpenters, including the potential for visual impacts, air quality impacts, biological resources impacts, greenhouse gas emissions impacts, and transportation impacts. These issues are evaluated in each of the respective chapters of this EIR.

1.6 Summary of Environmental Impacts

This Draft EIR was prepared to assess the potentially significant impacts on the environment that could result from implementation of the proposed project. For a detailed discussion regarding potential significant impacts, please see Chapter 4, Environmental Impact Analysis, of this EIR.

As required by CEQA, a summary of the proposed project's impacts is provided in Table 1-1, Summary of Project Impacts. Also provided in Table 1-1 is a list of the proposed mitigation measures that are recommended in response to the potentially significant impacts identified in this EIR, and a determination of the level of significance of the impacts after implementation of the recommended mitigation measures.

Table 1-1. Summary of Project Impacts

Environmental Topic	Impact?	Mitigation Measure(s)	Level of Significance After Mitigation
Aesthetics			
Would the project have a substantial adverse effect on a scenic vista?	Less than Significant	No mitigation would be required.	Less than Significant
Would the project substantially damage scenic resources, including, but not limited to trees, rock outcroppings, and historic buildings within a state scenic highway?	Less than Significant	No mitigation would be required.	Less than Significant
In non-urbanized areas, would the project substantially degrade the existing visual character of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage points). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?	Less than Significant	No mitigation would be required.	Less than Significant
Would the project create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	Less than Significant	No mitigation would be required.	Less than Significant
Would the project have a cumulative effect on aesthetic resources?	Less than Significant	No mitigation would be required.	Less than Significant
Agriculture and Forestry Resources			
Would the project 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?	No Impact	No mitigation would be required.	No Impact

Table 1-1. Summary of Project Impacts

Environmental Topic	Impact?	Mitigation Measure(s)	Level of Significance After Mitigation
Would the project conflict with existing zoning for agricultural use, or a Williamson Act contract?	No Impact	No mitigation would be required.	No Impact
Would the project 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))?	No Impact	No mitigation would be required.	No Impact
Would the project result in the loss of forest land or conversion of forest land to non-forest use?	No Impact	No mitigation would be required.	No Impact
Would the project 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?	No Impact	No mitigation would be required.	No Impact
Air Quality			
Would the project conflict with or obstruct implementation of the applicable air quality plan?	Potentially Significant	MM-AQ-1: To reduce the potential for criteria air pollutants, specifically particulate matter (PM) and oxides of nitrogen (NOx), as a result of construction of the project, the applicant shall: Prior to the start of construction activities, the project applicant, or its designee, shall ensure that all 75-horsepower or greater diesel-powered equipment is powered with California Air Resources Board (CARB)-certified Tier 4 Final engines, except where the project applicant establishes to the satisfaction of the City of Murrieta (City) that Tier 4 Final equipment is not available.	Significant and Unavoidable

Table 1-1. Summary of Project Impacts

Environmental Topic	Impact?	Mitigation Measure(s)	Level of Significance After Mitigation
		An exemption from these requirements may be granted by the City in the event that the City is provided with sufficient evidence that equipment with the required tier is not reasonably available and corresponding reductions in criteria air pollutant emissions are achieved from other construction equipment. Before an exemption may be considered by the City, the applicant shall: (1) be required to demonstrate that two construction fleet owners/operators in Riverside County were contacted and that those owners/operators confirmed Tier 4 Final equipment could not be located within Riverside County; and (2) the proposed replacement equipment has been evaluated using the California Emissions Estimator Model or other industry standard emission estimation method and documentation provided to the City to confirm the project-generated emissions do not exceed applicable South Coast Air Quality Management District mass daily thresholds of significance and localized significance thresholds. **MM-AQ-2:** To reduce the potential impacts from criteria air emissions, specifically to reduce VOC and NOx impacts, as a result of operation of the project, the applicant shall: A. Provide preferential parking for electric vehicles (EVs), compressed natural gas vehicles, and carpool/vanpool rideshare vehicles. B. Offer transit subsidies for 100% of employees of the project for 3 to 6 months.	
Would the project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-	Potentially Significant	**MM-AQ-1**, **MM-AQ-2**	Significant and Unavoidable

Table 1-1. Summary of Project Impacts

Environmental Topic	Impact?	Mitigation Measure(s)	Level of Significance After Mitigation
attainment under an applicable federal or state ambient air quality standard?			
Would the project expose sensitive receptors to substantial pollutant concentrations?	Potentially Significant	MM-AQ-1	Significant and Unavoidable
Would the project result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	Less than Significant	No mitigation would be required.	Less than Significant
Would the project have a cumulative effect on air quality resources?	Potentially Significant	MM-AQ-1, MM-AQ-2	Significant and Unavoidable
Biological Resources			
Would the project have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	Potentially Significant	**MM-BIO-1: General Avoidance and Minimization Measures** The following avoidance and minimization measures shall be implemented during project construction activities: • Construction limits along the northern boundary of the off-site grading area and western side of the northern off-site storm drain line shall be clearly flagged so that adjacent native vegetation is avoided. • Construction work and operations and maintenance areas shall be kept clean of debris, such as trash and construction materials. Fully covered trash receptacles that are animal-proof shall be installed and used during construction to contain all food, food scraps, food wrappers, beverage containers, and other miscellaneous trash. Trash contained within the receptacles shall be removed at least once a week from the project site. • Nighttime construction shall be minimized to the extent possible. However, if nighttime activity (e.g.,	Less than Significant

Table 1-1. Summary of Project Impacts

Environmental Topic	Impact?	Mitigation Measure(s)	Level of Significance After Mitigation
		equipment maintenance) is necessary, the speed limit shall be 10 miles per hour. • Staging and storage areas for spoils, equipment, materials, fuels, lubricants, and solvents shall be located within the project site or adjacent developed areas. • To prevent inadvertent entrapment of wildlife during construction, all excavated steep-walled holes or trenches more than 2 feet deep shall be covered with plywood or similar materials at the close of each working day, or be provided with one or more escape ramps constructed of earth fill or wooden planks. Before such holes or trenches are filled, they shall be thoroughly inspected for trapped wildlife. If trapped animals are observed, escape ramps or structures shall be installed immediately to allow escape. • All pipes, culverts, and similar structures with a diameter of 4 inches or more that are stored at a construction site for one or more overnight periods shall be thoroughly inspected for wildlife and nesting birds before the pipe is buried, capped, or otherwise used or moved in any way. If an animal is discovered inside a pipe, that section of pipe shall not be moved until the animal has either moved from the structure on its own accord or until the animal has been captured and relocated by a qualified biologist. The following avoidance and minimization measure shall be implemented as part of project operations: • The project landscape plan shall avoid the use of any invasive, non-native plant species rated as "high" or "moderate" by the California Invasive Plant Council's Invasive Plant Inventory (Cal-IPC 2020).	

Table 1-1. Summary of Project Impacts

Environmental Topic	Impact?	Mitigation Measure(s)	Level of Significance After Mitigation
		• The project landscape plan shall avoid the use of any species listed in Table 6-2 of the MSHCP. **MM-BIO-2:** Prior to initiation of construction activities, a burrowing owl pre-construction survey shall be conducted in accordance with the Burrowing Owl Survey Instructions for the Western Riverside Multiple Species Habitat Conservation Plan Area (RCA 2006). In accordance with these instructions, the survey shall occur within 30 days prior to ground-disturbance activities. A minimum of one survey site visit within the described timeframe prior to disturbance is required to confirm presence or absence of burrowing owl on the site. Pre-construction surveys shall be conducted by a qualified biologist. If surveys confirm occupied burrowing owl habitat is located within the project site or within 500 feet of the project site, avoidance measures shall be implemented consistent with the requirements of the Western Riverside County Multiple Species Habitat Conservation Plan. **MM-BIO-3:** To maintain compliance with the Migratory Bird Treaty Act and California Fish and Game Code, if ground disturbance and/or vegetation clearance activities are scheduled to occur during the avian nesting season, a pre-construction nesting bird survey shall be conducted by a qualified biologist within the project site and a 300-foot buffer around the project site. Surveys shall be conducted within 3 days prior to initiation of activity and be conducted between dawn and noon. If an active nest is detected during the nesting bird survey, avoidance buffers shall be implemented as	

Table 1-1. Summary of Project Impacts

Environmental Topic	Impact?	Mitigation Measure(s)	Level of Significance After Mitigation
		determined by a qualified biologist. The buffer shall be of a distance to ensure avoidance of adverse effects to the nesting bird by accounting for topography, ambient conditions, species, nest location, and activity type. All nests shall be monitored as determined by the qualified biologist until nestlings have fledged and dispersed, or it is confirmed that the nest has been unsuccessful or abandoned.	
Would the project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	Less than Significant	No mitigation would be required.	Less than Significant
Would the project 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?	No Impact	No mitigation would be required.	No Impact
Would the project 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?	No Impact	No mitigation would be required.	No Impact

Table 1-1. Summary of Project Impacts

Environmental Topic	Impact?	Mitigation Measure(s)	Level of Significance After Mitigation
Would the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	No Impact	No mitigation would be required.	No Impact
Would the project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	Potentially Significant	MM-BIO-1, MM-BIO-2	Less than Significant
Would the project have a cumulative effect on biological resources?	Less than Significant	No mitigation would be required.	Less than Significant
Cultural Resources			
Would the project cause a substantial adverse change in the significance of a historical resource as defined in CEQA Guidelines Section 15064.5?	No Impact	No mitigation would be required.	No Impact
Would the project cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines Section 15064.5?	Potentially Significant	MM-TCR-1: The project permittee/owner shall retain a Riverside County-certified archaeological monitor to monitor all ground-disturbing activities in an effort to identify any unknown cultural resources. Prior to grading, the project permittee/owner shall provide to the City of Murrieta verification that a certified archaeological monitor has been retained. Any newly discovered cultural resource deposits shall be subject to a cultural resources evaluation. MM-TCR-2: *Archaeological Monitoring:* At least 30 days prior to grading permit issuance and before any grading, excavation, and/or ground-disturbing activities on the site take place, the project permittee/owner shall retain a Riverside County-certified archaeological monitor to monitor all ground-disturbing activities in an effort to identify any unknown archaeological resources.	Less than Significant

Table 1-1. Summary of Project Impacts

Environmental Topic	Impact?	Mitigation Measure(s)	Level of Significance After Mitigation
		The Project Archaeologist, in consultation with consulting tribes, the permittee/owner, and the City of Murrieta, shall develop an Archaeological Monitoring Plan to address the details, timing, and responsibility of all archaeological and cultural monitoring activities that will occur on the project site during construction. Details in the plan shall include: a. Project grading and development scheduling; b. The development of a schedule in coordination with the permittee/owner and the Project Archaeologist for designated Native American Tribal Monitors from the consulting tribes during grading, excavation and ground-disturbing activities on the site: including the scheduling, safety requirements, duties, scope of work, and Native American Tribal Monitors' authority to stop and redirect grading activities in coordination with all project archaeologists; and, c. The protocols and stipulations that the permittee/owner, City of Murrieta, tribes, and Project Archaeologist will follow in the event of inadvertent cultural resources discoveries, including any newly discovered cultural resource deposits that shall be subject to a cultural resources evaluation. A final report documenting the monitoring activity and disposition of any recovered cultural resources shall be submitted to the City of Murrieta, Eastern Information Center and the consulting tribe within 60 days of completion of monitoring. MM-TCR-3: *Native American Monitoring:* Native American Tribal monitors shall also participate in monitoring of ground-disturbing activity. At least 30	

Table 1-1. Summary of Project Impacts

Environmental Topic	Impact?	Mitigation Measure(s)	Level of Significance After Mitigation
		days prior to issuance of grading permits, agreement(s) between the permittee/owner and the consulting tribe(s) shall be developed regarding tribal monitoring requirements and treatment of tribal cultural resources so as to meet the requirements of the California Environmental Quality Act. The monitoring agreement shall address the treatment of known tribal cultural resources; the designation, responsibilities, and participation of designated Tribal monitors during grading, excavation, and ground-disturbing activities; project grading and development scheduling. MM-TCR-4*: Disposition of Cultural Resources:* In the event that tribal cultural resources are discovered during the course of grading for this project, one or more of the following treatments, in order of preference, shall be employed with the tribes. Evidence of such shall be submitted to the City of Murrieta Planning Department: 1) Preservation in place means avoiding the resources, leaving them in the place where they were found with no development affecting the integrity of the resource. 2) On-site reburial of the discovered items as detailed in the Monitoring Plan required pursuant to MM-TCR-2. This shall include measures and provisions to protect the future reburial area from any future impacts in perpetuity. Reburial shall not occur until all legally required cataloging and basic recordation have been completed. No recordation of sacred items is permitted without the written consent of all Consulting Native American Tribal Governments. 3) The permittee/owner shall relinquish ownership of all cultural resources, including sacred items, burial	

Table 1-1. Summary of Project Impacts

Environmental Topic	Impact?	Mitigation Measure(s)	Level of Significance After Mitigation
		goods, and all archaeological artifacts and non-human remains as part of the required mitigation for impacts to cultural resources, and adhere to the following: a. A curation agreement with an appropriate qualified repository within Riverside County that meets federal standards per Title 36 Code of Federal Regulations 800 Part 79 and therefore would be curated and made available to other archaeologists/researchers for further study. The collections and associated records shall be transferred, including title, to an appropriate curation facility within Riverside County, to be accompanied by payment of the fees necessary for permanent curation. b. At the completion of grading, excavation, and ground-disturbing activities on site, a Phase IV Monitoring Report shall be submitted to the City of Murrieta documenting monitoring activities conducted by the Project Archaeologist and Native American Tribal Monitors within 60 days of completion of grading. This report shall document the impacts to the known resources on the property; describe how each mitigation measure was fulfilled; document the type of cultural resources recovered and the disposition of such resources; provide evidence of the required cultural sensitivity training for the construction staff held during the required pre-grade meeting; and, in a confidential appendix, include the daily/weekly monitoring notes from the archaeologist. All reports produced will be	

Table 1-1. Summary of Project Impacts

Environmental Topic	Impact?	Mitigation Measure(s)	Level of Significance After Mitigation
		submitted to the City of Murrieta, Eastern Information Center, and Consulting Tribes. **MM-TCR-5:** ***Human remains:*** If human remains are encountered, California Health and Safety Code Section 7050.5 states that no further disturbance shall occur until the Riverside County Coroner has made the necessary findings as to origin. Further, pursuant to California Public Resources Code, Section 5097.98(b), remains shall be left in place and free from disturbance until a final decision as to the treatment and disposition has been made. If the Riverside County Coroner determines the remains to be Native American, the Native American Heritage Commission must be contacted within 24 hours. The Native American Heritage Commission must then immediately identify the "most likely descendants(s)" for purposes of receiving notification of discovery. The most likely descendant(s) shall then make recommendations within 48 hours and engage in consultation concerning the treatment of the remains as provided in California Public Resources Code, Section 5097.98.	
Would the project disturb any human remains, including those interred outside of dedicated cemeteries?	Potentially Significant	**MM-TCR-5**	Less than Significant
Would the project have a cumulative effect on cultural resources?	Less than Significant	No mitigation would be required.	Less than Significant
Geology and Soils			
Would the project directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving: 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 based on other substantial evidence of as known fault. (Refer to Division of Mines and Geology Special Publication 42); strong seismic ground shaking; seismic-related ground failure, including liquefaction; or landslides?			
i. Faulting	No Impact	No mitigation would be required.	No Impact

Table 1-1. Summary of Project Impacts

Environmental Topic	Impact?	Mitigation Measure(s)	Level of Significance After Mitigation
ii. Strong seismic ground shaking	No Impact	No mitigation would be required.	No Impact
iii.Seismic related ground failure including liquefaction	No Impact	No mitigation would be required.	No Impact
iv.Landslides	No Impact	No mitigation would be required.	No Impact
Would the project result in substantial soil erosion or the loss of topsoil?	Less than Significant	No mitigation would be required.	Less than Significant Impact
Would the project 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?	No Impact	No mitigation would be required.	No Impact
Would the project be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating direct or indirect substantial risks to life or property?	No Impact	No mitigation would be required.	No Impact
Would the project 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?	No Impact	No mitigation would be required.	No Impact
Would the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	Less than Significant	No mitigation would be required.	Less than Significant
Would the project have a cumulative effect on geological and/or soil resources?	Less than Significant	No mitigation would be required.	Less than Significant
Greenhouse Gas Emissions			
Would the project generate greenhouse gas emissions that, either directly or indirectly, may have a significant impact on the environment?	Less than Significant	No mitigation would be required.	Less than Significant

Table 1-1. Summary of Project Impacts

Environmental Topic	Impact?	Mitigation Measure(s)	Level of Significance After Mitigation
Would the project conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	Less than Significant	No mitigation would be required.	Less than Significant
Would the project have a cumulative effect on greenhouse gas emissions resources?	Less than Significant	No mitigation would be required.	Less than Significant
Hazards and Hazardous Materials			
Would the project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	Less than Significant	No mitigation would be required.	Less than Significant
Would the project 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?	Less than Significant	No mitigation would be required.	Less than Significant
Would the project emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	Less than Significant	No mitigation would be required.	Less than Significant
Would the project 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 result, would is create a significant hazard to the public or the environment?	No Impact	No mitigation would be required.	No Impact
For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?	No Impact	No mitigation would be required.	No Impact

Table 1-1. Summary of Project Impacts

Environmental Topic	Impact?	Mitigation Measure(s)	Level of Significance After Mitigation
Would the project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	Less than Significant	No mitigation would be required.	Less than Significant
Would the project expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?	Less than Significant	No mitigation would be required. (Mitigation measures related to wildfire hazards are included in Section 4.17).	Less than Significant
Would the project have a cumulative effect on hazards or hazardous materials resources?	Less than Significant	No mitigation would be required.	Less than Significant
Hydrology and Water Quality			
Would the project violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality?	Less than Significant	No mitigation would be required.	Less than Significant
Would the project substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	Less than Significant	No mitigation would be required.	Less than Significant
Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces in a manner which would: i. Result in substantial erosion or siltation on or off site; ii. Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off site; iii. Create or contribute runoff water which would exceed the capacity of existing or	Less than Significant	No mitigation would be required.	Less than Significant

Table 1-1. Summary of Project Impacts

Environmental Topic	Impact?	Mitigation Measure(s)	Level of Significance After Mitigation
planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or iv. Impede or redirect flood flows.			
In flood hazard, tsunami, or seiche zones, would the project risk release of pollutants due to project inundation?	No Impact	No mitigation would be required.	No Impact
Would the project conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	Less than Significant	No mitigation would be required.	Less than Significant
Would the project have a cumulative effect on hydrology or water quality resources?	Less than Significant	No mitigation would be required.	Less than Significant
Land Use			
Would the project physically divide an established community?	No Impact	No mitigation would be required.	No Impact
Would the project cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	No Impact	No mitigation would be required.	No Impact
Would the project have a cumulative effect on land use resources?	No Impact	No mitigation would be required.	No Impact
Mineral Resources			
Would the project 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?	No Impact	No mitigation would be required.	No Impact
Would the project result in the loss of availability of a locally important mineral resource recovery site delineated on a local	No Impact	No mitigation would be required.	No Impact

Table 1-1. Summary of Project Impacts

Environmental Topic	Impact?	Mitigation Measure(s)	Level of Significance After Mitigation
general plan, specific plan or other land use plan?			
Would the project have a cumulative effect on mineral reources?	No Impact	No mitigation would be required.	No Impact
Noise			
Would the project result in generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	Potentially Significant	**SC-NOI-1:** The applicant shall ensure that construction activities be limited to no more than the hours of 7:00 a.m. to 7:00 p.m. Monday through Saturday except in the event of emergency declared by City, State, or Federal officials. These conditions shall be listed on the project's final design plans to the satisfaction of the City. **MM-NOI-1**: Prior to grading permit issuance, the applicant shall ensure the following: • All construction equipment, fixed or mobile, shall be equipped with properly operating and maintained mufflers. • Construction noise reduction methods, such as shutting off idling equipment, maximizing the distance between construction equipment staging areas and occupied sensitive receptor areas, and use of electric air compressors and similar power tools rather than diesel equipment, shall be used where feasible. • Noise attenuation measures, which may include temporary noise barriers or noise blankets, shall be placed around stationary construction noise sources. • During construction, stationary construction equipment shall be placed such that emitted noise is directed away from or shielded from sensitive receptors.	Less than Significant

Table 1-1. Summary of Project Impacts

Environmental Topic	Impact?	Mitigation Measure(s)	Level of Significance After Mitigation
		• During construction, stockpiling and vehicle staging areas shall be located as far as practical from noise-sensitive receptors while being located on the project site or on existing developed areas. • Construction hours, allowable workdays, and the phone number of the job superintendent shall be clearly posted at all construction entrances to allow surrounding property owners and residents to contact the job superintendent if necessary. In the event that the City of Murrieta receives a complaint, appropriate corrective actions (such as eliminating the use of high-noise and vibration-producing equipment or replacing with smaller equipment types or other equivalent methods) shall be implemented and a report of the action provided to the reporting party. **MM-NOI-2:** The applicant shall require that all construction equipment be operated with mandated noise control equipment (mufflers or silencers). Enforcement shall be accomplished by random field inspections by applicant personnel during construction activities to the satisfaction of the City of Murrieta Engineering Department. **MM-NOI-3:** A temporary construction noise barrier shall be constructed along the eastern boundary of the project site during construction of Vineyard II. The noise barrier shall be a minimum of 8 feet in height, shall have a surface density of at least 4 pounds per square foot, shall be free of openings and cracks, and shall be designed to achieve a noise reduction of at least 5 A-weighted decibels.	

Table 1-1. Summary of Project Impacts

Environmental Topic	Impact?	Mitigation Measure(s)	Level of Significance After Mitigation
Would the project result in generation of excessive groundborne vibration or groundborne noise levels?	Less than Significant	MM-NOI-1	Less than Significant
For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	No Impact	No mitigation would be required.	No Impact
Would the project have a cumulative effect on noise resources?	Less than Significant	No mitigation would be required.	Less than Significant
Population and Housing			
Would the project induce substantial unplanned 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)?	Less than Significant	No mitigation would be required.	Less than Significant
Would the project displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	No Impact	No mitigation would be required.	No Impact
Would the project have a cumulative effect on housing and/or population resources?	Less than Significant	No mitigation would be required.	Less than Significant
Public Services			
Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:			
i.Fire protection?	Less than Significant	No mitigation would be required.	Less than Significant
ii. Police protection?	Less than Significant	No mitigation would be required.	Less than Significant
iii.Schools?	Less than Significant	No mitigation would be required.	Less than Significant

Table 1-1. Summary of Project Impacts

Environmental Topic	Impact?	Mitigation Measure(s)	Level of Significance After Mitigation
iv.Parks?	Less than Significant	No mitigation would be required.	Less than Significant
v. Other public facilities?	Less than Significant	No mitigation would be required.	Less than Significant
Would the project have a cumulative effect on public services resources?	Less than Significant	No mitigation would be required.	Less than Significant
Recreation			
Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	Less than Significant	No mitigation would be required.	Less than Significant
Would the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	Less than Significant	No mitigation would be required.	Less than Significant
Would the project have a cumulative effect on recreation resources?	Less than Significant	No mitigation would be required.	Less than Significant
Transportation			
Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?	Potentially Significant	**MM-TRAF-1: California Oaks Road and Clinton Keith Road**: The project applicants shall improve the intersection of California Oaks Road and Clinton Keith Road to add a third eastbound through lane between California Oaks Road and Nutmeg Street with a receiving lane east of California Oaks Road and signal detection loops at California Oaks Road. **MM-TRAF-2:** Greer Road/Murrieta Oaks Avenue and Clinton Keith Road: The project applicants shall restripe an additional 50 feet of storage for the existing southbound left turn lane for a total of 200 feet of storage at the intersection of Greer Road/Murrieta Oaks Avenue and Clinton Keith Road.	Significant and Unavoidable

Table 1-1. Summary of Project Impacts

Environmental Topic	Impact?	Mitigation Measure(s)	Level of Significance After Mitigation
		MM-TRAF-3: Mitchell Road/Murrieta Oaks Avenue and Clinton Keith Road: The project applicants shall provide an additional 100 feet of storage for the westbound turn lane for a total of 250 feet of storage at the intersection of Mitchell Road/Murrieta Oaks Avenue and Clinton Keith Road. **MM-TRAF-4: High School West Driveway/Warm Springs Parkway and Clinton Keith Road:** If Creighton Avenue access is provided at project buildout (2021), an additional 70 feet of storage shall be added to each existing eastbound left hand turn lane at the High School West Driveway/Warm Springs Parkway and Clinton Keith Road (with Creighton Avenue access) for a total of 275 feet of storage. If Creighton Avenue access is not provided at project buildout (2021), an additional 90 feet of storage in each eastbound left hand turn lane (without Creighton Avenue access) shall be added for a total of 295 feet of storage at this intersection. The City has updated the intersection design plans to add this additional storage. **MM-TRAF-5: Whitewood Road and Clinton Keith Road**: The project applicants shall extend the existing northbound and southbound left turn lanes at the Whitewood Road and Clinton Keith Road intersection to the maximum extent feasible within the available right of way and available spacing between the intersections and per the City of Murrieta requirements, and pay a fair share contribution to existing City CIP 8389 to add a second northbound and southbound left turn lane (to provide dual left turn lanes). **MM-TRAF-6: Mitchell Road/Murrieta Oaks Avenue and Clinton Keith Road:** Per the City of Murrieta requirements, the project applicants shall pay a fair	

Table 1-1. Summary of Project Impacts

Environmental Topic	Impact?	Mitigation Measure(s)	Level of Significance After Mitigation
		share contribution (1) to restripe an additional eastbound travel lane on Clinton Keith Road between California Oaks Road and for approximately 1,100 linear feet to create an additional eastbound travel lane, (2) add signal detection, and (3) provide an additional 200 feet of storage for the existing westbound left turn land for a total of 350 feet of storage (and removal of the raised median as required for that extension) at the intersection of Mitchell Road/Murrieta Oaks Avenue and Clinton Keith Road. **MM-TRAF-7: High School West Driveway/Warm Springs Parkway and Clinton Keith Road:** If Creighton Avenue access is provided at project buildout (2021), the project applicants shall, per the City of Murrieta requirements, pay a fair share contribution to the City to extend the existing left hand turn lane pocket at the High School Driveway/Warm Springs Parkway and Clinton Keith Road intersection for a total of 315 feet of storage. If Creighton Avenue access is not provided at project buildout (2021), the project applicants shall, per the City of Murrieta requirements, pay a fair share contribution to the City to extend the existing lieft hand turn lane pocket at the High School West Driveway/Warm Springs Parkway and Clinton Keith Road intersection for a total of 345 feet of storage. The City has updated the intersection design plans to add this additional storage. **MM-TRAF-8: Nutmeg Street and Clinton Keith Road:** Per the City of Murrieta requirements, the project applicants shall pay a fair share contribution for improvements to Nutmeg Street and Clinton Keith Road to add 75 feet of storage to the existing westbound left turn lane for a total of 300 feet of storage, and an	

Table 1-1. Summary of Project Impacts

Environmental Topic	Impact?	Mitigation Measure(s)	Level of Significance After Mitigation
		additional 100 feet of storage to the existing southbound left turn lane for a total of 150 feet of storage. **MM-TRAF-9: California Oaks Road and Clinton Keith Road:** Per the City of Murrieta requirements, the project applicants shall pay a fair share contribution to extend the existing westbound left turn lane by 200 feet for a total of 420 feet of storage. **MM-TRAF-10: Bronco Way and Clinton Keith Road:** Per the City of Murrieta requirements, the project applicants shall pay a fair share contribution to extend the eastbound left turn lane by 71 feet at the intersection of Bronco Way and Clinton Keith Road for a total storage of 271 feet. **MM-TRAF-11: Whitewood Road and Clinton Keith Road:** Per the City of Murrieta requirements, the project applicants shall pay a fair share contribution to extend the dual left turn lanes by 35 feet each for a total of 285 feet in each eastbound left turn lane. **MM-TRAF-12: Whitewood and Baxter Road:** Per the City of Murrieta requirements, the project applicants shall pay a fair share contribution to provide 285 feet of additional storage for the northbound left turn lane for a total of 500 feet of storage at the intersection of Whitewood Road and Baxter Road.	
Conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?	Potentially Significant	No feasible mitigation applies to reduce this impact to a less-than-significant level.	Significant and Unavoidable
Would the project substantially increase hazards due to a geometric design feature (e.g., sharp curves, or dangerous intersections) or incompatible uses (e.g., farm equipment)?	No Impact	No mitigation would be required.	No Impact

Table 1-1. Summary of Project Impacts

Environmental Topic	Impact?	Mitigation Measure(s)	Level of Significance After Mitigation
Would the project result in inadequate emergency access?	Less than Significant	No mitigation would be required.	Less than Significant
Would the project have a cumulative effect on traffic and/or circulation resources?	Potentially Significant	**MM-TRAF-6**, **MM-TRAF-7**, **MM-TRAF-8, MM-TRAF-9, MM-TRAF-10, MM-TRAF-11, MM-TRAF-12**	Significant and Unavoidable
Tribal Cultural Resources			
Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:			
a. Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k)?	Less than Significant	No mitigation would be required.	Less than Significant
b. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1? In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	Potentially Significant	**MM-TCR-1, MM-TCR-2, MM-TCR-3, MM-TCR-4, MM-TCR-5**	Less than Significant

Table 1-1. Summary of Project Impacts

Environmental Topic	Impact?	Mitigation Measure(s)	Level of Significance After Mitigation
Utilities and Service Systems			
Would the project require or result in the relocation or construction of new or expanded water, wastewater treatment or stormwater drainage, or telecommunications facilities the construction of which could cause significant environmental effects?	Less than Significant	No mitigation would be required.	Less than Significant
Would the project have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?	Less than Significant	No mitigation would be required.	Less than Significant
Would the project 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?	Less than Significant	No mitigation would be required.	Less than Significant
Would the project generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals??	Less than Significant	No mitigation would be required.	Less than Significant
Would the project comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	Less than Significant	No mitigation would be required.	Less than Significant
Would the project have a cumulative effect on utilities and/or service systems resources?	Less than Significant	No mitigation would be required.	Less than Significant
Energy Consumption			
Would the project result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary	Less than Significant	No mitigation would be required.	Less than Significant

Table 1-1. Summary of Project Impacts

Environmental Topic	Impact?	Mitigation Measure(s)	Level of Significance After Mitigation
consumption of energy resources, during project construction or operation?			
Would the project conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	Less than Significant	No mitigation would be required.	Less than Significant
Would the project have a cumulative effect related to energy?	Less than Significant	No mitigation would be required.	Less than Significant
Wildfire			
Would the project substantially impair an adopted emergency response plan or emergency evacuation plan?	Less than Significant	No mitigation would be required.	Less than Significant
Would the project, due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	Potentially Significant	**MM-WF-1:** The following design features shall be implemented to mitigate potential fire exposure to the northern portion of the development. • Building construction shall consist of Underwriters Laboratories (UL) Approved Fire-Rated 8-inch split face concrete masonry unit (CMU) and textured insulated metal panel exterior walls along the northern side of the building. It should be noted, exterior walls composed of hollow CMU having a nominal thickness of 8-inches or greater may have a 2-hour fire rating, but can be classified as 4-hour when the hollow spaces are completely filled with grout or a material such as clay slate, slate, or sand; • The building shall include an interior National Fire Protection Association (NFPA) 13 Commercial Fire Sprinkler System which shall be installed to NFPA installation standards. A supervised fire alarm system shall also be installed pursuant to NFPA 72 and Murrieta Fire and Rescue (MFR) standards and smoke detectors shall be installed at the ceiling throughout the Costco building and in every room;	Less than Significant

Table 1-1. Summary of Project Impacts

Environmental Topic	Impact?	Mitigation Measure(s)	Level of Significance After Mitigation
		• Areas requiring ventilation to the outside environment shall require either ember-resistant roof vents or a minimum 1/16-inch mesh to a maximum 1/8-inch mesh for side ventilation (see 2019 California Building Code (CBC) Chapter 7A Section 706A-Vents, or current edition). All vents used for this project shall be approved by MFR; • The metal trash compactors to be located along the north side of the Costco building shall be fully enclosed. The enclosed metal trash compactors would prevent embers falling onto Class A fuels (e.g., paper) and igniting them. Additionally, the trash compactors shall be behind an 8-inch split face CMU exterior wall and metal gate; • The uncovered, 30-foot by 25-foot loading area located along the north side of the Costco building shall be used for small delivery trucks; • An unimpeded, all-weather pathway (minimum three feet wide) shall be included on all sides of the Costco building for firefighter access around the entire perimeter of the structure; • Any architectural projections or construction, such as canopies, on the north side of the Costco building and within the 100-foot fuel modification zone shall be of non-combustible construction, only. • Automatic or self-closing doors shall be installed along the northern side of the Costco building and conform to the exterior door assembly standards addressed in CBC Chapter 7A, Section 704A.3.2.3. **MM-WF-2:** A fully irrigated landscape planted with drought-tolerant, fire resistive plants, as listed in Table 4.17-1, shall be planted within all fuel modification zones. No undesirable, highly flammable plant species	

Table 1-1. Summary of Project Impacts

Environmental Topic	Impact?	Mitigation Measure(s)	Level of Significance After Mitigation
		shall be planted, as listed in Table 4.17-2. The landscaping shall be routinely maintained and shall be watered by an automatic irrigation system that will maintain healthy vegetation with high moisture contents that would prevent ignition by embers from a wildfire. **MM-WF-3:** Crowns of mature trees, with the exception of oak trees, located within defensible space shall be maintained with a minimum horizontal clearance of 10 feet for fire resistant trees and 30 feet for non-fire resistant trees. Mature trees shall be pruned to remove limbs to maintain a vertical separation of three times the height of the lower vegetation or 6 feet, whichever is less, above the ground surface adjacent to the trees. Dead wood and litter shall be regularly removed from trees. Ornamental trees shall be limited to groupings of 2-3 trees with canopies for each grouping separated horizontally as described in Table 4.17-3 below (City of Murrieta Municipal Code, Chapter 15.24.290, Section 4907). **MM-WF-4:** Until such a time that the property to the west is developed and the wildfire hazard is mitigated, a 20-foot on-site Costco building setback and the 40-foot wide Antelope Road make up a 60-foot "No Build Easement" on the western side of the Costco development, which shall be used as an interim fuel modification zone. Once construction of the proposed development to the west begins, it will augment the need for off-site fuel modification zones.	
Would the project require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that	Less than Significant	No mitigation would be required.	Less than Significant

Table 1-1. Summary of Project Impacts

Environmental Topic	Impact?	Mitigation Measure(s)	Level of Significance After Mitigation
may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?			
Would the project expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	Less than Significant	No mitigation would be required.	Less than Significant
Would the project have a cumulative impact related to wildfire?	Less than Significant	No mitigation would be required.	Less than Significant

1.7 Alternatives to the Proposed Project

Section 15126.6(a) of the CEQA Guidelines states that an EIR shall describe "a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project," as well as provide an evaluation of "the comparative merits of the alternatives." Under Section 15126.6(a) of the CEQA Guidelines, an EIR does not need to consider alternatives that are not feasible, and is not required to address every conceivable alternative to the project. The range of alternatives "is governed by the 'rule of reason' that requires the EIR to set forth only those alternatives necessary to permit a reasoned choice" (14 CCR 15126.6[f]).

1.7.1 Alternatives Considered but Eliminated

The CEQA Guidelines provide that this EIR should "identify any alternatives that were considered by the Lead Agency but were rejected as infeasible during the scoping process and briefly explain the reasons underlying the Lead Agency's determination" (14 CCR 15126.6[c]). The following is a discussion of the proposed project alternatives that were considered during the scoping and planning process, and the reasons they were not selected for detailed analysis in this EIR.

With respect to the feasibility of potential alternatives to the project, CEQA Guidelines Section 15126.6(t)(I) states, "[a]mong the factors that may be taken into account when addressing the feasibility of alternatives are site suitability, economic viability, availability of infrastructure, general plan consistency, other plans or regulatory limitations, jurisdictional boundaries . . . and whether the proponent can reasonably acquire, control or otherwise have access to the alternative site."

In determining an appropriate range of project alternatives to be evaluated in this EIR, a number of possible alternatives were initially considered and then rejected. These include a reduced size Costco, a Vineyard II Retail Development without a Costco, a Costco without a fueling station, a residential development on the site, an office development on the site, the continuation of the mass grading operation, and other site locations.

1.7.2 Alternatives Selected for Further Analysis

A reasonable range of alternatives to the proposed project were evaluated, including a no project alternative, in compliance with CEQA Guidelines Section 15126.6(e). These alternatives include the following:

- Alternative 1: No Project/No Development Alternative
- Alternative 2: Reduced Project/Reduced Vineyard II Development
- Alternative 3: Reduced Project/No Vineyard II Development

Each alternative's environmental impacts are compared to the proposed project and determined to have fewer impacts than the proposed project, the same or similar impacts, or more impacts than the proposed project (refer to Chapter 6, Alternatives, for further details).

No Project Alternative

Section 15126.6(e) of the CEQA Guidelines requires that an EIR evaluate and analyze the impacts of a no project alternative. The "purpose of describing and analyzing a no project alternative is to allow decision makers to compare the impacts of approving the proposed project with the impacts of not approving the proposed project" (14 CCR 15126.6[e][1]). When defining the no project alternative, the analysis shall be informed by "what would be reasonably expected to occur in the foreseeable future if the project were not approved, based on current plans and consistent with available infrastructure and community services" (14 CCR 15126.6([e][2]). In the case of the No Project/No Development Alternative, the existing site would be vacant as the mass grading operation's permit term concluded in December 2019; even with permit renewal, limited additional grading could be carried out, since the grade requirements for the project site and Warm Springs Parkway have essentially been met. The construction of Warm Springs Parkway north of Clinton Keith is included in the Riverside County General Plan, but it is contingent upon development occurring in the vicinity to drive the need for the road. Thus, if no development occurs on the proposed project site, and there is no pending application for development to the north, construction of Warm Springs Parkway is not reasonably foreseeable. Therefore, under the No Project Alternative, the proposed project would not be built and no significant infrastructure improvements would be implemented.

Reduced Project/Reduced Vineyard II Development Alternative

The reduced project under this alternative would have a 153,362-square-foot Costco warehouse, but the retail development would be reduced by 37,000 square feet (minus the fitness center). This reduces the development footprint from 225,362 square feet to 188,362 square feet, a 16% reduction in project size. The pad that would remain undeveloped would remain unpaved with sandbags for erosion control and a soil stabilizer for dust control. This alternative would have fewer impacts than the proposed project, but it would not eliminate any of the significant and unavoidable impacts of the project.

Reduced Project/No Vineyard II Development Alternative

The reduced project under this alternative would have a Costco warehouse only; no additional retail development would be included as part of the project. This reduces the development footprint from 225,362 square feet to 153,362 square feet, a 32% reduction in size. Only the portion of the site with the Costco, west of Warm Springs Parkway would be paved. The Vineyard II site would remain ungraded and unpaved with sandbags for erosion control and application of a soil stabilizer to control dust emissions. This alternative would have fewer impacts compared to the proposed project. In particular, it would reduce operational oxides of nitrogen emissions to a less-than-significant level and would reduce other operational impacts from traffic and volatile organic compounds, although these would remain significant and unavoidable.

1.7.3 Environmentally Superior Alternative

An EIR must identify an "environmentally superior" alternative; and, where the no project alternative is environmentally superior, the EIR is then required to identify an alternative from among the others evaluated as environmentally superior (14 CCR 15126.6[e][2]).

As further discussed in Chapter 6, the environmentally superior alternative is the Reduced Project/No Vineyard II Development Alternative, because it reduces the proposed project's impacts with respect to construction and operational air quality, cultural resources, greenhouse gas emissions, construction and operational noise, population and housing, public services, recreation, construction and operational traffic, tribal cultural resources,

utilities and service systems, and energy. However, as with the proposed project, this alternative would still result in significant and unavoidable impacts to construction and operational air quality (volatile organic compounds) and operational traffic, although it would reduce the level of significance for each impact. The Reduced Project/No Vineyard II Development Alternative would also reduce the operational air quality impacts of oxides of nitrogen to a less-than-significant level. As indicated above, the Reduced Project/No Vineyard II Development Alternative would not meet several of the project objectives and would result in less sales tax and property tax revenue to the City than would the proposed project.

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2 Introduction

2.1 Project Description

The project applicants, Costco and Retail Development Advisors, propose to develop a 26.3-acre undeveloped site (the site or project site) in the City of Murrieta (City) with the Costco/Vineyard II Retail Development Project (project) that would include construction and operation of approximately 225,362 square feet of new development, consisting of a Costco Wholesale (Costco) and a Costco gas station; stand-alone retail and fitness buildings and in-line stores, one casual dining restaurant with drive-through and window service, and one drive-through fast-food restaurant (Vineyard II development); and associated parking. The project site comprises 7 parcels with the following Assessor's Parcel Numbers: 392-290-025-4, 392-290-026-5, 392-290-028-7, 392-290-029-8, and portions of 392-290-051, 392-270-030, and 392-270-033. The project site is located in the City, northeast of the intersection of Interstate (I) 215 and Clinton Keith Road, as shown on the proposed site plan (see Chapter 3, Project Description, Figure 3-2). The project would require a conditional use permit for the Costco tire center, a development plan, and tentative tract map.

The Costco warehouse and a Costco gas station would be developed on 16.4 acres on the west side of a future northerly extension of Warm Springs Road. The Costco would consist of an approximately 153,362-square-foot warehouse building and a gas station on approximately 1.21 acres (which is part of the 16.4 acres) that would be developed with 32 gasoline pumps with overhead canopy. The warehouse would include a bakery and sales of baked goods, alcohol sales, pharmacy, optical center with optical exams and retail optical sales, hearing aid testing exam and retail hearing aid fitting and sales center, food service preparation and sales, meat preparation and sales, and a photo center, along with the sales of more than 4,000 products. The Costco warehouse would provide sales only to warehouse members.

The remaining retail development (Vineyard II development) would be developed on 7.83 acres of land on the east side of a future northerly extension of Warm Springs Road and would include the following proposed uses: a 37,000-square-foot fitness center; a 16,000-square-foot major retail building that may include an office store, pet supply store, health and beauty store, shoe store, or other similar retailers; service-oriented retail shops, such as a pick-up and drop-off dry cleaner (no plant on site), hair salon, or phone store in 11,900 square feet and 3,500 square feet buildings; 1,200-square-foot casual dining space with drive-through and window service; and 2,400-square-foot fast-food restaurant with drive-through, totaling 72,000 square feet.

The project would also include construction of two detention basins on the site, creation of a northern project slope to account for elevation differences between the proposed project and the site to the north, partial undergrounding of power lines to the north of the site, and construction of an extension of Warm Springs Parkway from the southern site boundary to the northern site boundary between the Costco and the Vineyard II development. The project would be entitled and constructed in two phases. It is anticipated that the Costco would employ 250 full-time employees, and the fitness center, retail, and restaurant developments collectively would employ 35 employees, totaling approximately 285 employees.

A mass grading operation for an 18.7-acre portion of the project site has been ongoing intermittently since approximately 2006 under permits issued by the City. This work was initially undertaken to provide fill material for the Interstate 215/Clinton Keith Road interchange improvements project and establishment of an interim cul-de-sac at the northern terminus of Antelope Road and was subsequently continued with soil and rocks removed from the site sold by the operator to surrounding construction operations as clean fill. This pre-existing grading operation

ceased on December 31, 2019, when the grading permit expired, with completion of the implementation of best management practices by January 31, 2020. Although not a part of the project, to establish a conservative, known baseline for the grading work required for the project, all mass grading remaining to be performed under this permit on the site, from September 2019 when the site was flown by Fuscoe Engineering to approval of the project, is included as part of the development project analyzed in this environmental impact report (EIR).

This draft project EIR evaluates the potential short-term, long-term, and cumulative impacts of the project. This project EIR has been prepared in accordance with the California Environmental Quality Act (CEQA) of 1970 (California Public Resources Code, Section 21000 et seq.) and CEQA Guidelines (14 CCR 15000 et seq.). EIRs are informational documents "which inform public agency decision makers and the public of the significant environmental effect of a project, identify possible ways to minimize the significant effects, and describe reasonable alternatives to the project" (14 CCR 15121). The purpose of this project EIR is to evaluate the environmental effects of the project and it is intended for use by decision makers and the public.

2.2 Environmental Procedures

2.2.1 CEQA Compliance

CEQA requires the preparation and certification of an EIR for any project that a lead agency determines may have a significant effect on the environment. This project EIR has been prepared in compliance with criteria, standards, and procedures of the CEQA Guidelines. This document has been prepared as a project EIR (pursuant to Section 15161 of the CEQA Guidelines) and represents the independent judgment of the City as lead agency (CEQA Guidelines Section 15050).

2.2.2 Notice of Preparation and Scoping

CEQA establishes mechanisms whereby the public and decision makers can be informed about the nature of the project being proposed and the extent and types of impacts that the project and its alternatives would have on the environment should the project or alternatives be implemented. Pursuant to Section 15082 of the CEQA Guidelines, a Notice of Preparation (NOP) dated June 27, 2018, was circulated to interested agencies, organizations, and individuals. The NOP was sent to 60 local and state agency departments, including the City, where a hard copy of the NOP and Initial Study were available for review. The NOP was posted at the County Clerk's office on June 27, 2018, for 30 days. The NOP was also sent to the State Clearinghouse at the California Governor's Office of Planning and Research. The State Clearinghouse assigned a state identification number (SCH No. 2018061062) to the project EIR. The City also mailed a notice of the project EIR scoping meeting to approximately 176 property owners, residents, and organizations located within a 1-mile radius of the project site.

The NOP is intended to encourage interagency communication regarding the proposed project so that agencies, organizations, and individuals are afforded an opportunity to respond with specific comments and/or questions regarding the scope and content of this project EIR. Pursuant to Section 15082 of the CEQA Guidelines, recipients of the NOP were requested to provide responses within 30 days after their receipt of the NOP. A public scoping meeting was held at the City Fire Station No. 4 on July 10, 2018, to gather additional public input on the scope of the environmental document. Eight staff members and approximately four community members attended the scoping meeting. The 30-day public scoping period ended on July 26, 2018. Comments received during the NOP public notice period were considered during the preparation of this project

EIR. Copies of the comment letters are included in Appendix A and are summarized in Table 2-1. Four individuals spoke during the public scoping meeting.

Table 2-1. Summary of Comments Received in Response to the NOP

Commenting Agency or Property Owner	Date	Written or Verbal Comment	Summary of Comment	EIR Chapter/Section Where Comment Is Addressed
NOP Letters				
Regional Agencies				
Eastern Municipal Water District (EMWD)	7/9/18	Written	States that the project EIR shall evaluate the project's water demands and sewer discharge, and determine if EMWD's facilities can adequately serve the project. If EMWD facilities do not have the appropriate capacity, the project EIR should identify the necessary improvements and facilities to be constructed by the project to obtain adequate service. Offers to assist with formulating Development Design Conditions to detail all pertinent water and sewer facilities. Requires early involvement with the project proponent in site design and development through a 1-hour due diligence meeting. EMWD's Development Design Conditions must be developed by the developer's engineer, and EMWD must review/approve the Development Design Conditions prior to submitting improvement plans for plan check.	Section 4.8, Hydrology and Water Quality
South Coast Air Quality Management District (SCAQMD)	7/26/18	Written	Requests to be sent a copy of the draft project EIR and appendices or technical documents. Recommends that the SCAQMD CEQA Air Quality Handbook and California Emissions Estimator Model land use emissions software be used as guidance for preparing the air quality analysis. Requests that regional and localized significance thresholds are used for analysis of criteria pollutants. Recommends that a mobile source health risk assessment be conducted, including an analysis of toxic air contaminant impacts. Recommends the use of truck trip rates from the Institute of Engineers for high cube warehouse projects. Suggests mitigation measures for air quality impacts pursuant to CEQA Guidelines, Section 15126. Requires a permit from the SCAQMD for the gas	Section 4.2, Air Quality; Section 4.6, Greenhouse Gas Emissions

Table 2-1. Summary of Comments Received in Response to the NOP

Commenting Agency or Property Owner	Date	Written or Verbal Comment	Summary of Comment	EIR Chapter/Section Where Comment Is Addressed
			station, and SCAQMD must be identified as a responsible agency.	
Southwest Regional Council of Carpenters	7/27/18	Written	Questions the discrepancies between Figures 1 and 2, including the project boundary, proximity to Clinton Keith Road and Vista Murrieta High School, and the appearance of future development surrounding the project site. Asks for clarification regarding the current and future plans for Warm Springs Parkway, regarding whether the road will continue north either as part of the project or future action by the City. Expresses concern over the cumulative impacts to the Unique Farmland or Farmland of Local Importance to the north. Asks for clarification on the purpose of the previously conducted Phase I Cultural Resources Assessment. Questions whether the current grading activities on site are part of the project, when these activities began, and what the height of the hills was prior to existing grading activities. Expresses concern regarding aesthetic impacts of grading the "hills" and whether these are visible from nearby ridgelines. Requests clarification regarding the risks associated with locating the project in a Very High Fire Hazard Severity Zone. Expresses concern over construction worker safety involving rapid grading on site, and requests mitigation that reduces potential hazards to workers and the public. Requests clarification regarding the project's impact on the City's Climate Action Plan and clarification on whether the City has effectively adopted the Climate Action Plan as a policy. States that the City's Climate Action Plan does not comply with Senate Bill 32, and it will soon expire. Requests that special consideration be given to the analysis of GHG related impacts, how the project will impact local and state goals, and whether the City has a threshold to evaluate GHG related impacts. Requests clarification regarding	Section 3, Project Description; Section 4.1, Aesthetics; Section 4.2, Air Quality; Section 4.4, Cultural Resources; Section 4.5, Geology and Soils; Section 4.6, Greenhouse Gas Emissions; Section 4.7, Hazards and Hazardous Materials; Section 4.8, Hydrology and Water Quality; Section 4.13, Traffic and Circulation; Section 4.16, Energy; Section 4.17, Wildfire

Table 2-1. Summary of Comments Received in Response to the NOP

Commenting Agency or Property Owner	Date	Written or Verbal Comment	Summary of Comment	EIR Chapter/Section Where Comment Is Addressed
			the energy-efficient components of the project, such as solar panels, and suggests conditioning project approval on adherence to energy efficiency measures. Requests that the draft project EIR identify aquifers potentially affected by the project and their current health. Expresses concern regarding air quality impacts, specifically the potential to expose sensitive receptors to substantial pollutant concentrations and objectionable odors, dust associated with moving large amounts of land off site, and the gas station. Expresses concern over the indication that a cumulative air quality analysis will not be conducted, and states that a proper cumulative impacts analysis must be conducted. Expresses concern over the use of the General Plan Safety Element to rule out risk of liquefaction susceptibility, and suggests conducting project specific studies and on-site testing. Requests clarification on whether the site will be graded to street level, and expresses concern over the project's contribution to the risk of landslides. Requests clarification on the types and intensities of land uses permitted by the General Plan land use and zoning designations on site. Suggests that traffic should be evaluated in terms of both level of service and vehicle miles traveled. Requests information regarding where the graded materials will be disposed of temporarily and permanently.	
California Department of Transportation	7/30/18	Written	Recommends inclusion of a Transportation Demand Management Plan describing the proposed trip level and outlining proposed transportation demand management measures for the project to achieve the trip level proposed. Recommends including a park-and-ride facility within the project. Recommends coordination with Riverside Transit Authority to identify potential routing alternatives and bus	Section 4.13, Transportation

Table 2-1. Summary of Comments Received in Response to the NOP

Commenting Agency or Property Owner	Date	Written or Verbal Comment	Summary of Comment	EIR Chapter/Section Where Comment Is Addressed
			stop improvements. Recommends including sidewalks on both sides of the driveway connecting the main entrances of the site to the main building entrances. Recommends providing the necessary right of way for a Class II bike lane along Antelope Road, from Scott Road to Clinton Keith Road, as identified in the General Plan. Recommends providing bicycle parking facilities near the main building entrances. Requests that changes to project description since California Department of Transportation reviewed the Traffic Impact Analysis scoping agreement are reflected in the Traffic Impact Analysis when submitted. Requests more information regarding the Costco database used to determine the trip generation rates. Requests that the trip generation rate should reflect the potential increase in fueling stations. Asks that the analysis includes how the project would impact the traffic signals at the Interstate 215 on-ramps and that appropriate mitigation is included.	
Local Agencies				
Murrieta Valley Unified School District	7/2/18	Written	The school district expressed concern over the additional traffic the project would bring to Clinton Keith Road and the negative impact this would have on Vista Murrieta High School and Antelope Hills Elementary School.	Section 4.13, Transportation
City of Wildomar	7/24/18	Written	Requests that the Traffic Impact Analysis should include intersections on Clinton Keith Road from the City of Wildomar's easterly limits to the Interstate 15. States that the Traffic Impact Analysis should also include cumulative projects within the City of Wildomar (list provided).	Section 4.13, Transportation
City of Menifee	7/25/18	Written	Requests that the draft project EIR thoroughly address the potential impacts on traffic, air quality/GHG, land use and planning, and cumulative impacts on a regional basis. The City of Menifee's Community Development Department requests to receive subsequent notices and environmental documents for the	Section 4.13, Transportation; Section 4.2, Air Quality; Section 4.6, Greenhouse Gas Emissions

Table 2-1. Summary of Comments Received in Response to the NOP

Commenting Agency or Property Owner	Date	Written or Verbal Comment	Summary of Comment	EIR Chapter/Section Where Comment Is Addressed
			project. Requests identifying approved and pending projects in the City of Menifee to be included in the cumulative analysis of the traffic study.	
Riverside Transit Authority	7/16/18	Written	Suggests relocating the existing bus stop located on westbound Clinton Keith Road, east of the intersection at Bronco Way, to the western side of the intersection to provide for a safer and more efficient stop environment. Recommends installing bus stop amenities such as a shelter, bench, and a trash can as part of the project, in accordance with the Riverside Transit Authority Bus Stop Design Guidelines.	Section 4.13, Transportation
County of Riverside Transportation and Land Management Agency	7/11/18	Written	Indicates that Clinton Keith Road would be constructed into a six-lane roadway from Whitewood Road to Trois Valley Street. Suggests including this future improvement in the traffic study. Requests that the traffic study address potential impacts on Riverside County roadways, Riverside County intersections where the project would add 50 or more peak hourly trips. Requests that Riverside County Traffic Study Guidelines are followed for the impact analysis for facilities within Riverside County.	Section 4.13, Transportation
Individuals				
James and Jennifer Bae	7/26/18	Written	As residents of Skyview Ridge Community, expressed concerns about impacts to quality of life. Specifically expressed concerns over population growth, traffic, safety (pedestrian safety with increased traffic, crime, security needs), noise (construction, business hours, truck deliveries, air conditioning units, trash pickup, site maintenance), air quality/GHG, aesthetics (light pollution, landscape maintenance, vandalism), property values, and sale of alcohol near a school.	Section 4.1, Aesthetics; Section 4.2, Air Quality; Section 4.6, Greenhouse Gas Emissions; Section 4.9, Noise; Section 4.10, Population and Housing; Section 4.13, Transportation
Jacqueline Smith	7/17/18	Written	Expressed concerns regarding traffic on Clinton Keith Road and limited entrances to the project site. Suggests connecting Antelope Road to Clinton Keith Road for better traffic flow. Expressed concern over the noise impacts of truck deliveries	Section 4.2, Air Quality; Section 4.9, Noise; Section 4.13, Transportation

Table 2-1. Summary of Comments Received in Response to the NOP

Commenting Agency or Property Owner	Date	Written or Verbal Comment	Summary of Comment	EIR Chapter/Section Where Comment Is Addressed
			at night. Concerns regarding air quality, specifically due to the fast-food restaurants in proximity to residential area. Concerns regarding safety of high school students across the street from the project site.	
Darcy Pekrul	7/31/18	Written	Expressed concern regarding traffic congestion on Clinton Keith Road and Whitewood Road. Expressed concerns regarding the entrances to the Costco development, and suggested providing more access points. Suggests extending Warm Springs Parkway north to Linnel Lane to provide access from the north.	Section 4.13, Transportation
Tim Roderigues	7/30/18	Written	Expressed concerns regarding dust, noise, and toxic fumes during construction of the project. Expressed concerns regarding noise and hours of operation of the fitness center, as well as the potential location of trash dumpsters. Suggests requirement that trash receptacles be kept clean and are emptied during the day rather than nighttime hours. Suggests adding a plexiglass extension to heighten the wall between the project and the residential area.	Section 4.2, Air Quality; Section 4.9, Noise
Scoping Meeting Comments				
Individuals				
Resident	7/10/18	Verbal	Resident of Skyview Ridge, immediately east of the project site. Expressed concerns about light pollution, noise and traffic associated with the project. Traffic was the main concern, with traffic issues already existing along Clinton Keith Road due to the high school. The resident also expressed concern about the safety of the gas station near residential structures/families/children. Resident asked whether a wall will be constructed between the project site and the residential backyards (to the east of the project site).	Section, 4.1 Aesthetics; Section 4.7, Hazards and Hazardous Materials; Section 4.9, Noise; Section 4.13, Transportation

Table 2-1. Summary of Comments Received in Response to the NOP

Commenting Agency or Property Owner	Date	Written or Verbal Comment	Summary of Comment	EIR Chapter/Section Where Comment Is Addressed
Resident	7/10/18	Verbal	Expressed concerns over operating hours of the fitness center and whether it would be a 24-hour facility. Asked whether Antelope Road would be extended to access the freeway. Main concerns were regarding traffic (existing delays at intersections, intersections used for u-turning to get to the freeway, signals not synchronized). Expressed disapproval of the main entrance to the project being on Clinton Keith Road. Concerns over the aesthetics of the back of the retail pad facing homes to the east (landscaping, view of the back of the buildings), as well as proximity of the project site to the residential area (noise, landscaping/plant debris/root systems encroaching into residential area). Suggested/asked about possibility of constructing a wall between the project site and residential area.	Section 4.1, Aesthetics; Section 4.9, Noise; Section 4.13, Transportation
Resident	7/10/18	Verbal	Stressed major concern with traffic issues (vehicles cutting across Clinton Keith Road to get to project site, existing traffic issues with signal timing/delay). Expressed concerns over truck deliveries to the project site (time of day, noise, traffic).	Section 4.9, Noise; Section 4.13, Transportation
Resident	7/10/18	Verbal	Urban growth concerns. Stressed that quiet character of the City is an important feature. Seeking a better balance between residential and commercial/industrial, desired limitations or thresholds to extent of commercial development. No longer a sense of “home” due to the rapid changes/development. Concerns over the traffic the project would generate (project likely to attract visitors from outside the area). Disagreed with the placement of the project across the street from a high school.	Section 4.1, Aesthetics; Section 4.10, Population and Housing; Section 4.13, Transportation

2.3 Contents of the Project EIR

To describe the direct, indirect, and cumulative impacts, as well as mitigation measures and alternatives for the project, this project EIR is organized as follows:

- Chapter 1, Summary, outlines the conclusions of the environmental analysis and provides a summary of the project compared to the alternatives analyzed in the project EIR. This section also includes a table summarizing all environmental impacts identified in this project EIR along with the associated mitigation measures proposed to reduce or avoid each impact.
- Chapter 2, Introduction, serves as a foreword to the project EIR, introducing the project background, the project description, the applicable environmental review procedures, and format of the project EIR and identifying topics raised during the scoping process.
- Chapter 3, Project Description, provides a thorough description of the existing setting and baseline, project components, and required discretionary approvals and provides a list of key project objectives.
- Chapter 4, Environmental Analysis
    - The Introduction includes a discussion of the approach to the analysis of potentially significant impact areas and an overview of the organization of each of these categories.
    - Sections 4.1 through 4.17, which constitute the project's environmental analysis, provide an analysis of the potentially significant environmental impacts identified for the project, as well as proposed mitigation measures to reduce or avoid any potentially significant impacts. The chapters also include a cumulative effects analysis, which is a summary of effects associated with the project that, when considered with other effects, create a considerable impact or compound or increase other environmental impacts. This can be a result of a single project or multiple separate projects.

      The following impact areas are discussed:

      4.1 Aesthetics
      4.2 Air Quality
      4.3 Biological Resources
      4.4 Cultural Resources
      4.5 Geology and Soils
      4.6 Greenhouse Gas Emissions
      4.7 Hazards and Hazardous Materials
      4.8 Hydrology and Water Quality
      4.9 Noise
      4.10 Population and Housing
      4.11 Public Services
      4.12 Recreation
      4.13 Transportation
      4.14 Tribal Cultural Resources
      4.15 Utilities and Service Systems
      4.16 Energy Consumption
      4.17 Wildfire

- Chapter 5, Other CEQA Considerations, includes a summary of impacts found not to be significant, which includes a discussion of potential environmental topics that have been found, through the Initial Study process, to have a less-than-significant impact or no impact on the environment. This chapter also includes a summary of significant irreversible environmental changes, which addresses environmental areas where significant environmental effects cannot be avoided and any significant irreversible environmental changes that would result from implementation of the project. This chapter includes discussion of an urban decay analysis and growth-inducing impacts associated with the proposed project.

- Chapter 6, Alternatives, discusses the three alternatives to the project: No Project/No Development Alternative, which would include continuation of the existing uses on site; Reduced Project/Reduced Vineyard II Development Alternative; and Reduced Project/No Vineyard II Development Alternative.
- Chapter 7, List of Preparers. This chapter provides a list of the individuals who prepared this project EIR.
- Appendices include the following technical studies prepared for the project:
  - Appendix A, Initial Study/NOP and Comments Received
  - Appendix B, Air Quality and Greenhouse Gas Emissions Calculations, Air Quality and Greenhouse Gas Emissions Analysis Technical Report, including Health Risk Assessment
  - Appendix C, Biological Resources Report
  - Appendix D, Cultural Resources Report
  - Appendix E, Geotechnical Reports
  - Appendix F, Phase I Environmental Site Assessment
  - Appendix G, Hydrology Reports
  - Appendix H, Noise Analysis Technical Report
  - Appendix I, Traffic Impact Analysis
  - Appendix J, Utilities Reports
  - Appendix K, Fire Assessment Summary Letter
  - Appendix L, Urban Decay Analysis

2.4 References

City of Murrieta. 2019. *Environmental Review Update Checklist Form for Projects with Previously Approved Environmental Documents*. Antelope and Cape Aire Mass Grading Plan Extension (2014-372/Permit 4124). October 7, 2019.

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3 Project Description

This chapter describes the objectives of the proposed Costco/Vineyard II Retail Development Project (project), describes the existing setting and baseline conditions of the site, and provides a detailed description of the project characteristics. This chapter also discusses the required development approvals and necessary discretionary actions to implement the project.

3.1 Project Location

The project site is located in the northern portion of the City of Murrieta (City) in Riverside County (County) and contains 26.3 acres of undeveloped land composed of Assessor's Parcel Numbers 392-290-025-4, 392-290-026-5, 392-290-028-7, and 392-290-029-8, and portions of 392-270-033, 392-270-030, and 392-290-051 in the northeastern corner of the vacated Antelope Road and 250 feet north of Clinton Keith Road, east of Interstate (I) 215, as shown on the project location map and proposed site plan (see Figure 3-1, Project Location, and Figure 3-2, Site Plan).

3.2 Existing Project Setting

City of Murrieta

The City is located in southwestern Riverside County and consists of 26,852 acres, 21,511 acres of which are located within the City limits and 5,341 acres of which are located within the City's sphere of influence. The City is situated between the Santa Ana Mountains and the San Jacinto Mountains. Surrounding communities include the City of Menifee to the north; City of Temecula to the south; City of Wildomar to the west; and unincorporated Riverside County to the north, south, and east. The San Diego County border is south of the City of Temecula, and the Orange County border lies on the other side of the Santa Ana Mountains to the west. Regional access to the City is provided by I-215 and I-15.

Project Site

The City's General Plan Land Use Map designates the project site as Commercial (C) (City of Murrieta 2011). The City's Zoning Map shows the site as zoned Regional Commercial (RC) (City of Murrieta 2014). The site has been graded, as described below, with rock, sand, and gravel removed, and used as a source of grading materials for projects in the vicinity of the site, but the site is otherwise undeveloped.

A review of historical topographic maps and aerial photographs show that, prior to about 2009, the site was undisturbed and appeared to be used for farming. The site's ground surface generally sloped gently to the south from an elevation of approximately 1,550 feet to 1,520 feet above mean sea level. However, this southerly slope was interrupted by two prominent hills that rose up above the site approximately 100 to 130 feet, or to elevations of approximately 1,602 and 1,637 feet, south to north.

A mass grading operation for an 18.7-acre portion of the project site has been ongoing intermittently since approximately 2006 under permits issued by the City. This work was initially undertaken to provide fill material for the I-215/Clinton Keith Road interchange improvements project and establishment of an interim cul-de-sac at the northern terminus of Antelope Road and was subsequently continued with soil and rocks removed from the site

sold by the operator to surrounding construction operations as clean fill. Specifically, in 2006, the City approved an Initial Study and permit for mass grading for an 18.7-acre portion of the project site (Antelope and Cape Aire Mass Grading Plan, EA 2005-1763). The proposed mass grading plan's estimated earthwork quantities for the site were 357,000 cubic yards of cut and 69,790 cubic yards of fill, with a net 287,210 cubic yards of material to be exported from the site to various locations in southwestern Riverside County including Murrieta, Winchester, Menifee, and Perris. In 2010, the City approved an Addendum to the IS/MND and a revised permit that increased the authorized earthwork cut by 79,000 cubic yards, altered the finished grades within a 2-acre portion of the original site, added a 4.5-acre adjoining area, and authorized a total of 376,430 cubic yards of export (including the export approved in 2006). At the time of the submitted modified grading plan in 2010, only 140,000 cubic yards of soil had been exported (approximately half of the original approval). Another addendum to the permit was issued in 2019 (Antelope and Cape Aire Mass Grading Plan Extension 2014-372/Permit 4124). The updated grading plan shows a total amount of grading of 738,900 cubic yards net with a total cut of 771,300 cubic yards (i.e., a new cut of 394,870 cubic yards) (City of Murrieta 2019). This pre-existing grading operation ceased on December 31, 2019, when the grading permit expired, with completion of the implementation of best management practices by January 31, 2020. Although not a part of the project, to establish a conservative, known baseline for the grading work required for the project, all mass grading remaining to be performed under this permit on the site from September 2019 when the site was flown by Fuscoe Engineering to approval of the project is included as part of the development project analyzed in this EIR.

A review of aerial photography, provided by Google Earth through the date of this EIR, and grading plans (Excel Engineering 2016) show that most of the project site's ground surface has been disturbed by the excavation activities. The hills have been heavily excavated, with approximately 55 feet (elevation of 1,582 feet) being removed from the northernmost hill by 2016. In addition to excavation activities, there is rock-crushing equipment present, as well as stockpiles of rock, gravel, and soil. Erosional control fencing is present around the perimeter of the site.

Surrounding Uses

The project site is surrounded by commercial development, residential development, a high school, and vacant land. Figure 3-3, Surrounding Land Uses, shows specific land uses located in the immediate vicinity of the project site including the following:

- North: Vacant land
- East: Single-family and multifamily residential uses
- South: Vacant land that is under development of the Vineyard I commercial development (also commonly referred to as CK-17), Clinton Keith Road, and Vista Murrieta High School
- West: Vacant land that is proposed for development of the Vineyard III commercial development (also commonly referred to as Curci or Scott/Lambda) and I-215

3.3 Project Objectives

The project has been designed to meet the following series of objectives:

- Provide a mix of retail, restaurant, and anchor tenants that provide residents with additional shopping, dining, and fueling options in a location that is convenient for its customers and employees to travel to shop and work

- Enhance the City with an economically viable development by establishing anchored retail required to support brick and mortar retail in the current online-oriented retail environment
- Provide a gasoline fueling station adjacent to major roadways and the regional highway system
- Generate additional revenues to the City in the form of increased sales and property tax revenues
- Create jobs in the City and improve the local job/housing balance
- Design a project that is consistent with the City's General Plan and Development Code
- Create a new opportunity for a wide range of integrated retail goods and services to meet the needs of the growing Murrieta community
- Design a site plan that minimizes circulation conflicts between automobiles and pedestrians

3.4 Project Characteristics

The project applicants, Costco Wholesale and Retail Development Advisors, propose to develop an approximately 26.3-acre vacant site (the site or project site) in the City with the project; this would include construction and operation of approximately 225,362 square feet of new development, including a Costco Wholesale (Costco) and gas station and, in adjoining parcels, standalone retail and fitness center buildings and in-line stores, one casual dining restaurant with drive-through and window service, and one drive-through fast-food restaurant. The project would include 1,215 parking spaces adjoining the retail and warehouse uses.

The Costco warehouse would be developed on an approximately 16.4-acre parcel (Costco parcel) composing part of the site, and would consist of an approximately 153,362-square-foot warehouse building with tire center. A separate gas station parcel of approximately 1.21 acres (which is part of the 16.4 acres) would be developed with a 32-pump gasoline sales facility with overhead canopy. The fuel facility would contain three underground storage tanks, a fuel additive underground storage tank, fueling stations, and a pre-manufactured metal canopy. The building surroundings would consist mainly of surface parking with some landscape areas. Parking and drive areas would be paved with either Portland cement concrete or asphalt concrete pavements.

The remaining retail development would be developed on an approximately 7.83-acre parcel on the east side of the future northerly extension of Warm Springs Parkway, and would include development of approximately 72,000 square feet of retail buildings on a series of development pads, as follows: 37,000-square-foot fitness center; 16,000-square-foot major retail pad that may include an office store, pet supply store, health and beauty store, shoe store, or other similar retailers; service-oriented retail shops, such as a pick-up and drop-off dry cleaner (no plant on site), hair salon, or phone store in 11,900 square feet and 3,500 square feet buildings; 1,200-square-foot casual dining space with drive-through and window service; and 2,400-square-foot fast-food restaurant with drive-through.

Construction of the project would require additional grading activities at the site to create level pads and would include over-excavation 5 feet below Costco's finished pad grade and then backfill with imported soils to bring the site to finished pad elevation(s). Based on the baseline established in September 2019, mass grading of approximately 209,200 cubic yards of cut and 125,600 cubic yards of fill, resulting in 83,600 cubic yards of soil for export, would be required for the project. As discussed above in Section 3.2, Existing Project Setting, this grading calculation is conservative as it includes grading completed on the site between September and December 2019 pursuant to a City grading permit issued in 2006, as amended. Assuming a haul truck capacity of 16 cubic yards per truck, earth-moving activities would result in approximately 5,225 round trips (10,450 one-way truck trips) during the grading phase.

The project would also include construction of two detention basins and associated parking on the site, construction of the extension of Warm Springs Parkway from the southern site boundary to the northern site boundary of the site between the Costco parcel and the Vineyard II development,[1] a temporary terminus of that road at the northerly boundary of the site as shown on Figure 3-2, and undergrounding of 141 feet of existing power lines on Antelope Road from the north property line of the Costco parcel. The project would be entitled and constructed in two phases. It is anticipated that the Costco would employ 250 full-time employees, and the fitness center, retail, and restaurant developments collectively would employ 35 employees, totaling a maximum of 285 employees.

Figure 3-4, Grading Plan, shows slopes along the north property lines of the Costco parcel and the proposed interim terminus of Warm Spring Parkway at the northern boundary of the site. Figure 3-5, Proposed Storm Drain System, shows the storm drain line that runs through the adjoining property to the west to an existing inlet at the intersection of the vacated Antelope Road and the I-215 northbound high speed on-ramp. Figure 3-5 also shows drainage to the north and east from the Costco parcel, which runs through the parcel to the west to discharge and drain the predevelopment flows to where they flowed naturally, including the Antelope Road cul-de-sac.

As shown on Figure 3-5, along the east property line, some slopes would be constructed in an easement from the City on a strip of land between the property lines of the eastern portion of the shopping center and a residential wall. This area is currently being used as a drainage area and landscape buffer to adjoining residential homes.

3.4.1 Proposed Project

Costco

Warehouse

The approximately 16.4-acre warehouse parcel would be developed with an approximately 153,362-square-foot warehouse building.

The warehouse would have one customer entrance to the main Costco store, located at the building's southeastern corner. The warehouse would include a tire center, bakery and sales of baked goods, alcohol sales, pharmacy, optical center with optical exams and retail optical sales, hearing aid testing exam and retail hearing aid fitting and sales center, food service preparation and sales, meat preparation and sales, and a photo center, along with the sales of over 4,000 products. The Costco warehouse would provide sales only to warehouse members.

Temporary Christmas tree sales adjacent to the warehouse would typically occur from late November through December, which may temporarily make 12 to 15 vehicle parking spaces unavailable.

A promotional vehicle may also be on display adjacent to the entry to the warehouse building. This vehicle would only be present to promote online or off-site vehicle sales; no vehicles would be sold on site.

The truck loading dock would be located at the northern edge of the warehouse building, toward the northernmost Antelope Road driveway. The bay doors would be equipped with sealed gaskets to limit noise impacts. Five on-grade doors would be located on the western side of the building for emergency egress only, and four on-grade doors would be on the northern side. The two doors on the northern side of the building, adjacent to the loading docks, would be for receiving deliveries from bread companies and Federal Express-type trucks. The two doors would also

[1] The construction of Warm Springs Parkway from Clinton Keith Road to the southern boundary of this project site was analyzed in the Vineyard I Retail Development IS/MND. Vineyard I and that leg of Warm Springs Parkway is currently under construction.

be the primary entrance for employees. The other two service doors would only be for maintenance access to the fire riser and mechanical rooms. A transformer and two trash compactors would also be located along the north edge of the building. Proposed landscaping, and tree planting at the perimeter of the Costco parcel would provide screening of these uses.

Parking and Site Circulation

There would be 799 parking stalls for the Costco warehouse, which exceeds the City's development code required parking of 767 stalls. The loading dock is located on the northernmost portion of the Costco warehouse, accessible from the northwestern Antelope Road entrance and away from residences located east. A 30-foot drive aisle surrounds the warehouse to provide fire access and circulation for the delivery trucks. An Americans with Disabilities Act-compliant pedestrian pathway is required from the new warehouse to the public right-of-way to ensure connectivity throughout the site and easy access from adjacent streets and neighboring properties. To provide members with easier accessibility to vehicles, the project would provide for 706 10-foot-wide stalls, 10 9-foot-wide stalls, 19 accessible stalls, and 64 10-foot-wide clean air/van pool/electric vehicle (EV) stalls. Of the 64 spaces, 3 spaces would include EV chargers.

Lighting

Parking and site lighting would incorporate the use of cutoff lenses to keep light from overflowing beyond the project boundaries. The parking lot would be illuminated with standard downward-pointing lights, each containing two LED bulbs affixed to a 36.5-foot-tall light pole. The lighting fixtures are a "shoe-box" style, with the height of the pole providing the optimum light distribution to reduce the total number of pole-mounted fixtures required to safely illuminate the site for pedestrians and vehicles. Lighting for the parking lot would be controlled by the warehouse's automated energy management system to minimize lighting after the warehouse has closed and employees have left, typically 1 hour after the warehouse has closed for business. To provide security and emergency lighting, parking lot lighting would remain along the main driveways only. Lighting fixtures would also be located on the building approximately every 40 feet around the exterior of the building to provide safety and security.

Signage

Building signage would consist of the signature Costco red-and-blue corporate colors. The signage would be scaled to the mass of the building elevations to not overwhelm but to reinforce the brand Costco has established. The warehouse wall signage would consist of externally illuminated reverse pan channel letters, and the gas station signage would be externally illuminated.

Gas Station

A Costco gas station would be located on a 1.21-acre parcel at the northeastern portion of the project site and would include a 12,684-square-foot canopy. The gas station would dispense regular, premium, and diesel grades of fuel at each fuel pump. The gas station would include a 125-square-foot controller enclosure, which would be located east of the fuel pumps, to house the control equipment for the gas station. The controller enclosure would be built with steel walls and finished with paint to match the warehouse building colors. There would be four covered fueling bays with four gas pump terminals in each, and each would house 2 fuel pumps. Therefore, the gas station would have fueling capacity for 32 cars at a time, with vehicle stacking as needed. The gas station would also have eight stacking lanes. The pumps would be fully automated and self-service and would be for Costco members only, with a Costco attendant present to oversee operations and assist members if they have fueling issues. Four

underground fuel tanks would also be installed with the gas station. Landscaping would typically screen the controller and Clean Air Separator tank. LED lights would be recessed into the canopy and would provide lighting during operating hours and a lower level of security lighting after hours.

Energy-Efficient Project Components

In an effort to lower operating costs, Costco would incorporate many energy-saving measures into the new facility. Below are some of the practices that Costco currently incorporates into new buildings that help conserve energy and other natural resources and that will be incorporated into the project:

- New and renewable building materials shall be extracted and manufactured within the region whenever possible, reducing transportation emissions
- The project shall use pre-manufactured building components, including structural framing and metal panels, to help minimize waste during construction
- The main building structure shall be constructed with a pre-engineered system that uses 100% recycled steel materials and is designed to minimize the amount of material utilized
- Roof material shall be 100% recycled standing seam metal panel, designed to maximum efficiency for spanning the structure
- Exterior skin metal shall be 100% recycled
- Construction waste shall be recycled whenever possible
- Floor sealant contains no volatile organic compounds and represents over 80% of the floor area
- LED lamps shall be installed in the parking lots
- Parking lot and exterior lights are controlled by the building's automated energy management system
- Pre-manufactured metal wall panels with insulation carry a higher Resistance Value (more commonly known as R-Value), and greater solar reflectivity shall be installed to help conserve energy. Building heat absorption is further reduced by a decrease in the thermal mass of the metal wall when compared to a typical masonry block wall
- The roofing structure shall be designed to accommodate the additional structural load of the solar panels to allow for the flexibility for possible future installation
- The project shall plant native, drought-tolerant vegetation that would use less water than other common species.
- The project shall install an irrigation system that uses deep-root watering bubblers for parking lot trees to minimize usage and ensure that water goes directly to the intended planting areas
- High-efficiency restroom fixtures shall be installed
- Building envelopes shall be insulated to meet or exceed current energy code requirements
- Heating, ventilation, and air conditioning (HVAC) comfort systems shall be controlled by a computerized building management system to maximize efficiency
- HVAC units shall be high-efficiency, direct-ducted units
- HVAC units shall not use hydrochlorofluorocarbons
- Interior lighting shall be controlled by the overall project energy management system
- Gas water heaters shall be direct vent and high efficiency
- Extensive recycling/reuse program shall be implemented for warehouse and office space including tires, cardboard, grease, plastics, and electronic waste

- All Costco trucks shall be equipped with an engine idle shut off timer
- Three electric vehicle (EV) charging stations shall be installed in the parking lot
- Within 2 years of opening the Costco Warehouse, a 708-kilowatt photovoltaic system shall be installed, which would generate a system output of 1,128,400 kilowatt-hours per year
- Stalls designated as clean air vehicle/van pool would encourage use of such vehicles by employees and customers

Vineyard II would incorporate the following practices to support energy conservation:

- Design the roofing structure to accommodate the additional structural load of the solar panels to allow for the flexibility for possible future installation
- LED lamps shall be installed in the parking lots and outdoor lighting fixtures
- Parking lot and exterior lights shall be controlled by a time clock and photocell device to turn lights off at dawn
- Fourteen EV charging stations shall be installed in the parking lot, four of which shall be tied to solar source from the roofs of two buildings at the time of opening
- Electrical outlets on site shall allow recharging of battery-operated landscape maintenance equipment by landscape maintenance staff
- Each trash enclosure in the retail center shall have a recycling bin slot for each tenant
- Non-potable irrigation lines shall be installed in preparation for future recycled water

Vineyard II Development

The Vineyard II Retail Development would be constructed concurrently to the east of the proposed Costco location, within the same shopping center. The square footage of these retail uses would total 72,000 square feet and 416 parking stalls would be provided for the retail uses. Fourteen of these stalls would be for EV charging. The site improvements include parking, private drive aisles, wet and dry utilities, storm drains, and water quality improvements.

Fitness Center

The proposed 37,000-square-foot gym (Building K) would include a lap pool; indoor basketball court; showers and lockers; weight room; and areas for spinning classes, yoga, and other stretching classes.

Major Retail Pad

This pad is proposed to be 16,000 square feet (Building J). The support retailers may include an office supply store, pet supply store, health and beauty store, shoe store, and other similar retailers.

Retail Shops

The proposed uses for these two retail shops are service-oriented businesses, such as a pick-up and drop-off dry cleaner (no plant on site), hair salon, and phone store. The larger pad (Building I) is proposed to be 11,900 square feet and the smaller pad (Building L) is proposed to be 3,500 square feet.

Casual Dining Restaurant

The proposed use is a 1,200-square-foot casual dining space with drive-through and window service. This restaurant would be in Building L.

Fast-Food Restaurant

This proposed 2,400-square-foot fast-food restaurant (Building M) with a drive-through window would service customers needing to be served quickly. The design would match elements of the overall architecture of the shopping center.

Signage on the retail stores would be located at the top front of each store for identification purposes.

Project-Wide Components

Building Design and Landscape Plan

Costco's goal of timeless contemporary design and efficiency would be the architectural theme for the warehouse and fuel station, as shown on Figure 3-6, Building Elevations for Costco Warehouse, and Figure 3-7, Building Elevations for Costco Fuel. The proposed colors for this location are warm, natural earth tones consistent with the architectural detailing of the more recent buildings in the area. The retail development east of Warm Springs Parkway would be designed with a vineyard–California craftsman theme, as depicted on Figures 3-8 through 3-10. The proposed color palette for the retail buildings in the Vineyard II development is an array of beiges, gold, cream, and white with brown roofs and gray canopies over the storefront windows. The buildings would be constructed with a mix of materials in warm tones consistent with the architectural detailing of the Costco warehouse building.

To minimize the visual impact of large retail buildings, the design of the warehouse and the Vineyard II buildings would integrate design techniques such as the location of building materials, landscaping, and the incorporation of varying parapet cap heights. The elevations for the Costco warehouse proposed parapet heights vary from 23 feet and 4 inches above finished floor at the outside food service area to a maximum proposed parapet height of 34 feet and 4 inches above finished floor. The top of the parapet height for the fuel facility would be 17 feet and 6 inches. Buildings heights for the retail development east of Warm Springs Parkway would vary between approximately 24 feet to 39 feet and 6 inches above finished floor.

The architectural detailing used throughout the project site would break up long elevations horizontally and vertically. The technique of breaking a long elevation into smaller elements would be used to create a more visually interesting building that is at a pedestrian-friendly scale. The building entrance designs would create visual cues with architectural design, materials, and details blended together to give this location a look and feel that is specific to the context of the City.

The landscape plan would include a mix of drought-tolerant and fire-resistant shrubs and grasses and a variety of shade trees to be used throughout the parking area and along the street that are appropriate for the climate in the City (Figure 3-11, Landscape Plan). A system of bio-filtration planters at the perimeter of the parcel and within the parking area would provide an ecologically responsive method of on-site stormwater treatment.

Circulation Improvements

Warm Springs Parkway would be constructed from Clinton Keith Road to the north project boundary as part of the project.[2] In the vicinity of the site, Warm Springs Parkway has been designed to provide four vehicle travel lanes, bike lanes, and sidewalks and has been previously approved by the City with a northerly extension to Linnel Lane. The roadway would be stubbed at the north site boundary for future extension.

[2] The construction of Warm Springs Parkway from Clinton Keith Road to the southern project boundary was analyzed in the CEQA document for the Vineyard Phase I Development.

As shown on Figure 3-2, the main entrance to the Costco and the Vineyard II retail stores would be located along Warm Springs Parkway on the central portion of the site. This Warm Springs Road extension would bisect the site, with Costco located to the west and Vineyard II to the east of the proposed roadway. Driveways A, B, C, and D as shown on Figure 3-2 provide access to both the Costco and Vineyard II portions of the site.

The site plan depicts the main façade of the Costco warehouse building facing southeast to provide visibility of the entry from Warm Springs Parkway. The siting of the warehouse also achieves a main goal of locating ample parking adjacent to the warehouse entrance and separating truck traffic to the perimeter drive aisles. Access to the Costco warehouse and gas station would be provided through two driveways (labeled Driveways C and D on Figure 3-2) along Warm Springs Parkway. Two scenarios are included in the analysis with regard to Creighton Avenue: (1) opening year with Creighton Avenue access and (2) opening year without Creighton Avenue access.

The main entrance to the Vineyard II development would be through the proposed signalized intersection at Warm Springs Parkway and Driveway C, with a secondary proposed entrance located on the northern end of Warm Springs Parkway (Driveway D). As shown on Figure 3-2, inter-project circulation (the two driveways) with the retail project immediately to the south would allow customers to cross shop without the need to use the public street and allow traffic exiting the project to utilize the signal at Bronco Way and Clinton Keith Road with all turn access.

At the intersection of Clinton Keith Road and Warm Springs Parkway, the proposed design includes dual eastbound left-turn lanes, a westbound right-turn lane, dual southbound left-turn lanes, and dual southbound right-turn lanes.

A traffic signal would be provided at the main Costco and Vineyard II access driveway at Warm Springs Road and Driveway C, shown on Figure 3-2, which would have the following:

- Dual northbound left-turn lanes with 250 feet of storage
- Southbound right-turn lane with 100 feet of storage
- Dual southbound left-turn lanes with 100 feet of storage
- Dual westbound left-turn lanes
- Dual eastbound exiting lanes, including an exclusive left-turn lane and shared through/right-turn lane

A full-movement access driveway at the north Costco access (Driveway D as shown on Figure 3-2) would be provided in the near term, to be limited to right-in/right-out if Warm Springs Parkway is extended further north as part of a future project.

There would be delivery truck access at the northwest corner of the project site from Antelope Road to the truck loading bays behind Costco. Delivery truck access for Vineyard II is from Warm Springs Parkway.

The following improvements to the transportation network around the project site would also be implemented as part of the proposed project, in conjunction with other development projects, including at the intersections of Creighton Avenue and Clinton Keith Road and Vista Murrieta High School Driveway and Clinton Keith Road:

- A north leg at the intersection of Creighton Avenue and Clinton Keith Road, including changing the current U-turn arrow to a left-turn arrow, an exclusive eastbound left-turn, a westbound right-turn, an exclusive southbound left-turn, and shared southbound through/right-turn lane would be provided.

- A north leg at the intersection of Vista Murrieta High School and Clinton Keith Road, including an exclusive eastbound left-turn, westbound right-turn, exclusive southbound left-turn, shared southbound through/right-turn lane, and exclusive northbound through lane would be provided.

Section 4.13, Transportation, evaluates the transportation and circulation impacts of the project and details the mitigation that would be required to mitigate impacts of the proposed project.

Water and Wastewater Utility Improvements

Stormwater Drainage System

The proposed drainage facilities will be designed to match the existing drainage patterns to the maximum extent practical. The project would include an on-site stormwater drainage system that uses a combination of bio-filtration basins and units to manage stormwater runoff. This system would include construction of two bio-filtration basins located in the northeastern and southeastern corners of the project site. The bio-filtration basins would be depressed landscaped areas that would allow stormwater and runoff to pond, filter, and infiltrate the stormwater drainage system and then discharge into the existing City storm drain system through three existing off-site storm drain pipes (called POC-A, B, and C on Figure 3-5). The project would also use bio-filtration units, which are landscaped planter islands located throughout the project site. These landscaped planter islands would feature curb cuts to allow drainage to collect within the units and filter into the soil. Impervious surfaces would be graded to direct flows toward bio-filtration units. Some bio-filtration units would feature underground tanks to collect and store runoff in the event of significant flow events. Flows not captured by the bio-filtration facilities would be routed to the City's existing stormwater drainage system using existing drainage routes (POC-B and C). Use of bio-filtration basins and units would be used to improve water quality and keep the "development" rate of storm drainage at or below "predevelopment" levels. Some stormwater from the Costco parcel would be conveyed after treatment through a storm drain line in an easement through an adjoining site to the west. The storm drain would discharge into an existing inlet in the Caltrans right-of-way at the intersection of the vacated Antelope Road and the I-215 northbound high speed on-ramp at a predevelopment flow rate (POC-A).

Water

Within the immediate project vicinity, there is an existing 18-inch water line located within Clinton Keith Road. As part of the Vineyard I project, a 12-inch water line would be constructed within the future Warm Springs Parkway, which would be extended further within Warm Springs Parkway as part of the project. Upon final buildout, the project site would receive water from this future 12-inch water line within Warm Springs Parkway by way of the 18-inch water line within Clinton Keith Road.

Wastewater

Also within the immediate project vicinity, there is an existing 12-inch gravity sewer line located within Clinton Keith Road. As part of the Vineyard I project, an 8-inch gravity sewer line would be constructed within the future Warm Springs Parkway, which would be extended further within Warm Springs Parkway as part of the project. Upon final buildout, wastewater from the project site would be conveyed by the future 8-inch gravity sewer line into the existing 12-inch gravity sewer line in Clinton Keith Road. The 12-inch gravity sewer line within Clinton Keith Road eventually flows to a 15-inch gravity sewer line in Whitewood Road, which in turn eventually flows to the Perris Valley Regional Water Reclamation Facility. Utility improvements are described in more detail in Section 4.15, Utilities and Service Systems.

3.4.2 Project Operations

Costco

Costco is a membership-only retail/wholesale business, selling national brand and private label merchandise for commercial and personal use. Warehouse hours are anticipated to be Monday through Friday from 10:00 a.m. to 8:30 p.m., Saturday from 9:30 a.m. to 6:00 p.m., and Sunday from 10:00 a.m. to 6:00 p.m. The gas station hours are anticipated to be daily from 5:00 a.m. to 10:00 p.m.

Costco anticipates an average of approximately 10 trucks delivering goods on a typical weekday. The trucks range in size from 26 feet long for single-axle trailers to 70 feet long for double-axle trailers. Receiving times would vary based on jurisdictional restrictions, but would typically take place in the early morning, with most deliveries completed before the 10:00 a.m. opening time. Deliveries to the warehouse would be made primarily in Costco trucks from its freight consolidation facility in Mira Loma, California, entering the site from I-215 and exiting at Clinton Keith Road.

It is estimated that fuel would be delivered to the gasoline facility via nine trucks per day, as needed. The largest fuel trucks would be approximately 70 feet long. While delivering the fuel, the truck would be parked over the underground tanks located on the western side of the gas station. The truck would not block access to any of the fueling stations. The gas station's proposed location at the most remote area of the Costco parcel is specifically designed to avoid traffic and queuing conflicts with the warehouse.

To open and operate the gas station, Costco would need to meet requirements of local, state, and federal regulators and agencies, including the City's Fire Department, the County Department of Environmental Health, the South Coast Air Quality Management District, the State Water Resources Control Board, the California Environmental Protection Agency, and the U.S. Environmental Protection Agency.

Vineyard II Retail Development

Deliveries would be through the front doors before 10:30 a.m., except at the major retail pad (Building J), which has an enclosed truck door dock to control sound in the rear of the building. Operating hours for the retail development vary and are subject to the policies of each building occupant; however, operating hours for the retail uses are expected to be 8:30 a.m. to 6:00 p.m. Operating hours for the restaurant uses are expected to be 11:00 a.m. to 10:00 p.m. The fitness center is expected to operate from 6 a.m. to 11 p.m. Lighting and hours of operation will comply with the City's zoning and Green Building ordinances.

3.4.3 Project Construction

The project would be entitled and constructed in two phases. The first phase would consist of the new Costco warehouse, Costco gas station, detention basins, and new site amenities such as landscaping, lighting, parking lots, and construction of Warm Springs Parkway. The second phase, which may overlap the first phase, would consist of the Vineyard II retail development and related amenities. Conservatively, for the purposes of the analysis, the first and second phases of construction are assumed to overlap. Table 3-1 summarizes the construction phasing assumptions, see Appendix B for construction assumption details.

Table 3-1. Construction Scenario Assumptions

Construction Phase	Start Date	End Date
Costco		
Site Preparation	September 28, 2020	November 16, 2020
Grading	September 28, 2020	April 5, 2021
Building Construction	November 30, 2020	March 15, 2021
Paving	January 11, 2021	February 1, 2021
Architectural Coating	January 25, 2021	March 8, 2021
Vineyard II Retail Development		
Phase I Site Preparation	November 23, 2020	December 4, 2020
Phase I Grading and Trenching	November 23, 2020	February 19, 2021
Phase I Building Construction	January 1, 2021	June 2, 2021
Phase I Paving	April 1, 2021	May 12, 2021
Phase I Architectural Coating	April 20, 2021	May 17, 2021
Phase II Precise Grading and Footing Trenching	May 16, 2021	November 15, 2021
Phase II Building Construction	July 1, 2021	October 29, 2021
Phase II Paving	September 1, 2021	September 28, 2021
Phase II Architectural Coating	August 1, 2021	September 10, 2021
Warm Springs Parkway		
Grading	September 28, 2020	December 25, 2020
Paving	December 1, 2020	December 30, 2020

Source: See Appendix B for details.

3.5 Standard Requirements and Conditions of Approval

The project is consistent with existing general plan land use and zoning designations. Implementation of the project is anticipated to require, but not necessarily be limited to, the permits and approvals set forth below. This EIR may be utilized by the City and any other governmental entities, as responsible agencies, for approvals needed in connection with the project, whether or not such agencies or specific approvals are listed below.

City of Murrieta :

- Site Development Plan DP-2018-1652 (Costco)
- Site Development Plan DP-2018-1656 (Vineyard II)
- Tentative Parcel Map No. 37511 (Costco)
- Conditional Use Permit (CUP)-2018-1653 (Costco tire center)
- Design review of the site plan, landscape, and building architecture to allow for retailing and wholesaling of general merchandise and services
- Grading permit

Other agency approvals:

- Regional Water Quality Control Board
  - National Pollutant Discharge Elimination System Construction General Permit
- South Coast Air Quality Management District
  - Permit to construct a gas station
  - Permit to operate a gas station
- Riverside County Department of Environmental Health
  - Permit to Operate a Food Facility (Riverside County Code, Section 4.52, and the California Health and Safety Code)
  - Underground storage tank installation
- Riverside County Agriculture Commissioner's Office, Weights and Measures
  - Placed-in-Service Report
- Riverside County Multiple Species Habitat Conservation Plan Finding of Consistency

3.6 Cumulative Projects

The Cities of Murrieta, Menifee, and Wildomar provided a list of approved/proposed cumulative projects in the project area, as described in Table 3-2. Figure 3-12, Cumulative Projects Map, shows the location of each cumulative project in relation to the proposed project.

Table 3-2. Cumulative Projects

Project Name	Description
Mitchell Crossing	331 multi-family housing dwelling units 50,000-square-foot specialty retail
The Orchard	436,735-square-foot shopping center 215,850 square feet remaining to be built; 100,000 square feet assumed to be built by 2020
Vineyard I Shopping Center[1]	78,489-square-foot shopping center 91-room hotel
Makena Hills	116,200-square-foot medical office 9,300-square-foot restaurant 206-room hotel
Adobe Springs	287 single-family detached dwelling units 208,500-square-foot business park
Alderwood	10 single-family detached dwelling units
Golden Cities Phase 3	69 single-family detached dwelling units
Golden Cities Phase 4	126 single-family detached dwelling units
Golden Cities Phase 5	119 single-family detached dwelling units
Junction (City of Menifee)	148,663-square-foot discount club 140,760-square-foot home improvement store 237,377-square-foot retail/shopping center

Table 3-2. Cumulative Projects

Project Name	Description
Walmart (City of Menifee)	205,000-square-foot discount store 6,680-square-foot automobile care center 13,800-square-foot specialty retail 6,500-square-foot high-turn-over (sit-down) restaurant 6,200-square-foot fast-food with drive-through 16,000-square-foot gas station with food mart and car wash
Vineyard III	5 positions lube/tune 5,000-square-foot bank 22,500-square-foot shopping center 2,500-square-foot fast-food with drive-through 5,500-square-foot high-turn-over (sit-down) restaurant
Clinton Keith Village (Wildomar)	5,940-square-foot fast-food with drive-through 12,840-square-foot variety store 12 fueling position convenience market with gas pumps 18,250 square feet of commercial retail

Source: Appendix I.
Note: The project list was derived from contacting the jurisdictions directly, and then the traffic engineer reviewed the list to include locations that would contribute traffic to the project's study intersections and would be open by 2020.

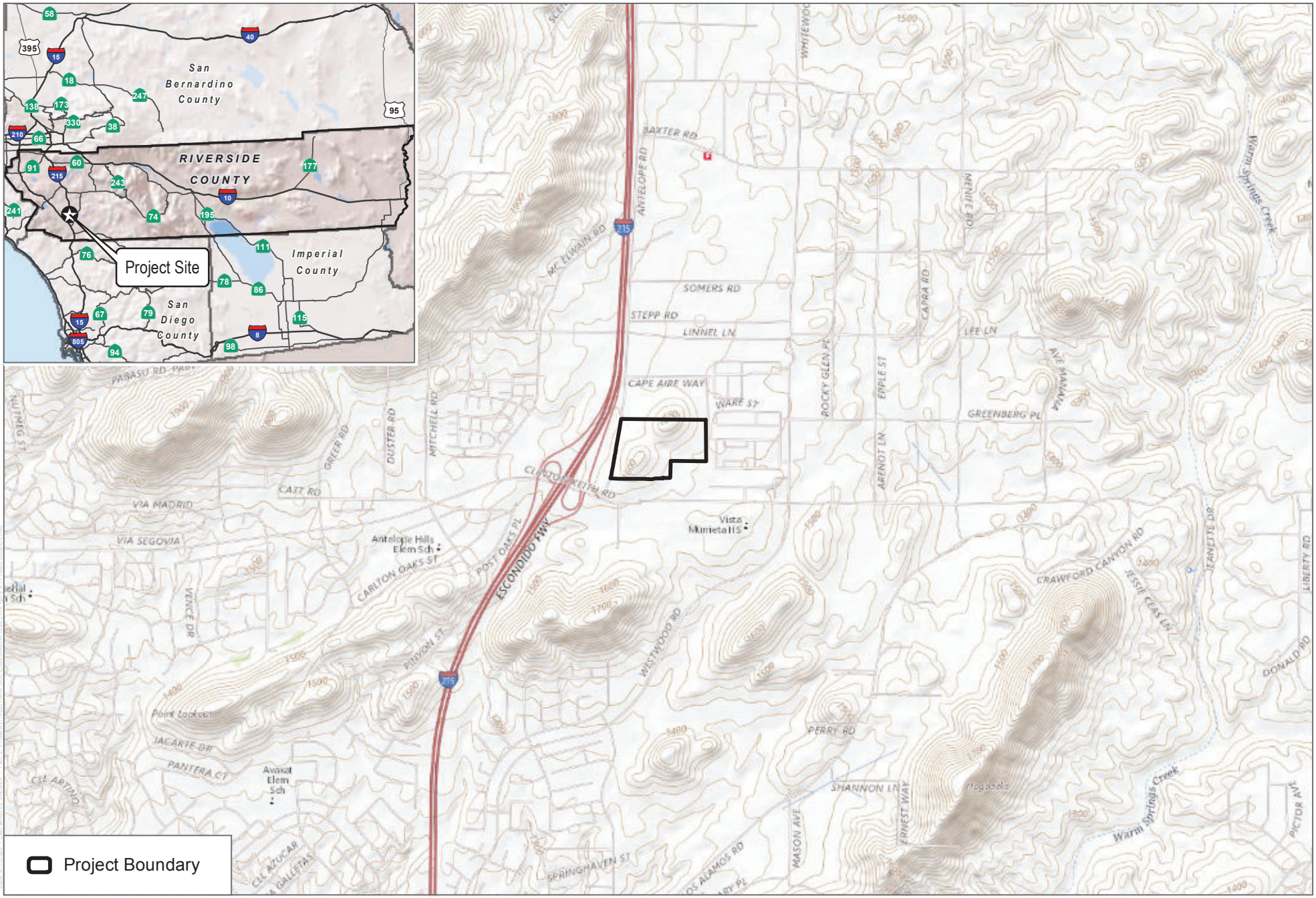
[1] Although the Vineyard Shopping Center traffic study includes a 78,489-square-foot shopping center and 91-room hotel, updated plans for the site include an approximately 32,700-square-foot shopping center and no hotel because 4.48 acres are included under Costco in this EIR. The segment of Warm Springs Parkway from Clinton Keith Road to the southern project boundary was analyzed as part of the Vineyard I Shopping Center project.

3.7 References Cited

City of Murrieta. 2011. "General Plan 2035 Land Use Map" [map]. Adopted July 19, 2011. Accessed August 2018. https://www.murrietaca.gov/civicax/filebank/blobdload.aspx?BlobID=5668.

City of Murrieta. 2014. "Murrieta Zoning Map" [map]. Adopted June 17, 2014. Effective July 17, 2014. Accessed August 2018. http://www.murrietaca.gov/civicax/filebank/blobdload.aspx?blobid=6214.

City of Murrieta. 2019. Environmental Review Update Checklist Form for Projects with Previously Approved Environmental Documents. Antelope and Cape Aire Mass Grading Plan Extension (2014-372/Permit 4124).



SOURCE: USGS National Map 2020

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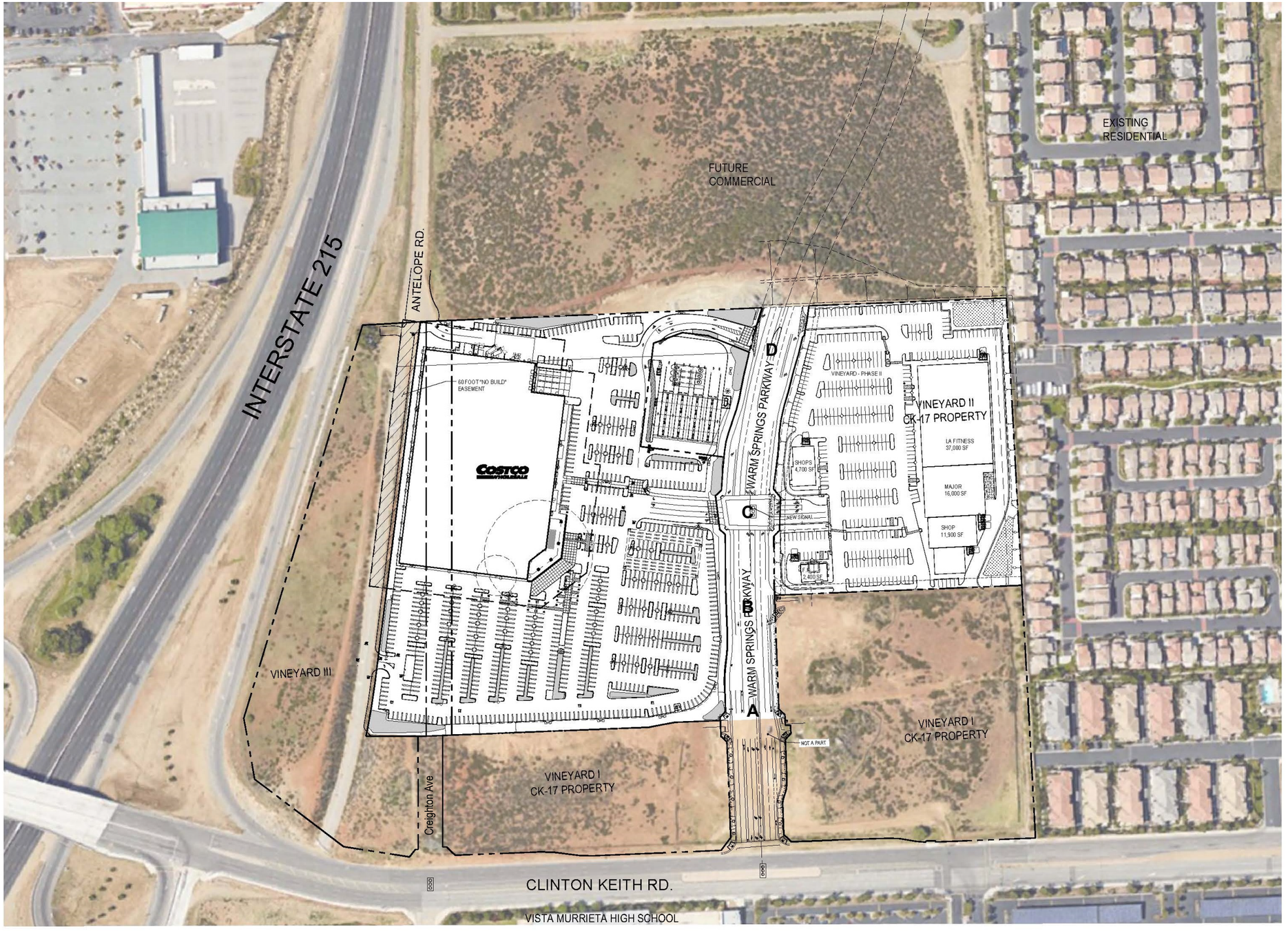
0 1,000 2,000 Feet

FIGURE 3-1

Project Location

Costco/Vineyard II Retail Development Project, City of Murrieta, California

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PROJECT DATA

APPLICANT:	COSTCO WHOLESALE 999 LAKE DRIVE ISSAQUAH, WA 98027
PROJECT ADDRESS:	NEC OF I-215 & CLINTON KEITH RD. MURRIETA, CA
ZONING:	REGIONAL COMMERCIAL
SETBACKS:	FRONT: 25' BLDG / 15' LANDSC. REAR: 5' BLDG / 5' LANDSC. SIDE: 5' BLDG / 5' LANDSC.

SITE DATA:

PARCEL 1 & 2 OF TPM 37511

COSTCO SITE AREA:	15.21 ACRES (662,538 SF.)
COSTCO FUEL FACILITY AREA:	1.21 ACRES (52,910 SF)
TOTAL COSTCO SITE	16.42 ACRES (715,448 SF.)
VINEYARD PHASE II:	
LOT "A"	1.74 ACRES (76,012 SF.)
PARCEL 3	0.63 ACRES (27,573 SF.)
PARCEL 4	0.71 ACRES (31,058 SF.)
PARCEL 5	1.30 ACRES (56,541 SF.)
PARCEL 6	3.62 ACRES (157,801 SF.)
PARCEL 7	0.85 ACRES (36,852 SF.)
PARCEL 8	0.73 ACRES (31,842 SF.)
TOTAL GROSS SITE AREA	9.58 ACRES (417,479 SF.)
TOTAL NET SITE AREA	7.84 ACRES (341,467 SF.)

BUILDING DATA:

COSTCO SITE:	
NET BUILDING AREA	149,856 SF
NET FIRE DEPT. ROOM	430 SF
NET MACHINE ROOM	1,488 SF
ENVELOPE/ EXTERIOR WALLS	1,588 SF
TOTAL COSTCO WAREHOUSE	153,362 SF
FUEL STATION CANOPY	12,678 SF
FUEL CONTROLLER ENCLOSURE	125 SF
TOTAL VINEYARD PHASE II SITE:	
FITNESS USE (BLDG K)	37,000 SF
RETAIL USE (BLDG J, I, & L)	31,400 SF
FOOD USE (BLDG L & M)	3,600 SF

PARKING DATA:

TOTAL COSTCO PARKING:	799 STALLS
INCLUDES:	
10' WIDE STALLS	706 STALLS
9' WIDE STALLS	10 STALLS
ACCESSIBLE STALLS (1 IN 6 VAN + 4 VAN REQUIRED)	19 STALLS
10' WIDE CLEAN AIR/ VAN POOL/ EV STALLS (8% OF PARKING)	64 STALLS
JURISDICTION REQUIRED PARKING INSTALL / 200 S.F. (5/1000):	767 STALLS
TOTAL VINEYARD PHASE II PARKING:	416 STALLS
INCLUDES:	
FITNESS USE (BLDG K)	222 STALLS
RETAIL USE (BLDG J, I, & L)	158 STALLS
FOOD USE (BLDG L & M)	36 STALLS
JURISDICTION REQUIRED PARKING:	286 STALLS

CURRENT OWNERS:

1. CANDEE FAMILY LLC
2. CK-17, A CALIFORNIA LIMITED PARTNERSHIP
3. SCOTT-215, LP., A CALIFORNIA LIMITED PARTNERSHIP
4. LAMBDA INVESTMENTS, LLC, A DELAWARE LIMITED LIABILITY COMPANY

UTILITY COMPANIES:

ELECTRIC:	SOUTHERN CALIFORNIA EDISON (SCE) 2244 WALNUT GROVE AVENUE ROSEMEAD, CA 91770 (951) 249-8356
GAS:	SOUTHERN CALIFORNIA GAS COMPANY 1981 WEST LUGONIA AVENUE REDLANDS, CA 92374 800-427-2200
SEWER/WATER:	EASTER MUNICIPAL WATER DISTRICT (EMWD) 2270 TRUMBLE ROAD PERRIS, CA 92570 (951) 928-3777
PHONE:	VERIZON 24520 VILLAGE WALK PL., STE A MURRIETA, CA 92562 (951) 672-9490
CABLE:	FRONTIER COMMUNICATIONS 9 S. 4TH STREET REDLANDS, CA 92373 (951) 7779567
SCHOOL DISTRICT:	MENIFEE UNION SCHOOL DISTRICT 29775 HAUN ROAD MENIFEE, CA 92586 (951) 672-1851

*A through D — Project Driveways

SOURCE: MG2, Inc

FIGURE 3-2

Site Plan

Costco/Vineyard II Retail Development Project, City of Murrieta, California

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SOURCE: DigitalGlobe 2018

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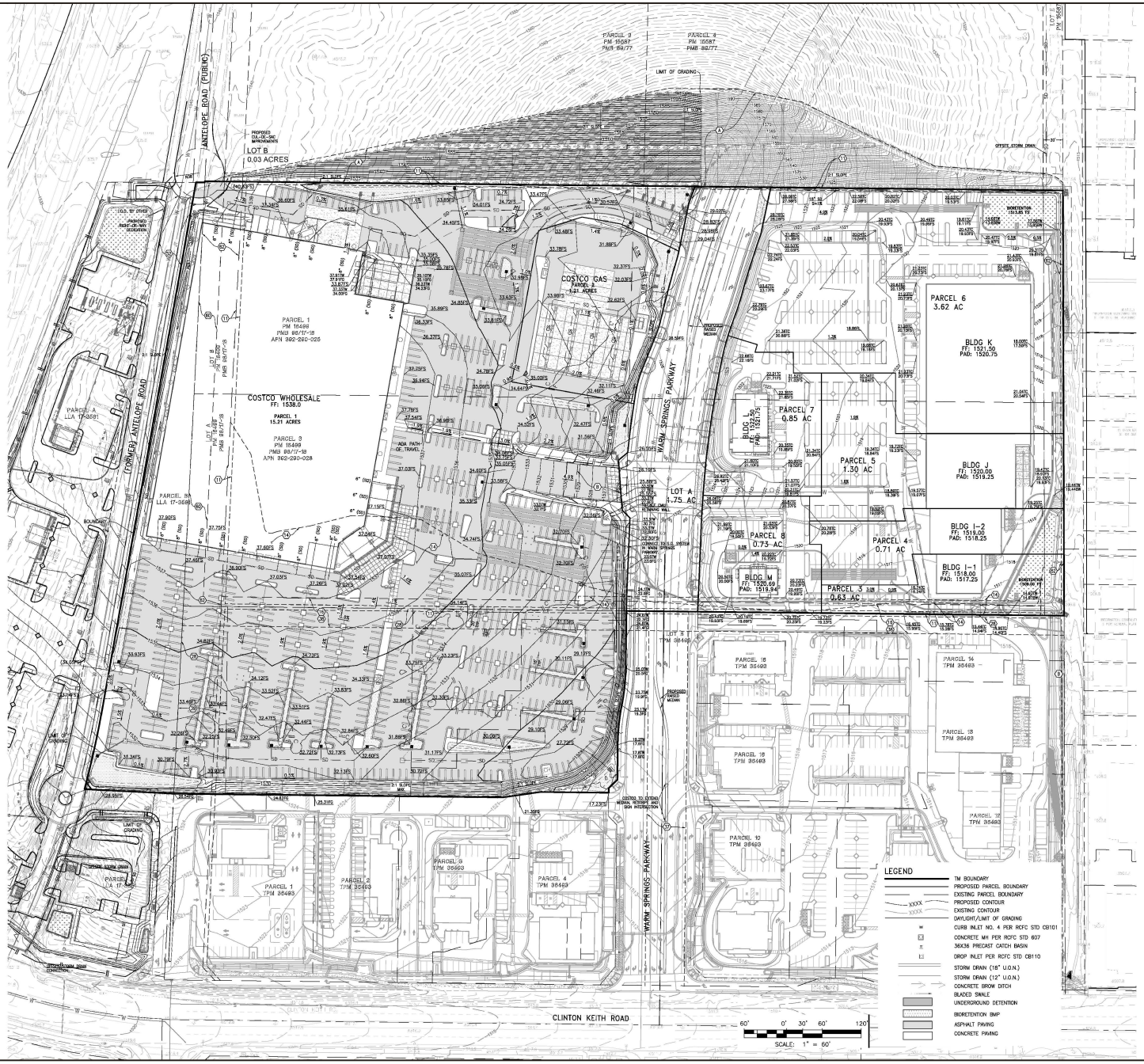
0 250 500 Feet

FIGURE 3-3

Surrounding Land Uses

Costco/Vineyard II Retail Development Project, City of Murrieta, California

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SOURCE: Fuscoe 2019

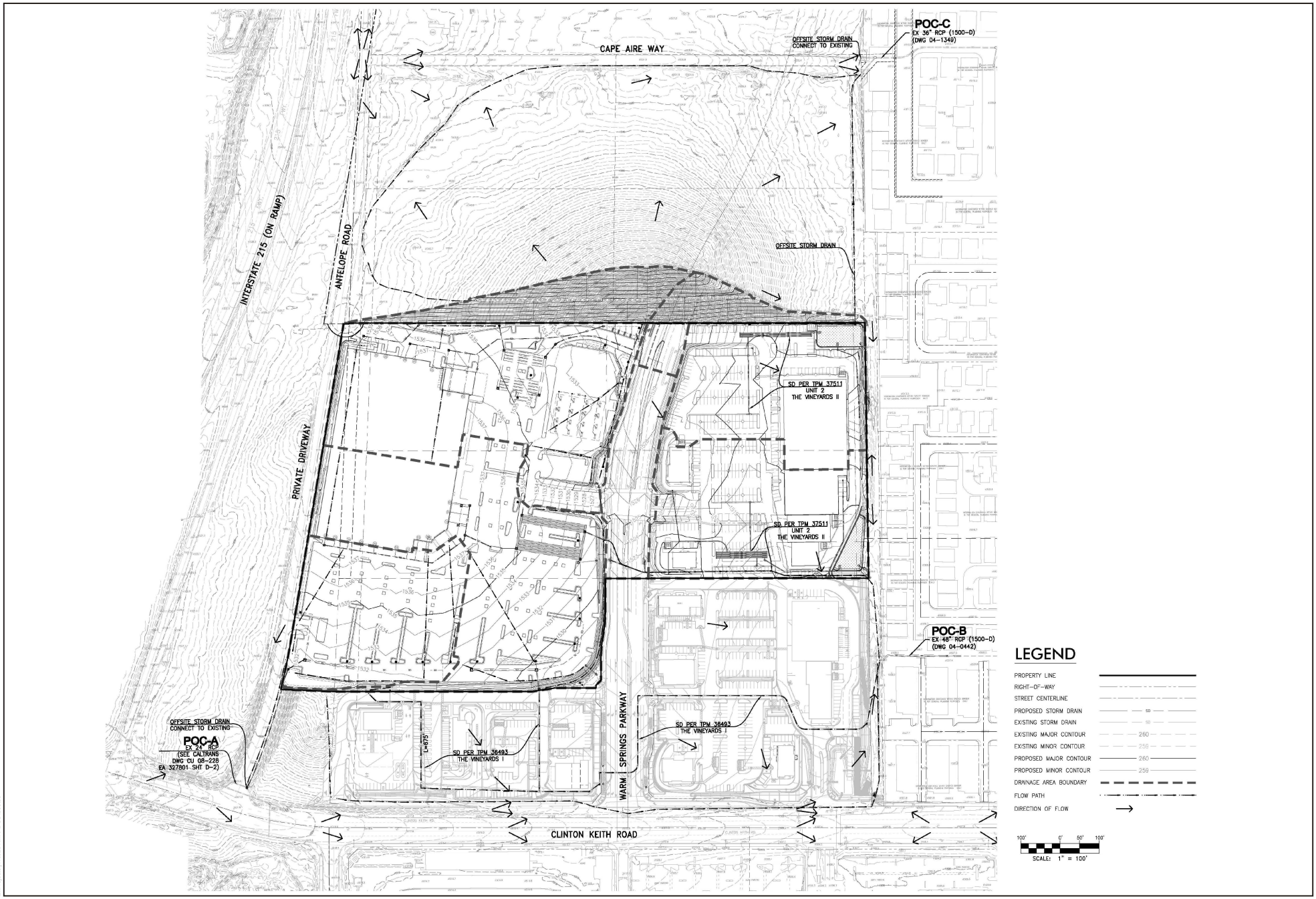
FIGURE 3-4

Grading Plan

Costco/Vineyard II Retail Development Project, City of Murrieta, California

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SOURCE: Fuscoe 2019

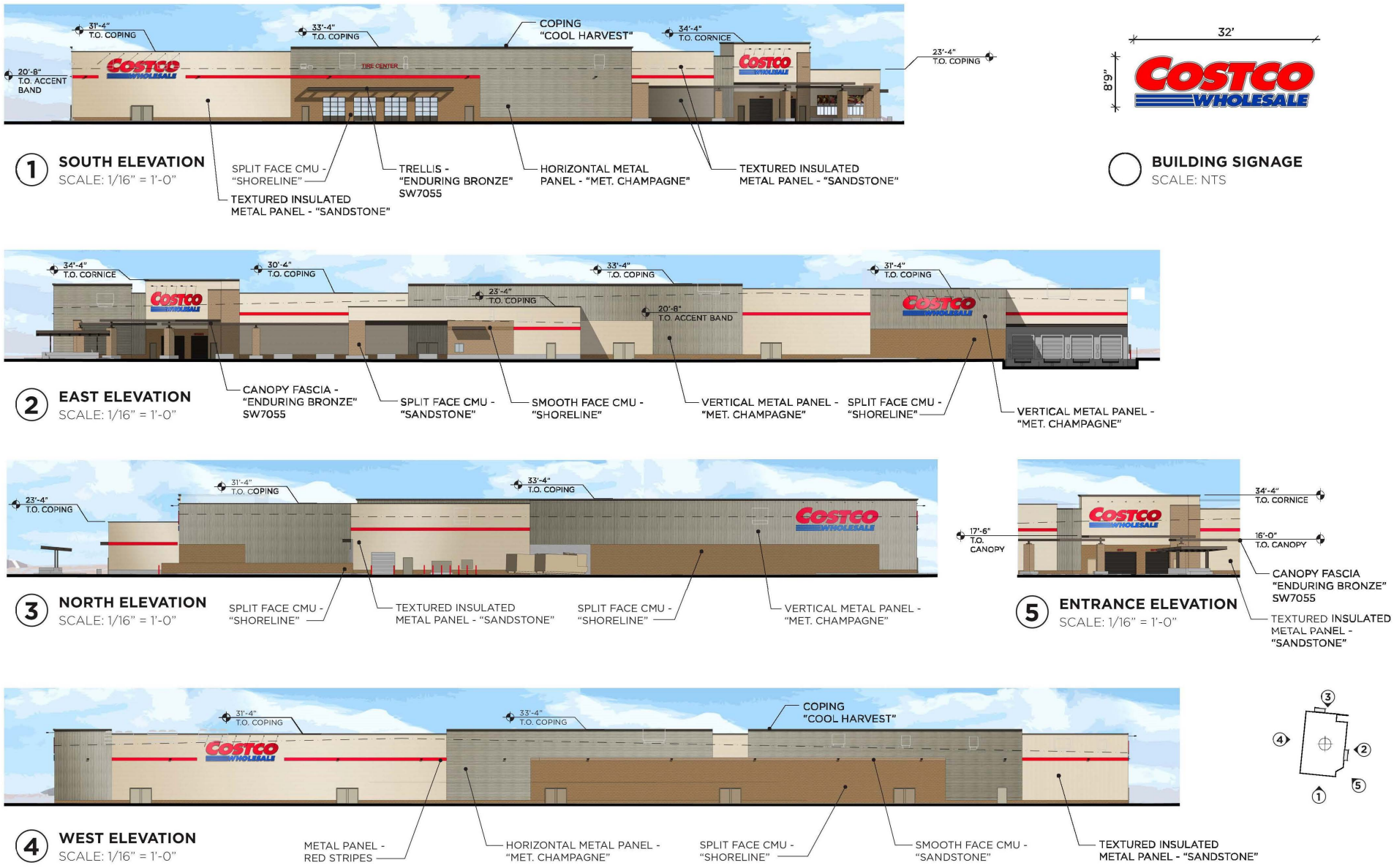
FIGURE 3-5

Proposed Storm Drain System

Costco/Vineyard II Retail Development Project, City of Murrieta, California

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SOURCE: MG2, Inc

FIGURE 3-6

Building Elevations for Costco Warehouse

Costco/Vineyard II Retail Development Project, City of Murrieta, California

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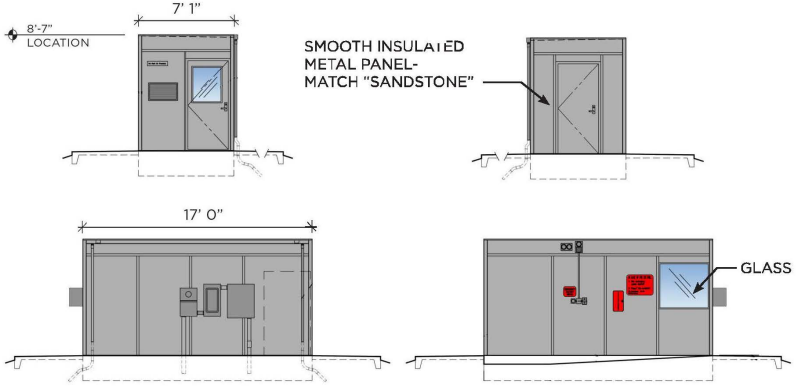
1 NORTH/SOUTH ELEVATION
SCALE: NTS



2 EAST/WEST ELEVATION
SCALE: NTS



4 FUEL PERSPECTIVE
SCALE: NTS

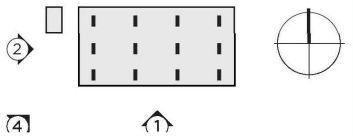


3 CONTROLLER ENCLOSURE ELEVATIONS
SCALE: NTS



SIGNAGE AREA TABULATION (WALL SIGNS)				
QTY	SIGN	SIZE	AREA (SF) EA	TOTAL SF
4	COSTCO WHOLESALE	2'-6"	21 SF	84 SF
			TOTAL SIGNAGE AREA	84 SF

5 FUEL SIGNAGE
SCALE: NTS

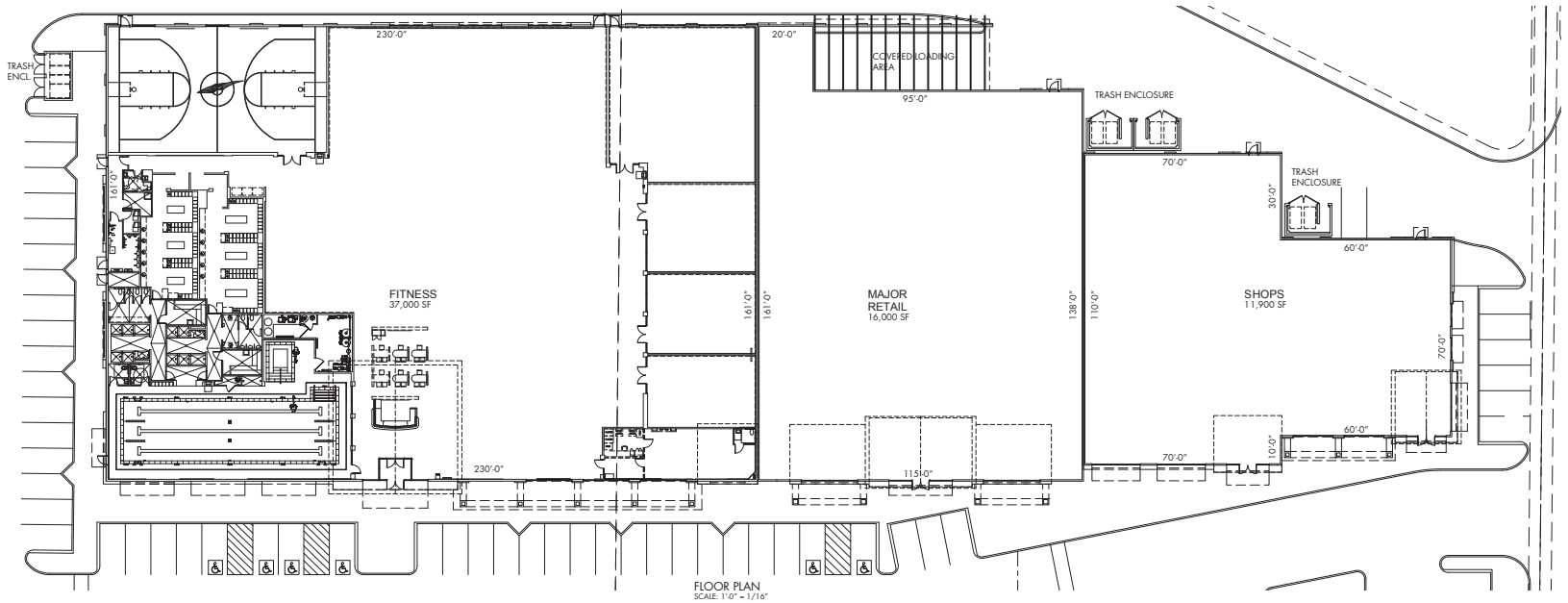


SOURCE: MG2, Inc

FIGURE 3-7
Building Elevations for Costco Fuel
Costco/Vineyard II Retail Development Project, City of Murrieta, California

DUDEK

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

	MATERIALS
A	EXTERIOR PLASTER
B	STANDING SEAM METAL ROOFING
C	METAL SIDING
D	SUSPENDED METAL ALUMINUM CANOPY
E	STONE BASE
F	STEEL WIDE FLANGE COLUMN AND BEAM
G	PLASTER TRIM
H	SCUPPER OVERFLOW
I	SIGNAGE BY TENANT
J	KWANEER STOREFRONT
K	PPG SUNGATE 500 FLAT GLASS
L	GLASS BLOCK PER TENANT DESIGN CRITERIA
M	DECORATIVE WALL SCONCE
N	WALL HUNG VINEAGE PANELS "GREENSCREEN"
P	DECORATIVE WOOD OUTRIGGER/RAFTER

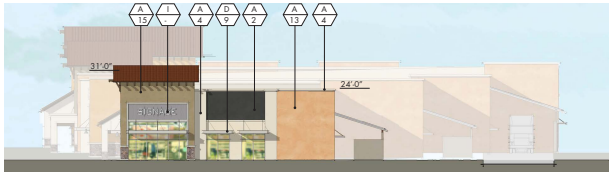
	COLOR / FINISHES
1	GIDDEN PROFESSIONAL "DAKOTA LAND"
2	SHERWIN WILLIAMS "NIGHT OWL"
3	GIDDEN PROFESSIONAL "GOLDEN TAN"
4	GIDDEN PROFESSIONAL "ANTIQUE LINEN"
5	ELK MOUNTAIN STONE
6	PAC-CLAD ROOFING "MUSKET GREY"
7	PAC-CLAD ROOFING "MANSARD BROWN"
8	PAC-CLAD ROOFING "GRANITE"
9	MAPES SYSTEM - COLOR "SEAWOLF"
10	GIDDEN PROFESSIONAL "GREY TABBY"
11	CLEAR ANODIZED ALUMINUM STOREFRONT
12	CLEAR GLAZING
13	SHERWIN WILLIAMS " VIVA GOLD"
14	SHERWIN WILLIAMS " ROSEMARY"
15	SHERWIN WILLIAMS " FENLAND"
16	SHERWIN WILLIAMS " TARNISHED TREASURE"
17	EXTERIOR LIGHTING "MATTE SILVER"



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



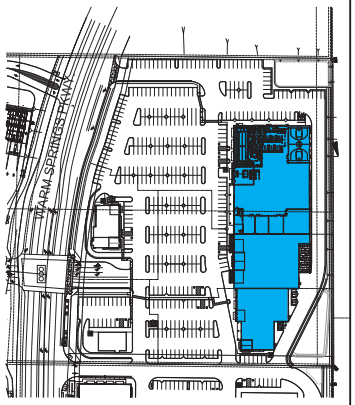
EAST ELEVATION
SCALE: 1'-0" = 1/16"



SOUTH ELEVATION
SCALE: 1'-0" = 1/16"



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



KEY PLAN

SOURCE: Architects Orange 2018

DUDEK

FIGURE 3-8

Building Elevations for Connected Vineyard Buildings

Costco/Vineyard II Retail Development Project, City of Murrieta, California

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SHOPS - EAST ELEVATION
SCALE: 1'-0" = 3/32"



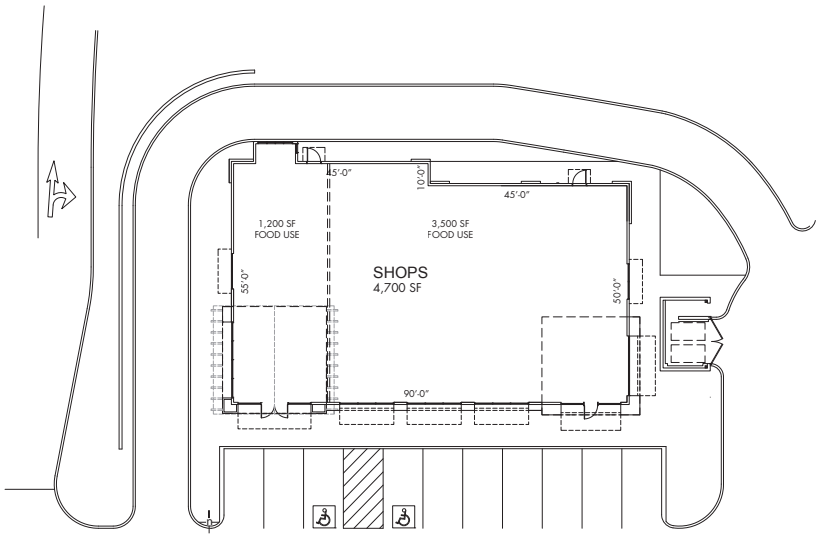
SHOPS - WEST ELEVATION
SCALE: 1'-0" = 3/32"



SHOPS - SOUTH ELEVATION
SCALE: 1'-0" = 3/32"



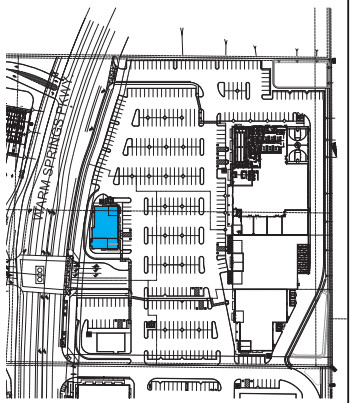
SHOPS - NORTH ELEVATION
SCALE: 1'-0" = 3/32"



SHOPS - FLOOR PLAN
SCALE: 1'-0" = 3/32"

	MATERIALS
A	EXTERIOR PLASTER
B	STANDING SEAM METAL ROOFING
C	METAL SIDING
D	SUSPENDED METAL ALUMINUM CANOPY
E	STONE BASE
F	STEEL WIDE FLANGE COLUMN AND BEAM
G	PLASTER TRIM
H	SCUPPER OVERFLOW
I	SIGNAGE BY TENANT
J	KWANEER STOREFRONT
K	PPG SUNGATE 500 FLAT GLASS
L	GLASS BLOCK PER TENANT DESIGN CRITERIA
M	DECORATIVE WALL SCONCE
N	WALL HUNG VINEAGE PANELS "GREENSCREEN"
P	DECORATIVE WOOD OUTRIGGER/RAFTER

	COLOR / FINISHES
1	GLIDDEN PROFESSIONAL "DAKOTA LAND"
2	SHERWIN WILLIAMS "NIGHT OWL"
3	GLIDDEN PROFESSIONAL "GOLDEN TAN"
4	GLIDDEN PROFESSIONAL "ANTIQUE LINEN"
5	ELK MOUNTAIN STONE
6	PAC-CLAD ROOFING "MUSKET GREY"
7	PAC-CLAD ROOFING "MANSARD BROWN"
8	PAC-CLAD ROOFING "GRANITE"
9	MAPES SYSTEM - COLOR "SEAWOLF"
10	GLIDDEN PROFESSIONAL "GREY TABBY"
11	CLEAR ANODIZED ALUMINUM STOREFRONT
12	CLEAR GLAZING
13	SHERWIN WILLIAMS " VIVA GOLD"
14	SHERWIN WILLIAMS " ROSEMARY"
15	SHERWIN WILLIAMS " FENLAND"
16	SHERWIN WILLIAMS " TARNISHED TREASURE"
17	EXTERIOR LIGHTING "MATTE SILVER"



KEY PLAN

Z:\Projects\11092101\MXD\DC\Costco

SOURCE: MG2, Inc

DUDEK

FIGURE 3-9

Building Elevations for Vineyard Shops

Costco/Vineyard II Retail Development Project, City of Murrieta, California

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FAST FOOD- NORTH ELEVATION
SCALE: 1'-0" = 3/32"



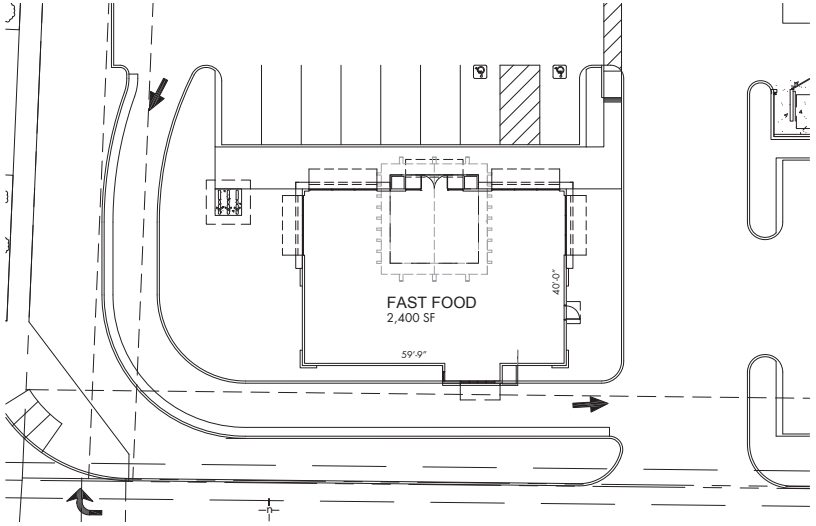
FAST FOOD- SOUTH ELEVATION
SCALE: 1'-0" = 3/32"



FAST FOOD - WEST ELEVATION
SCALE: 1'-0" = 3/32"



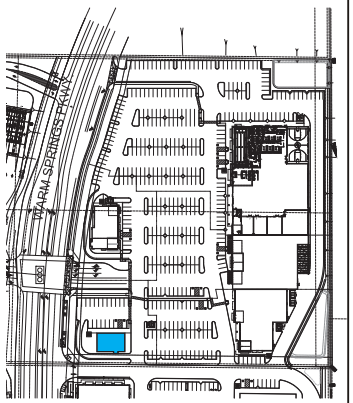
FAST FOOD - EAST ELEVATION
SCALE: 1'-0" = 3/32"



FAST FOOD - FLOOR PLAN
SCALE: 1'-0" = 3/32"

	MATERIALS
A	EXTERIOR PLASTER
B	STANDING SEAM METAL ROOFING
C	METAL SIDING
D	SUSPENDED METAL ALUMINUM CANOPY
E	STONE BASE
F	STEEL WIDE FLANGE COLUMN AND BEAM
G	PLASTER TRIM
H	SCUPPER OVERFLOW
I	SIGNAGE BY TENANT
J	KWANEER STOREFRONT
K	PPG SUNGATE 500 FLAT GLASS
L	GLASS BLOCK PER TENANT DESIGN CRITERIA
M	DECORATIVE WALL SCONCE
N	WALL HUNG VINEAGE PANELS "GREENSCREEN"
P	DECORATIVE WOOD OUTRIGGER/RAFTER

	COLOR / FINISHES
1	GLIDDEN PROFESSIONAL "DAKOTA LAND"
2	SHERWIN WILLIAMS "NIGHT OWL"
3	GLIDDEN PROFESSIONAL "GOLDEN TAN"
4	GLIDDEN PROFESSIONAL "ANTIQUE LINEN"
5	ELK MOUNTAIN STONE
6	PAC-CLAD ROOFING "MUSKET GREY"
7	PAC-CLAD ROOFING "MANSARD BROWN"
8	PAC-CLAD ROOFING "GRANITE"
9	MAPES SYSTEM - COLOR "SEAWOLF"
10	GLIDDEN PROFESSIONAL "GREY TABBY"
11	CLEAR ANODIZED ALUMINUM STOREFRONT
12	CLEAR GLAZING
13	SHERWIN WILLIAMS " VIVA GOLD"
14	SHERWIN WILLIAMS " ROSEMARY"
15	SHERWIN WILLIAMS " FENLAND"
16	SHERWIN WILLIAMS " TARNISHED TREASURE"
17	EXTERIOR LIGHTING "MATTE SILVER"



KEY PLAN

Z:\Projects\110920\MXD\DC\Costco

SOURCE: MG2, Inc

DUDEK

FIGURE 3-10

Building Elevations for Vineyard Fast Food

Costco/Vineyard II Retail Development Project, City of Murrieta, California

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SOURCE: Architects Orange 2019

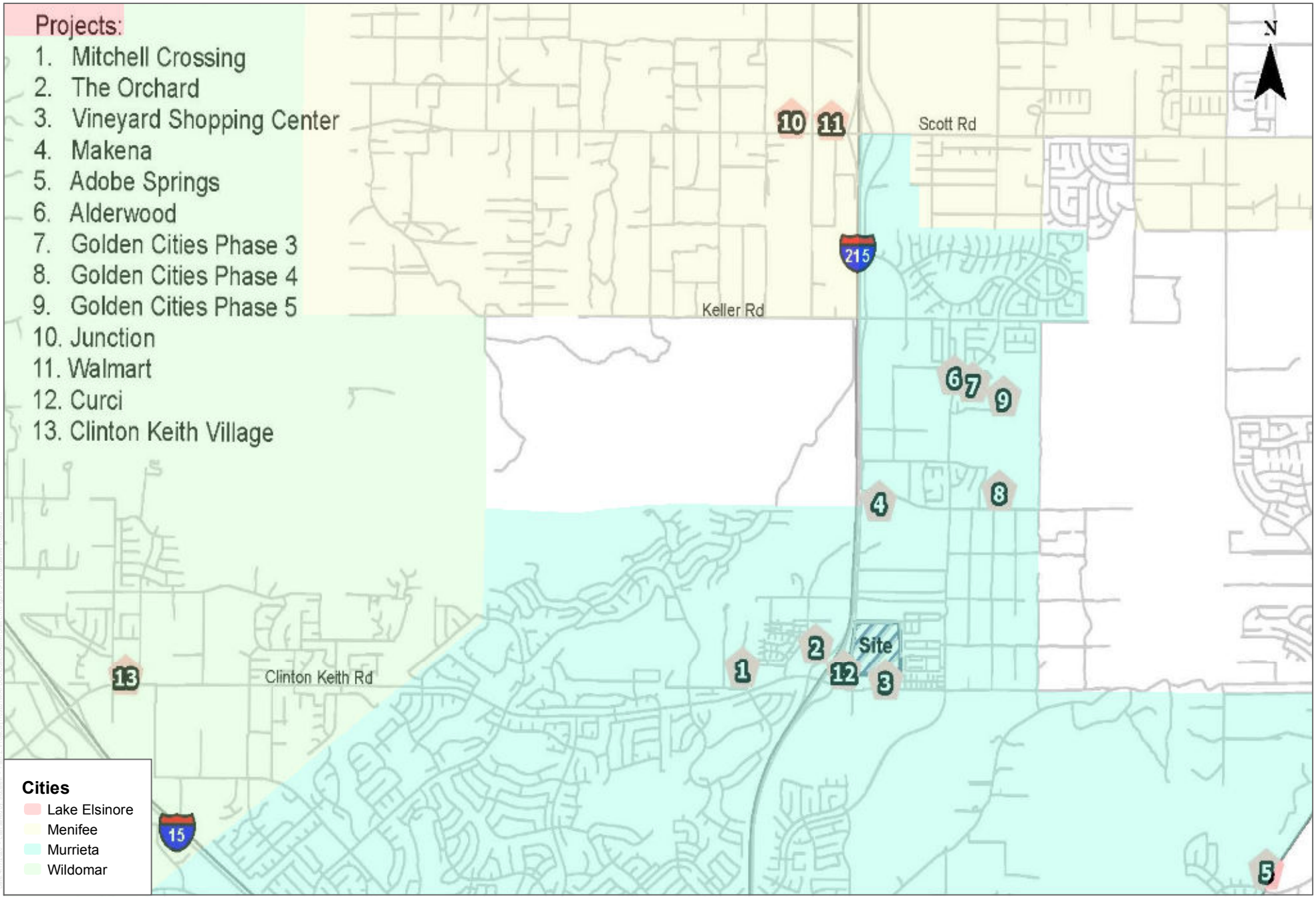
FIGURE 3-11

Landscape Plan

Costco/Vineyard II Retail Development Project, City of Murrieta, California

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SOURCE: Kittelson & Associates 2019, Riverside County 2019

DUDEK

0 1,850 3,700 Feet

FIGURE 3-12

Cumulative Projects

Costco/Vineyard II Retail Development Project, City of Murrieta, California

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4 Environmental Analysis

The following environmental analyses provide information relative to 17 environmental topics as they pertain to the proposed Costco/Vineyard II Retail Development Project (project). Each section of this chapter describes existing environmental and regulatory conditions, presents the criteria used to determine whether an impact would be significant, analyzes significant impacts, identifies mitigation measures for each significant impact, discusses the significance of impacts after mitigation is applied, and discusses cumulative impacts.

This chapter includes a separate section for each of the following issue areas:

- Section 4.1, Aesthetics
- Section 4.2, Air Quality
- Section 4.3, Biological Resources
- Section 4.4, Cultural Resources
- Section 4.5, Geology and Soils
- Section 4.6, Greenhouse Gas Emissions
- Section 4.7, Hazards and Hazardous Materials
- Section 4.8, Hydrology and Water Quality
- Section 4.9, Noise
- Section 4.10, Population and Housing
- Section 4.11, Public Services
- Section 4.12, Recreation
- Section 4.13, Transportation
- Section 4.14, Tribal Cultural Resources
- Section 4.15, Utilities and Service Systems
- Section 4.16, Energy
- Section 4.17, Wildfire

Agriculture and forestry resources and mineral resources were all considered to be less than significant or to have no impact in the Initial Study. These environmental topics are discussed in Section 5.4, Effects Found Not to Be Significant, of Chapter 5, Other CEQA Considerations, of this Environmental Impact Report (EIR), and are not discussed in further detail pursuant to the California Environmental Quality Act (CEQA) Guidelines, Section 15128 (14 CCR 15000 et seq.). The project site does not contain any agriculture, forestry resources, or mineral resources as defined by the State Mining and Reclamation Act or the City of Murrieta's General Plan.

Additionally, impacts to Land Use and Planning were discussed in the Initial Study (Appendix A). The Initial Study determined that the project would not physically divide an established community, nor would the project conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including a general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect. The Initial Study did, however, conclude that the project could potentially conflict with an applicable habitat conservation plan or natural community conservation plan, and stated that the Draft EIR would analyze these potential impacts. However, in December 2018, the California Natural Resources Agency adopted final text to a comprehensive update to the CEQA Guidelines (2018 Update). The 2018 Update

included modifications to the land use planning threshold regarding conflicts with an applicable land use plan, policy, or regulation (additions are shown in underline and deletions are shown in ~~strikeout~~):

> Would the project cause a significant environmental impact due to a conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project adopted for the purpose of ~~(including, but not limited to the general plan, specific plan, local coastal plan, or zoning ordinance)~~ avoiding or mitigating an environmental effect?

Additionally, the 2018 Update moved the discussion pertaining to habitat conservation plans and natural community conservation plans to the biological resources section.

With regard to the conflicts with an applicable land use plan, policy, or regulation, the proposed project would not cause a significant environmental impact due to a conflict with an applicable plan, policy, or regulation, since the project would not conflict with an applicable land use plan, policy, or regulation of an agency with jurisdiction over the project. Furthermore, because the analysis of the project's consistency with habitat conservation plans and natural community conservation plans is discussed in the biological resources section of this EIR, impacts to land use and planning will not be discussed in further detail. Urban decay, a related topic to land use and planning, is discussed in Chapter 5.

The remainder of the CEQA checklist topics have been updated to reflect the 2018 Update throughout this EIR.

Chapter 6 analyzes alternatives, and Chapter 7 includes the list of preparers.

Analysis Format

This project EIR assesses how the proposed project would impact the issue areas listed above. Each environmental issue addressed in this EIR is presented in terms of the following subsections:

- **Introduction.** Discusses the resource area to be evaluated and describes the methodology used for the analysis. If applicable, this section includes a discussion of any surveys and documentation reviewed to conduct the analysis of existing conditions and potential impacts.
- **Existing Conditions.** Describes the existing setting on or surrounding the project site that may be subject to change as a result of implementation of the project. This setting describes the conditions that existed when the Notice of Preparation was sent to responsible agencies and the State Clearinghouse.
- **Relevant Plans, Policies, and Ordinances.** Describes relevant federal, state, and local policies and regulations pertaining to a particular issue area.
- **Thresholds of Significance.** Provides criteria for determining the significance of project impacts for each environmental issue.
- **Impacts Analysis.** Provides a discussion of the project's characteristics that may have an impact on the environment, includes a discussion of methodology as applicable, analyzes the nature and extent to which the proposed project is expected to change the existing environment, and indicates whether the project's impacts meet or exceed the levels of significance thresholds.
- **Mitigation Measures.** Identifies mitigation measures to reduce significant adverse impacts, if any, to the extent feasible.

- **Level of Significance after Mitigation.** Provides a discussion of significant adverse environmental impacts that cannot be feasibly mitigated or avoided, significant adverse environmental impacts that can be feasibly mitigated or avoided, and adverse environmental impacts that are not significant, if any.
- **Cumulative Impacts.** Provides a discussion of the past, present, and reasonably foreseeable projects relevant to each resource analysis, and documents cumulatively considerable environmental impacts that cannot be feasibly mitigated or avoided, cumulatively considerable environmental impacts that can be feasibly mitigated or avoided, and environmental impacts that are not cumulatively considerable. Mitigation measures to reduce cumulative impacts are included where necessary.
- **References**. Lists the sources cited during preparation of the EIR.

Cumulative Projects Analysis

Section 15130(b)(1)(A) of the CEQA Guidelines (14 CCR 15000 et seq.) allows for the preparation of a list of past, present, and reasonably anticipated future projects as a viable method of determining cumulative impacts. Table 3-2, Related Projects, in Chapter 3, Project Description, presents the cumulative projects accounted for in this EIR.

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4.1 Aesthetics

This section describes the existing visual setting of the proposed Costco/Vineyard II Retail Development Project (project) site and vicinity, identifies associated regulatory requirements, and evaluates potential impacts of the proposed project.

4.1.1 Existing Conditions

4.1.1.1 Existing Visual Character and Quality of the Project Site

The approximately 26.3-acre project site is located within the Paloma Valley, which stretches from the Antelope Hills west of Interstate (I) 215 across the valley to the foothills in the east. The Paloma Valley is generally bounded by Bell Mountain and the Menifee Valley to the north, the Hogback Hills to the south, and the Sedco Hills to the southwest. The project site is located east of I-215 and is bounded by vacated Antelope Road to the west, residential development to the east, and vacant undeveloped land to the north and south.

Prior to 2006, the project site and surrounding properties were undeveloped and featured two low-lying hills. The hills and surrounding slopes featured a mix of bare soils and stands of low-growing shrubs and grasses. Elevations range from approximately 1,510 to 1,605 feet above mean sea level. In 2006, the City approved an Initial Study and permit for mass grading for an approximately 18.7-acre portion of the project site (Antelope and Cape Aire Mass Grading Plan, EA 2005-1763). Until termination of that grading operation in December 2019, soil and rocks removed from the site were sold by North County Sand and Gravel to surrounding construction operations for use as clean fill material. As part of that operation, the majority of the project site, as well as the Vineyard I property immediately south of the project site, has been graded and excavated, resulting in an expanse of bare soil with stockpiles of gravel, sand, and boulders distributed throughout the site. Over the course of these operations, the topography of the area was changing as fill was removed from the site. Except for a pole-mounted transformer located at the northwestern corner of the site, there are no permanent structures on site.

The North County Sand and Gravel mass grading operation covered the majority of the project site, but its eastern edges have not yet been graded and can be characterized as disturbed land. This area is generally flat and south sloping. It features predominantly bare ground and compacted soils with a sparse covering of non-native plant species and other disturbance-tolerant plant species. There are two small natural catch basins for stormwater siltation and pollution prevention purposes, one located at the southeast corner of the project site and the other at the northwest corner.

4.1.1.2 Existing Visual Character and Quality of the Surrounding Area

The project site is surrounded by commercial development, residential development, a high school, and vacant land. Figure 3-3, Surrounding Land Uses, shows specific land uses located in the immediate vicinity of the project site.

The property immediately south of the project site has also been part of the mass grading operation and is also the site of the Vineyard I project, which is currently under construction. Immediately west of the project site lies the vacated portion of old Antelope Road, followed by a narrow undeveloped property. This undeveloped property is a westward sloping, vacant site that contains non-native grasses and low-growing scattered shrubs. This property is proposed for development of the Vineyard III commercial development. The property north of the project site is the

least disturbed of the undeveloped properties and features thick stands of California buckwheat (*Eriogonum fasciculatum*) among various non-native grasses.

Although land on three sides of the project site is currently vacant, as discussed above, the project site is located in a generally urbanized and developed area of the City (see Figure 3-3 for a map of uses in the vicinity of the project site). The area east of the project site includes a residential development with single-family and multi-family units. An approximately 6-foot-high concrete masonry unit split faced block wall separates these residences from the project site, along with a row of pepper trees and a drainage area. Clinton Keith Road runs parallel to the southern border of the property south of the project site (i.e., the Vineyard I site). On the southern side of Clinton Keith Road, Vista Murrieta High School sits on a 60-acre lot. The school is approximately 0.1 miles away from the project site. It includes instructional classrooms, three parking lots, eight tennis courts, a baseball field, outdoor pool, football stadium, and two softball fields. West of the school is a high-density multi-family residential development that occupies approximately 27 acres and is approximately 0.1 miles from the project site. Access to this multi-family development is taken via Creighton Avenue from Clinton Keith Road. I-215 is located approximately 200 feet west of the project site, followed by large retail development known as The Orchard, which is located west of the freeway. This development features a variety of uses, including a gas station, bank, fast food restaurants, and several retail pads. The largest retail pad features a Super Target store, which is approximately 0.2 miles northwest of the project site. The property north of the project site is vacant undeveloped land, followed by an approximately 9-acre nursery, a single-family home, and two construction storage yards. A bus storage and bus refurbishment facility is located just north of these uses and approximately 0.5 miles from the project site.

4.1.1.3 Light and Glare

The project site is located in an area where nighttime lighting is a relatively common feature. Existing light sources in the area include streetlights installed along I-215, Clinton Keith Road, Antelope Road, Creighton Avenue, and local neighborhood roads; exterior and interior lighting associated with residential, commercial, and school development in the surrounding area; lighting from signage associated with commercial development along the I-215 corridor; and lights from motorists. On occasion, nighttime lighting in the area includes lighting associated with the Vista Murrieta High School football stadium.

Glare is the result of sharply reflected light caused by sunlight or artificial light reflecting from highly finished surfaces such as window glass or brightly colored surfaces, and the direct view of a bright, unshielded light source. Glare can be uncomfortable (discomfort glare) and/or disabling (disability glare). Glare decreases visibility, but the level of receptors' sensitivity to glare can vary widely. Potential sources of glare in the project area are limited and proposed light sources are shielded to only allow light to go downward and not to the sides.

The project site is located approximately 24 miles northwest of the Mount Palomar Observatory and is therefore within Zone B (15- to 45-mile radius) of the Mount Palomar Nighttime Lighting Policy Area.

4.1.2 Relevant Plans, Policies, and Ordinances

Federal

There are no applicable federal regulations regarding the protection of visual resources that would be applicable to the proposed project or the project site.

State

The California Scenic Highway Program

California's Scenic Highway Program was created by the state legislature in 1963. This program's purpose is to "preserve and protect scenic highway corridors from change that would diminish the aesthetic value of lands adjacent to highways" (Caltrans 2014). The state laws governing the Scenic Highway Program are found in the Streets and Highways Code, Section 260 et seq. The California Scenic Highway System includes a list of highways that either have already been designated as scenic highways or that are eligible for designation as scenic highways. There are no state designated or eligible scenic highways in the project area (Caltrans 2019).

California Building Standards Code

Title 24 of the California Building Standards Code serves as the basis for the design and construction of buildings in California. In addition to safety, sustainability, new technology, and reliability, the California Building Standards Code addresses light pollution and glare hazards through the establishment of maximum allowable backlight, uplight, and glare ratings (State of California 2011). The following components of Title 24 include standards related to lighting.

Title 24, Part 6 – California Energy Code

The California Energy Code stipulates allowances for lighting power and provides lighting control requirements for various lighting systems, with the aim of reducing energy consumption through efficient and effective use of lighting equipment.

Title 24, Part 11 – California Green Building Standards Code

The California Green Building Standards Code, which is Part 11 of Title 24, is commonly referred to as the CALGreen Code. Paragraph 5.1106.8, Light pollution reduction, requires that all non-residential outdoor lighting comply with the minimum requirements in the California Energy Code or the applicable local ordinance if more stringent.

California Vehicle Code

Chapter 2, Article 3 of the California Vehicle Code stipulates limits to the location of light sources that may cause glare and impair the vision of drivers.

Article 3, Offenses Relating to Traffic Devices [21450–21468] (Article 3 enacted by Stats. 1959, Ch. 3.), Section 21466.5, stipulates that no person shall place or maintain or display, upon or in view of any highway, any light of any color of such brilliance as to impair the vision of drivers upon the highway.

Local

County of Riverside General Plan

The Circulation Element of the County of Riverside General Plan identifies I-215 as a County Eligible Scenic Highway (County of Riverside 2016), and the Circulation Element, Land Use Element, and Multipurpose Open Space Element contain policies related to the protection and maintenance of resources along scenic corridors and highways (County of Riverside 2015, 2016, 2017).

County of Riverside Ordinance 655 (Regulation of Light Pollution)

The intent of Ordinance 655 is to "restrict the permitted use of certain light fixtures emitting into the night sky undesirable light rays which have a detrimental effect on astronomical observation and research" (County of Riverside 1988). The ordinance establishes requirements for lamp source and shielding for outdoor lighting fixtures based on location: more stringent lighting standards are applicable to lands located within a 15-mile radius of Mount Palomar Observatory (these lands are located in "Zone A") than for lands located greater than 15 miles from the observatory (i.e., lands in "Zone B"). The project site is located approximately 24 miles from the observatory and would, thus, be subject to the lamp source and shielding requirements applicable to Zone B areas. Low-pressure sodium and lamp types of 4,050 lumens and less (including yellow LED lights and white LED lights with cut offs) are allowed (no shielding is required), and lamp types of 4,050 lumens and more are prohibited after 11:00 p.m. (County of Riverside 1988).

Murrieta General Plan 2035

The Conservation Element and Recreation and Open Space Element of the Murrieta General Plan 2035 (City of Murrieta 2011a, 2011b) include goals and policies related to the preservation of aesthetic resources. Following are the relevant goals and policies within the General Plan.

Conservation Element

Goal CSV-5 Hills and ridges are protected for their environmental and aesthetic values.

Policy CSV-5.1 Promote compliance with hillside development standards and guidelines to maintain the natural character and the environmental and aesthetic values of sloped areas.

Recreation and Open Space Element

Goal ROS-7 Open space areas are planned to protect, conserve, and utilize resources of unique character and value for the community.

Policy ROS-7.2 Designate open space to preserve habitat and scenic views of natural areas.

City of Murrieta Municipal Code

Title 16 of the City's Municipal Code contains regulations that identify the permitted land uses on all parcels in the City through assigned districts. It also identifies applicable use regulations, site development criteria (e.g., lot size, density/intensity, yard setbacks, open space, heights, parking, landscaped areas), performance standards, and general design regulations (e.g., site design, building orientation, access, parking areas, landscaping, fencing/screening, lighting, building design).

Section 16.18.100, Lighting, of the City's Municipal Code, contains regulations specific to lighting. These regulations include the following [original numbering and lettering retained throughout this section]:

A. Exterior lighting shall be:
   1. Architecturally integrated with the character of adjacent structure(s);
   2. Directed downward and shielded so that glare is confined within the boundaries of the subject parcel;

3. Installed so that lights do not blink, flash, or be of unusually high intensity or brightness; and
4. Appropriate in height, intensity, and scale to the uses they are serving. Outside and parking lot lighting shall not exceed 0.3 foot candles at residential property lines.

B. Security lighting shall be provided at all entrances/exits, to structures in multi-family zoning districts and nonresidential zoning districts. The minimum illumination shall be two-foot candles at ground level in front of the entrance/exit.

C. Light sources shall be shielded to direct light rays onto the subject parcel only. The light source, whether bulb or tube, shall not be visible from an adjacent property, with the exception of residential uses, sign illumination, traffic safety lighting, or public street lighting.

Similar to County of Riverside Ordinance 655, Section 16.18.100 of the City's Municipal Code establishes regulations to restrict the use of certain light fixtures that may have a detrimental effect on astronomical observation and research at the Mount Palomar Observatory. However, unlike the County of Riverside ordinance, the City's Municipal Code establishes a "Dark Sky Zone" that includes all areas located within a 30-mile radius of the observatory. Within the Dark Sky Zone (within which the project site is located), all outdoor lighting fixtures must be fully shielded or constructed such that emitted light rays are projected below the horizontal plane passing through the lowest point on the fixture from which light is emitted, and lighting shall be below 4050 lumens after 11:00 p.m.

Section 16.18.120, Screening and Buffering, of the City's Municipal Code provides standards for the screening and buffering of adjoining land uses, equipment, outdoor storage areas, and surface parking areas. Multi-family and nonresidential land uses are required to comply with the requirements of this section. The relevant standards of Section 16.18.120 of the City's Municipal Code are as follows:

A. Screening Between Different Land Uses. An opaque screen consisting of plant material and a masonry wall, a minimum of six feet in height, shall be installed along parcel boundaries whenever a commercial development adjoins a residential zoning district.

B. Mechanical Equipment, Utility Services, Loading Docks, and Refuse Areas. The manner and adequacy of the screening for mechanical equipment, utility services, loading docks and refuse areas shall consider the adjacent structures, land uses and zoning, as well as the overall site and building design.

1. All building-mounted and ground-mounted mechanical equipment and utility services (air conditioning, heating, cooling, elevator shafts, ventilation ducts and exhaust, equipment panels, etc.) shall be adequately screened from view in all horizontal directions as determined by the Director and in accordance with the following standards:
    a. The screening method shall be architecturally compatible and integrated with the site development in terms of design, materials, color, form, architectural style and landscaping.
    b. At a minimum, adequate screening shall be based on a line-of-sight in all directions from a point five (5) feet above the grade of the building finished floor at a distance of six-hundred and sixty (660) feet.
    c. Line-of-sight details shall be prepared by a qualified draftsperson, licensed contractor, licensed architect, registered civil engineer or licensed land surveyor and provided to the City.

C. Parking Areas Abutting Public Streets and Rights-of-Way. An opaque screen shall be installed along parking areas abutting public streets and rights-of-way. The screening shall have a height of not less than thirty (30) inches and not more than forty-two (42) inches at maturity. Where the finished elevation of a parking area is lower at the boundary line than an abutting property elevation by at least twenty-four (24) inches, the change in elevation may be used in lieu of, or in combination with, additional screening to satisfy the requirements of this subsection.

The opaque screen shall consist of one, or a combination, of the following:

1. Landscaped Berm. A berm constructed of earthen materials and landscaped to form an opaque screen;
2. Fences. A solid fence constructed of wood, or other materials a minimum nominal thickness of two inches to form an opaque screen; and/or
3. Walls, Including Retaining Walls. A wall of concrete, block, stone, brick, tile, or other similar type of solid masonry material, a minimum of six inches thick (Ord. 440-10 § 1, 2010; Ord. 182 § 2 (part), 1997).

Section 16.24, Hillside Development, contains regulations for the development of areas in the city that, because of their topography, require special consideration to ensure that they are developed in a way that substantially maintains their natural character and environmental and aesthetic values to implement the General Plan, and to provide for the safety, health, and welfare of the public. The provisions of Section 16.24 apply to uses and structures within areas that have a natural slope of 20% or greater and/or are designated on the significant features map on file with the Planning Department. Because the project site has been graded and excavated as part of the mass grading, no natural slopes exist on the project site, and the provisions of this section do not apply to the project or project site. Additionally, the project site is not listed on a significant features map.

Section 16.38, Sign Standards, contains regulations regulating the size, height, design, quality of materials, construction, location, lighting, and maintenance of signs and sign structures not enclosed within a building. Specifically, Section 16.38.060, Comprehensive Sign Program, allows for the development of a comprehensive sign program, which provides a means for the flexible application of sign regulations for multi-tenant projects. All comprehensive sign programs must be reviewed and approved by the Planning Director, who will issue a development plan permit for implementation of the comprehensive sign program.

Section 16.34.070, Development Standards for Off-Street Parking, establishes regulations for off-street parking areas. The relevant standards of Section 16.34.070 of the City's Municipal Code are as follows:

I. Lighting. Parking areas shall have lighting capable of providing adequate illumination for security and safety. Lighting standards shall be energy-efficient and in scale with the height and use of the on-site structure(s). All illumination, including security lighting, shall be directed downward, away from adjacent properties and public rights-of-way in compliance with Section 16.18.100 (Lighting).

Section 16.34.100, Off-Street Loading Space Requirements, establishes regulations for off-street loading space areas, which affects the aesthetic design of the proposed project. The relevant standards of Section 16.34.100 of the City of Murrieta's Municipal Code are as follows:

B. Standards for Off-Street Loading Areas. Off-street loading areas shall be provided in the following manner:
   1. Lighting. Loading areas shall have lighting capable of providing adequate illumination for security and safety. Lighting standards shall be energy-efficient and in scale with the height and use of adjacent structure(s) in compliance with Section 16.18.100 (Lighting);
   2. Loading Doors and Gates. Loading bays and roll-up doors shall be painted to blend with the exterior structure wall(s) and be located on the rear of the structure only. Bays and doors may be located on the side of a structure, away from a street frontage, where the director determines that the bays, doors, and related trucks will be adequately screened from view from adjacent streets;

3. Location. Loading spaces shall be located and designed as follows:
    b. Loading facilities shall be fully screened from view from adjacent public streets and freeways with architectural elements, landscaping or a combination of both.

4.1.3 Thresholds of Significance

The significance criteria used to evaluate project impacts to aesthetics are based on Appendix G of the California Environmental Quality Act (CEQA) Guidelines. According to Appendix G of the CEQA Guidelines, a significant impact related to aesthetics would occur if the project would:

1. Have a substantial adverse effect on a scenic vista.
2. Substantially damage scenic resources, including, but not limited to trees, rock outcroppings, and historic buildings within a state scenic highway.
3. In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings. (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, conflict with applicable zoning and other regulations governing scenic quality.
4. Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area.

Thresholds 1 and 2 were analyzed in the project's Initial Study (see Appendix A). The project site is located in a developed area of the City and is not located within the viewshed of any identified scenic vistas. As described in the Murrieta General Plan 2035 Final EIR, a scenic vista is described as "a view of undisturbed natural lands exhibiting a unique or unusual feature that comprises an important or dominant portion of the viewshed" (City of Murrieta 2011c). Given that the project site is currently the site of a mass grading operation within a developed part of the City, it was determined that the project site is not located within a scenic vista. Additionally, there are no designated or proposed state scenic highways within the vicinity of the project site. For these reasons, the impacts of the project with respect to scenic vistas and state scenic highways were determined to be nonexistent or less than significant, and will not be analyzed further in this Environmental Impact Report (EIR).

4.1.4 Impacts Analysis

In non-urbanized areas, would the project substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage points). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?

Less-than-Significant Impact. Section 21071 of the California Public Resources Code (i.e., CEQA) defines an "urbanized area" as "(a) an incorporated city that meets either of the following criteria: (1) Has a population of at least 100,000 persons, or (2) Has a population of less than 100,000 persons if the population of that city and not more than two contiguous incorporated cities combined equals at least 100,000 persons." As of January 1, 2019, the U.S. Census Bureau estimated the population of the City to be 118,125 persons (DOF 2019). Therefore, the City is located within an urbanized area as defined by CEQA.

To ensure that both current and future development within the City is designed and constructed to conform to existing visual character and quality of the surrounding built environment, the City's Municipal Code includes design

standards, specific to each Zoning District, related to building height, parking, landscaping requirements, and other visual considerations. The purpose is to regulate and restrict the uses of buildings and structures, and to encourage the most appropriate use of land. The City's General Plan Land Use Map designates the project site as Commercial (C), and the City's Zoning Map shows the site as zoned Regional Commercial (RC). The proposed project will be required to be developed in accordance with the existing land use and zoning designations. The project's consistency with these land use and zoning designations would be reviewed during the plan-check phase of project review. Therefore, because the project would be required to comply with all applicable regulations governing scenic quality, potential impacts would be less than significant.

Additionally, development of the project would be consistent with surrounding development and would not degrade the existing visual character of the project site and its surroundings. The project site is located in an urbanized area of the City and is currently characterized as an undeveloped site that has been the site of rock, sand, and gravel removal. As indicated above, the City's hillside development standards (set forth in the City's Municipal Code Section 16.24) apply to uses and structures within areas that have a natural slope of 20% or greater and/or are designated on the significant features map on file with the Planning Department. Because the project site has been graded and excavated as part of the mass grading, no natural slopes exist on the project site, and the provisions of this section do not apply to the project or project site. Additionally, the project site is not listed on a significant features map.

Construction of the project would require the use of heavy machinery such as large trucks, cranes, bull dozers, and other equipment needed for construction activities. Given that the project site has already been subject to construction-like activities as part of the mass grading, construction of the project would not degrade the visual character or quality of public views of the site. Furthermore, these activities would be temporary, and would conclude with completion of construction of the project.

Once construction of the project is complete, the condition of the site would change from an undeveloped site with grading activities to a developed condition for commercial purposes. The project would be built consistent with existing patterns of development in the surrounding area, which is becoming more urbanized, including the residential neighborhoods east and southwest of the project site, Vista Murrieta High School, the Vineyard I project under construction to the south, and the retail development west of I-215 known as The Orchard (see Figures 3-3 through 3-7, Building Elevations, in Chapter 3, Project Description). In addition, the project would be subject to design review by the City and would meet the City's conditions of approval, which will ensure that proposed structures, landscaping, signs, and perimeter walls would be consistent with the City's General Plan and Municipal Code. To minimize the visual impact of large retail warehouses and retail pads, the design would integrate design techniques such as compatible color schemes, landscaping, and varying parapet cap heights. Project buildings would vary in height from approximately 24 to 39.5 feet, and would be constructed of materials in warm, natural earth tones consistent with the architectural detailing of the more recent buildings in the area. Using these design elements would break up long elevations horizontally and vertically. The technique of breaking a long elevation into smaller elements would be used to create a more visually interesting building that is at a pedestrian-friendly scale. The color and material board for the project is consistent with the previously approved retail project immediately south of the project site, which uses real natural rock on sign bases, mansards, and column bases.

The landscape plan would include a mix of drought-tolerant shrubs and grasses and a variety of shade trees to be used throughout the parking field and along the street that are appropriate for the climate in Murrieta (see Figure 3-8, Landscaping Plan, in Chapter 3, Project Description). The landscape plan would include a "buffer yard" (a 30-foot-wide vegetated area between commercial and residential land uses) along the eastern property line of the project site. The buffer yard would contain a row of trees, along with other low-growing shrubs that would soften the transition between the project and residential uses. The trees would also partially obstruct private views of the

commercial buildings from the residences east of the project site. Two bio-filtration basins (depressed landscaped areas to collect stormwater and runoff) would also be located at the northeast and southeast corners of the project site. The exterior details of the project, including architectural character, materials, and landscaping, were designed to blend together to create a look and feel that acknowledges the design of the surrounding environment. Therefore, implementation of the proposed project consistent with the development standards in the City's Municipal Code, as required by the City's conditions of approval and as reviewed as part of the plan check process, would not substantially degrade the existing visual character or quality of the site or its surroundings or result in significant visual impacts. Impacts would be less than significant and no mitigation is required.

Would the project create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?

Light

Less-than-Significant Impact. Currently, there are no existing lighting sources on the project site since it is undeveloped and vacant; however, the project site is located in an area where nighttime lighting is a relatively common feature. Existing light sources in the area include streetlights installed along I-215, Clinton Keith Road, Antelope Road, Creighton Avenue to the south of the project site, and local neighborhood roads; exterior and interior lighting associated with residential, commercial, and school development in the surrounding area; lighting from signage associated with commercial development along the I-215 corridor; and lights from motorists. On occasion, nighttime lighting in the area includes lighting associated with the Vista Murrieta High School football stadium.

The project would include exterior lighting for safety and security purposes. The project would comply with the California Green Building Standards, County ordinances, and the City's Municipal Code requirements with respect to lighting. Parking and site lighting would incorporate cutoff lenses to keep light from spilling over onto adjacent properties and to keep light sources from being visible on or directing light rays onto adjoining property. Lighting on the project site would be reduced to levels below 4050 lumens prior to 11:00 p.m. to ensure compliance with Section 16.18.100 of the City's Municipal Code and to reduce nighttime lighting impacts on the Mount Palomar Observatory. A lighting plan for the project would be submitted to City staff for review and approval to ensure compliance with the City's lighting regulations (City's Municipal Code Section 16.18.100) and with the Palomar Observatory lighting requirements as established in City's Municipal Code Section 16.18.110.

Light spillage refers to the undesirable condition in which light is cast where it is not wanted. The City has not established a quantitative threshold of significance for light spillage. However, the Electric Power Research Institute and the Institute of Lighting Engineers have established recommendations for lighting "spillage" onto adjacent residential properties. They have determined that light spillage of up to 0.3 foot-candles would not result in significant illumination affecting adjacent residential properties (EPRI 2000; ILE 2011). This standard is incorporated into the City's Municipal Code, which prohibits light spillage onto residential areas in excess of 0.3 foot-candles at residential property lines.

The photometric plan (see Figure 4.1-1, Photometric Plan) completed for the project's parking lot lighting illustrates that the project would comply with the Municipal Code in that no light (0.0 foot-candles) would spill over the project's eastern border onto adjacent residential properties. Light spillage would occur at up to 1.3 foot-candles on the project's northern, western, and southern borders on future commercial uses. However, given that future commercial development is planned to occur at these locations, light spillage would not be considered a nuisance to the planned uses.

Building facades would include a variety of signs on each storefront for identification purposes. Additionally, two monument signs would be installed along Warm Springs Parkway at Vineyard II driveways. All project signage, including signage part of the monument signs, would be designed consistent with the Vineyard Sign Program, which has been prepared as part of separate projects (i.e., the Vineyard I project and the Vineyard III project [also referred to as the "related projects" for this analysis]) pursuant to Section 16.38, Sign Standards, of the City's Municipal Code. While the exact sign design would vary based on the occupant of each store, signs would feature a unified architectural theme that is consistent with the overall theme of the development. Under the proposed Vineyard Sign Program, signs may be comprised of face-illuminated channel letters. However, pursuant to Section 16.38.110 (D) of the City's Municipal Code, all illuminated signs are required to be designed in such a way that limits direct illumination of any object other than the sign. Additionally, Section 16.38.110 (D) stipulates that light from an illuminated sign shall not be of an intensity or brightness that may interfere with the reasonable enjoyment of surrounding residential properties. These standards are incorporated into the City's Municipal Code for the purposes of ensuring that potential light impacts are minimized to acceptable levels. Pursuant to Section 16.38 of the City's Municipal Code, the design and illumination specifications of all proposed signage underwent review by City's Planning Director and was approved on November 4, 2019. As a result of this process, project signage has been designed such that it does not have adverse effects on receptors that would be sensitive to nighttime lighting, such as surrounding residences. Moreover, illumination from project signage would either be directed west towards Warm Springs Parkway and away from residences to the east (as in the case for the Vineyard II project signage) or would be blocked from affecting residences to the east by the Vineyard II buildings and landscape buffer along the eastern boundary of the project site.

Although the lighting proposed by the project would change the lighting on the site compared to existing conditions, the project would not create a new source of substantial light that would adversely affect daytime or nighttime views in the area. Given these factors, the contribution of light emitted from the project would be less than significant.

Glare

Less-than-Significant Impact. The project would comply with City's Municipal Code requirements with respect to glare, including Section 16.18.100(A)(2), which requires that exterior lighting be directed downward and that shielding be provided so that glare is confined within the boundaries of the site. Additionally, as discussed above, illumination from project signage would either be directed west towards Warm Springs Parkway and away from residences to the east (as in the case for the Vineyard II project signage) or would be blocked from affecting residences to the east by the Vineyard II buildings. As a result, project signage would not affect receptors who may be sensitive to nighttime lighting, such as the residences east of the project site. Additionally, the landscape buffer along the eastern boundary of the project site would further shield these residences from any potential project-related glare.

The project would include two drive-through restaurants where motorists would line up while waiting for service. Given that the restaurants would operate during nighttime hours, headlights from motorists' vehicles could shine onto oncoming traffic, creating a potential hazard to opposing motorists. However, these drive-through restaurants would be required to comply with Section 16.44.080 of the City's Municipal Code, which requires drive-through aisles to be appropriately screened with a combination of landscaping, low walls, and/or berms to prevent headlight glare from impacting adjacent streets and parking lots. These drive-through lanes would be below the adjoining street grade such that headlights would not shine onto oncoming traffic on Warm Springs Parkway, and they would also be screened as required by code. The project would incorporate metal and glass into the façade of the buildings. The color of the buildings' exteriors would be warm, natural earth tones that would blend with the colors of the surrounding landscape. The windows used in the project would have glazing that is predominately lightly tinted in a natural glass color that has a low reflectance. As a result, the reflection of natural or artificial light off the structural façade would not cause any visual

impacts or result in safety issues along adjacent public roads, Clinton Keith Road, Antelope Road, the future Warm Springs Parkway, or I-215. Additionally, the project would be designed in accordance with the California Building Standards Code, which addresses light pollution and glare hazards. As such, impacts would be less than significant and no mitigation is required.

4.1.5 Mitigation Measures

Impacts related to aesthetics would be less than significant. Therefore, no mitigation measures are necessary.

4.1.6 Level of Significance After Mitigation

Since there would be no significant impacts needing mitigation, residual impacts would be less than significant.

4.1.7 Cumulative Impacts

The Murrieta General Plan 2035 designates land uses in the vicinity of the project site, including commercial uses immediately north, west, and south of the project site (City of Murrieta 2011d). Commercial development combined with the proposed project may have cumulative impacts on the visual landscape of the area, and residents and visitors may notice the visual effects of increased development. However, the proposed project would not block a scenic view or result in the change of a unique scenic resource. In addition, the project would not conflict with applicable zoning and other regulations governing scenic quality. The anticipated development is similar in scale and approach to others along the I-215 corridor, and is consistent with the expectations of the City as expressed in its General Plan. The change in the appearance of the surrounding properties was anticipated as part of the City's existing General Plan designation that calls for regional commercial development on and around the project site (City of Murrieta 2011d). The project would have the potential to result in a cumulative impact if, in combination with other projects, it would result in a significant increase in light and glare at adjoining properties. In order to contribute to cumulative light or glare impacts, related projects must be located in the same field of view as the project. As such, impacts with respect to light and glare are typically localized. Because of the project's proximity to the related projects, there exists the possibility for the project to result in a cumulative light and glare impact. However, the project would adhere to existing regulations and requirements that govern light and glare, and therefore the project would avoid light trespass and glare. All other projects, including the related projects, would also be subject to applicable local, regional, and state regulations regarding light and glare and the City's Municipal Code requirements for project signage, which would ensure that cumulative light and glare impacts are minimized. Additionally, the related projects' participation in the approved Vineyard Sign Program, which includes design standards for all project signage, as well as conditions of approval, would further ensure cumulative light and glare impacts are minimized.

As with the proposed project, future developments would be required to comply with the City's Municipal Code requirements and General Plan policies that regulate the visual characteristics of projects, including prevention of light spillover onto adjoining properties, and the County of Riverside Ordinance 655 (Regulation of Light Pollution), which minimizes regional nighttime glare and lighting impacts. In addition, future development would be required to undergo its own CEQA review, which may require mitigation measures to reduce aesthetic impacts. Because the General Plan and the City's Municipal Code would regulate design of the anticipated development of the project site, and the City design review would regulate the appearance of all future projects and the amount of light in the night sky, the proposed project would result in a less-than-significant impact to aesthetics when measured cumulatively with future development occurring in the City.

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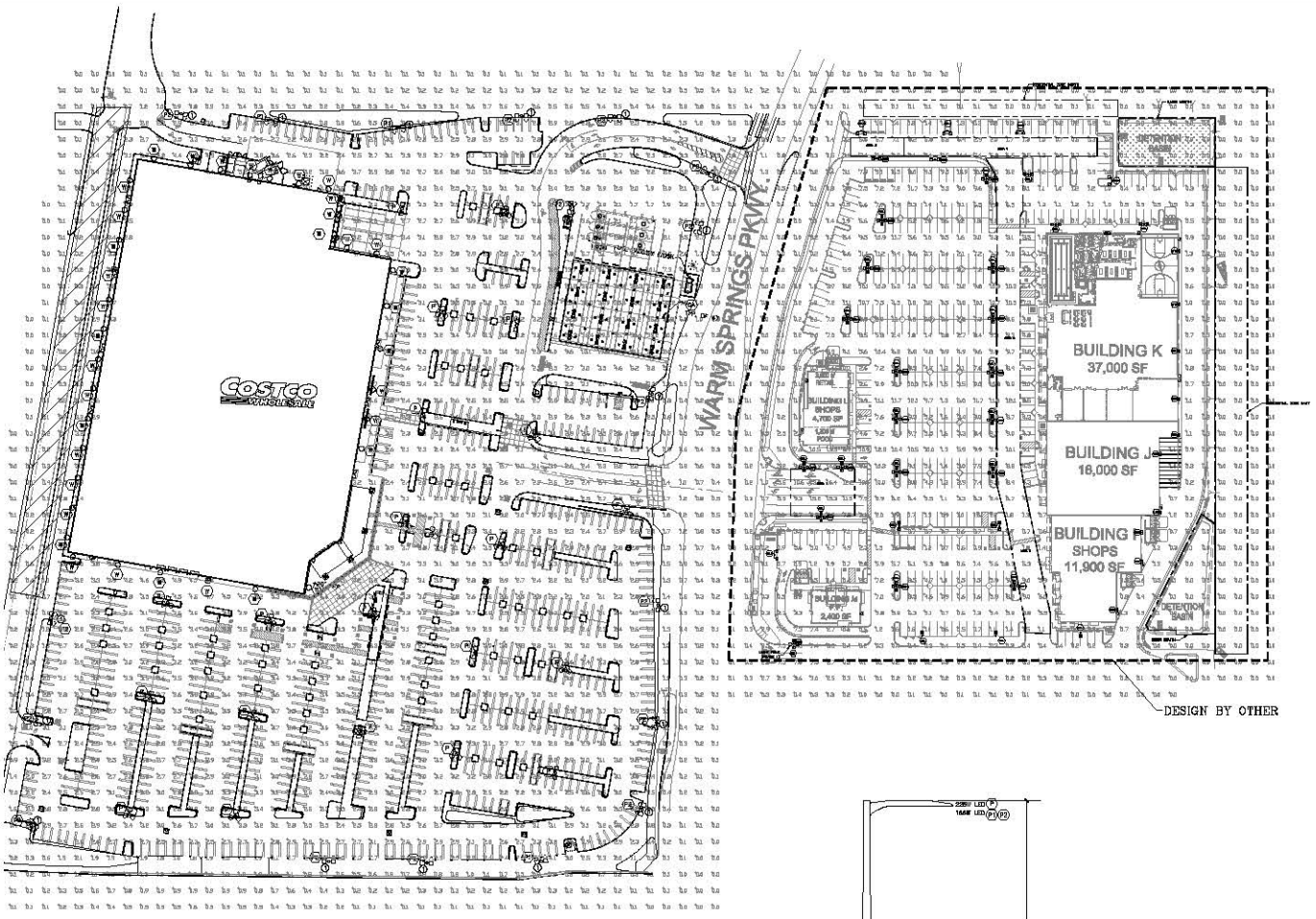
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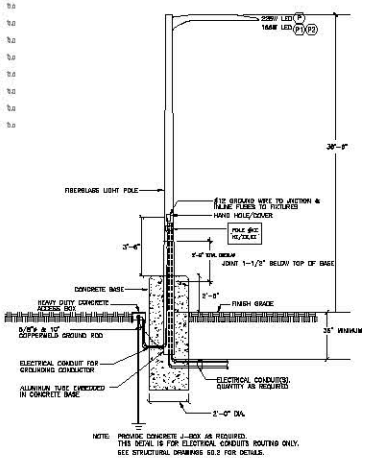
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SITE PHOTOMETRIC PLAN
SCALE: 1" = 60'-0"



COSTCO POLE DETAIL
SCALE: NTS

SOURCE: MG2, Inc

DUDEK

FIGURE 4.1-1

Photometric Plan

Costco/Vineyard II Retail Development Project, City of Murrieta, California

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4.2 Air Quality

This section describes the existing setting related to air quality, identifies associated regulatory requirements, evaluates potential impacts, and identifies mitigation measures related to implementation of the proposed Costco/Vineyard II Retail Development Project (project). The air quality analysis is based on the Air Quality and Greenhouse Gas Emissions Analysis Technical Report prepared for the project (Appendix B).

4.2.1 Existing Conditions

Meteorological and Topographical Conditions

The primary factors that determine air quality are the locations of air pollutant sources and the amount of pollutants emitted. Meteorological and topographical conditions, however, are also important. Factors such as wind speed and direction, air temperature gradients and sunlight, and precipitation and humidity interact with physical landscape features to determine the movement and dispersal of air pollutants. The South Coast Air Basin's (SCAB's) air pollution problems are a consequence of the combination of emissions from the nation's second largest urban area, meteorological conditions adverse to the dispersion of those emissions, and mountainous terrain surrounding the SCAB that traps pollutants as they are pushed inland with the sea breeze (SCAQMD 2017). Meteorological and topographical factors that affect air quality in the SCAB are described below.[1]

Climate

The SCAB is characterized as having a Mediterranean climate (typified as semiarid with mild winters, warm summers, and moderate rainfall). The general region lies in the semi-permanent high-pressure zone of the eastern Pacific; as a result, the climate is mild and tempered by cool sea breezes. The usually mild climatological pattern is interrupted infrequently by periods of extremely hot weather, winter storms, or Santa Ana winds. The extent and severity of the air pollution problem in the SCAB is a function of the area's natural physical characteristics (e.g., weather and topography) and of manufactured influences (e.g., development patterns and lifestyle). Moderate temperatures, comfortable humidity, and limited precipitation characterize the climate in the SCAB. The average annual temperature varies little throughout the SCAB, averaging 75°F. However, with a less-pronounced oceanic influence, the eastern inland portions of the SCAB show greater variability in annual minimum and maximum temperatures. All portions of the SCAB have recorded temperatures over 100°F in recent years. Although the SCAB has a semiarid climate, the air near the surface is moist because of the presence of a shallow marine layer. Except for infrequent periods when dry air is brought into the SCAB by offshore winds, the ocean effect is dominant. Periods with heavy fog are frequent, and low stratus clouds, occasionally referred to as "high fog," are a characteristic climate feature. Annual average relative humidity is 70% at the coast and 57% in the eastern part of the SCAB. Precipitation in the SCAB is typically 9 to 14 inches annually and is rarely in the form of snow or hail because of typically warm weather. The frequency and amount of rainfall is greater in the coastal areas of the SCAB.

In the City of Murrieta (City), the climate is typically warm during summer when temperatures tend to be in the 80s and cool during winter when temperatures tend to be in the 50s. The warmest month of the year is August with an average maximum temperature of 98°F; whereas, the coldest month of the year is December with an average minimum temperature of 34°F. The wettest month of the year is February with an average rainfall of 2.86 inches (City of Murrieta 2011).

[1] The discussion of meteorological and topographical conditions of the SCAB is based on information provided in the Final 2016 Air Quality Management Plan (SCAQMD 2017).

Sunlight

The presence and intensity of sunlight are necessary prerequisites for the formation of photochemical smog. Under the influence of the ultraviolet radiation of sunlight, certain "primary" pollutants (mainly reactive hydrocarbons and oxides of nitrogen (NO_x)[2]) react to form "secondary" pollutants (primarily oxidants). Since this process is time dependent, secondary pollutants can be formed many miles downwind of the emission sources. Southern California also has abundant sunshine, which drives the photochemical reactions that form pollutants such as ozone (O_3) and a substantial portion of fine particulate matter ($PM_{2.5}$, particles less than 2.5 microns in diameter). In the SCAB, high concentrations of O_3 are normally recorded during the late spring, summer, and early autumn months, when more intense sunlight drives enhanced photochemical reactions. Due to the prevailing daytime winds and time-delayed nature of photochemical smog, oxidant concentrations are highest in the inland areas of Southern California.

Temperature Inversions

Under ideal meteorological conditions and irrespective of topography, pollutants emitted into the air mix and disperse into the upper atmosphere. However, the Southern California region frequently experiences temperature inversions in which pollutants are trapped and accumulate close to the ground. The inversion, a layer of warm, dry air overlaying cool, moist marine air, is a normal condition in coastal Southern California. The cool, damp, and hazy sea air capped by coastal clouds is heavier than the warm, clear air, which acts as a lid through which the cooler marine layer cannot rise. The height of the inversion is important in determining pollutant concentration. When the inversion is approximately 2,500 feet above mean sea level, the sea breezes carry the pollutants inland to escape over the mountain slopes or through the passes. At a height of 1,200 feet above mean sea level, the terrain prevents the pollutants from entering the upper atmosphere, resulting in the pollutants settling in the foothill communities. Below 1,200 feet above mean sea level, the inversion puts a tight lid on pollutants, concentrating them in a shallow layer over the entire coastal basin. Usually, inversions are lower before sunrise than during the daylight hours.

Mixing heights for inversions are lower in the summer and inversions are more persistent, being partly responsible for the high levels of O_3 observed during summer months in the SCAB. Smog in Southern California is generally the result of these temperature inversions combining with coastal day winds and local mountains to contain the pollutants for long periods, allowing them to form secondary pollutants by reacting in the presence of sunlight. The SCAB has a limited ability to disperse these pollutants due to typically low wind speeds and the surrounding mountain ranges.

As with other cities within the SCAB, the City is susceptible to air inversions, which trap a layer of stagnant air near the ground where pollutants are further concentrated. These inversions produce haziness, which is caused by moisture, suspended dust, and a variety of chemical aerosols emitted by trucks, automobiles, furnaces, and other sources. Elevated particles less than 10 microns in diameter (PM_{10}) and $PM_{2.5}$ concentrations can occur in the SCAB throughout the year, but occur most frequently in fall and winter. Although there are some changes in emissions by day of the week and season, the observed variations in pollutant concentrations are primarily the result of seasonal differences in weather conditions.

[2] NO_x is a general term pertaining to compounds of nitric oxide (NO), nitrogen dioxide (NO_2), and other oxides of nitrogen.

Pollutants and Effects

Criteria Air Pollutants

Criteria air pollutants are defined as pollutants for which the federal and state governments have established ambient air quality standards, or criteria, for outdoor concentrations to protect public health. The federal and state standards have been set, with an adequate margin of safety, at levels above which concentrations could be harmful to human health and welfare. These standards are designed to protect the most sensitive persons from illness or discomfort. Pollutants of concern include O_3, nitrogen dioxide (NO_2), carbon monoxide (CO), sulfur dioxide (SO_2), PM_{10}, $PM_{2.5}$, and lead. These pollutants, as well as toxic air contaminants (TACs), are discussed in the following paragraphs.[3] In California, sulfates, vinyl chloride, hydrogen sulfide, and visibility-reducing particles are also regulated as criteria air pollutants. A more detailed discussion of health effects of criteria air pollutants is provided in Appendix B.

Ozone. O_3 is a strong-smelling, pale blue, reactive, toxic chemical gas consisting of three oxygen atoms. It is a secondary pollutant formed in the atmosphere by a photochemical process involving the sun's energy and O_3 precursors. These precursors are mainly NO_x and volatile organic compounds (VOCs). The maximum effects of precursor emissions on O_3 concentrations usually occur several hours after they are emitted and many miles from the source. Meteorology and terrain play major roles in O_3 formation, and ideal conditions occur during summer and early autumn on days with low wind speeds or stagnant air, warm temperatures, and cloudless skies. O_3 exists in the upper atmosphere O_3 layer (stratospheric O_3) and at the Earth's surface in the troposphere (ground-level O_3).[4] The O_3 that U.S. Environmental Protection Agency (EPA) and the California Air Resources Board (CARB) regulate as a criteria air pollutant is produced close to the ground level, where people live, exercise, and breathe. Ground-level O_3 is a harmful air pollutant that causes numerous adverse health effects and is thus considered "bad" O_3. Stratospheric, or "good," O_3 occurs naturally in the upper atmosphere, where it reduces the amount of ultraviolet light (i.e., solar radiation) entering the Earth's atmosphere. Without the protection of the beneficial stratospheric O_3 layer, plant and animal life would be seriously harmed.

O_3 in the troposphere causes numerous adverse health effects; short-term exposures (lasting for a few hours) to O_3 at levels typically observed in Southern California can result in breathing pattern changes, reduction of breathing capacity, increased susceptibility to infections, inflammation of the lung tissue, and some immunological changes (EPA 2013). These health problems are particularly acute in sensitive receptors such as the sick, the elderly, and young children.

Nitrogen Dioxide. NO_2 is a brownish, highly reactive gas that is present in all urban atmospheres. The major mechanism for the formation of NO_2 in the atmosphere is the oxidation of the primary air pollutant nitric oxide, which is a colorless, odorless gas. NO_x plays a major role, together with VOCs, in the atmospheric reactions that produce O_3. NO_x is formed from fuel combustion under high temperature or pressure. In addition, NO_x is an important precursor to acid rain and may affect both terrestrial and aquatic ecosystems. The two major emissions sources are transportation and stationary fuel combustion sources such as electric utility and industrial boilers.

NO_2 can irritate the lungs, cause bronchitis and pneumonia, and lower resistance to respiratory infections (EPA 2016b).

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[3] The descriptions of each of the criteria air pollutants and associated health effects are based on the U.S. Environmental Protection Agency's (EPA's) Criteria Air Pollutants (EPA 2016a) and the California Air Resources Board (CARB) Glossary of Air Pollutant Terms (CARB 2016a).

[4] The troposphere is the layer of the Earth's atmosphere nearest to the surface of the Earth. The troposphere extends outward about 5 miles at the poles and about 10 miles at the equator.

Carbon Monoxide. CO is a colorless, odorless gas formed by the incomplete combustion of hydrocarbon, or fossil fuels. CO is emitted almost exclusively from motor vehicles, power plants, refineries, industrial boilers, ships, aircraft, and trains. In urban areas such as the project location, automobile exhaust accounts for the majority of CO emissions. CO is a nonreactive air pollutant that dissipates relatively quickly; therefore, ambient CO concentrations generally follow the spatial and temporal distributions of vehicular traffic. CO concentrations are influenced by local meteorological conditions—primarily wind speed, topography, and atmospheric stability. CO from motor vehicle exhaust can become locally concentrated when surface-based temperature inversions are combined with calm atmospheric conditions, which is a typical situation at dusk in urban areas from November to February. The highest levels of CO typically occur during the colder months of the year, when inversion conditions are more frequent.

In terms of adverse health effects, CO competes with oxygen, often replacing it in the blood, reducing the blood's ability to transport oxygen to vital organs. The results of excess CO exposure can include dizziness, fatigue, and impairment of central nervous system functions.

Sulfur Dioxide. SO_2 is a colorless, pungent gas formed primarily from incomplete combustion of sulfur-containing fossil fuels. The main sources of SO_2 are coal and oil used in power plants and industries; as such, the highest levels of SO_2 are generally found near large industrial complexes. In recent years, SO_2 concentrations have been reduced by the increasingly stringent controls placed on stationary source emissions of SO_2 and limits on the sulfur content of fuels.

SO_2 is an irritant gas that attacks the throat and lungs and can cause acute respiratory symptoms and diminished ventilator function in children. When combined with particulate matter, SO_2 can injure lung tissue and reduce visibility and the level of sunlight. SO_2 can also yellow plant leaves and erode iron and steel.

Particulate Matter. Particulate matter pollution consists of very small liquid and solid particles floating in the air, which can include smoke, soot, dust, salts, acids, and metals. Particulate matter can form when gases emitted from industries and motor vehicles undergo chemical reactions in the atmosphere. $PM_{2.5}$ and PM_{10} represent fractions of particulate matter. Coarse particulate matter (PM_{10}) consists of particulate matter that is 10 microns or less in diameter and is about 1/7 the thickness of a human hair. Major sources of PM_{10} include crushing or grinding operations; dust stirred up by vehicles traveling on roads; wood-burning stoves and fireplaces; dust from construction, landfills, and agriculture; wildfires and brush/waste burning; industrial sources; windblown dust from open lands; and atmospheric chemical and photochemical reactions. Fine particulate matter ($PM_{2.5}$) consists of particulate matter that is 2.5 microns or less in diameter and is roughly 1/28 the diameter of a human hair. $PM_{2.5}$ results from fuel combustion (e.g., from motor vehicles and power generation and industrial facilities), residential fireplaces, and woodstoves. In addition, $PM_{2.5}$ can be formed in the atmosphere from gases such as sulfur oxides (SO_x), NO_x, and VOCs.

$PM_{2.5}$ and PM_{10} pose a greater health risk than larger-size particles. When inhaled, these tiny particles can penetrate the human respiratory system's natural defenses and damage the respiratory tract. $PM_{2.5}$ and PM_{10} can increase the number and severity of asthma attacks, cause or aggravate bronchitis and other lung diseases, and reduce the body's ability to fight infections. Very small particles of substances such as lead, sulfates, and nitrates can cause lung damage directly or be absorbed into the blood stream, causing damage elsewhere in the body. Additionally, these substances can transport adsorbed gases such as chlorides or ammonium into the lungs, also causing injury. PM_{10} tends to collect in the upper portion of the respiratory system; whereas, $PM_{2.5}$ is so tiny that it can penetrate deeper into the lungs and damage lung tissue. Suspended particulates also damage and discolor surfaces on which they settle and produce haze and reduce regional visibility.

People with influenza, people with chronic respiratory and cardiovascular diseases, and the elderly may suffer worsening illness and premature death as a result of breathing particulate matter. People with bronchitis can expect aggravated symptoms from breathing in particulate matter. Children may experience a decline in lung function due to breathing in PM_{10} and $PM_{2.5}$ (EPA 2009).

Lead. Lead in the atmosphere occurs as particulate matter. Sources of lead include leaded gasoline; the manufacturing of batteries, paints, ink, ceramics, and ammunition; and secondary lead smelters. Prior to 1978, mobile emissions were the primary source of atmospheric lead. Between 1978 and 1987, the phaseout of leaded gasoline reduced the overall inventory of airborne lead by nearly 95%. With the phaseout of leaded gasoline, secondary lead smelters, battery recycling, and manufacturing facilities are becoming lead-emissions sources of greater concern.

Prolonged exposure to atmospheric lead poses a serious threat to human health. Health effects associated with exposure to lead include gastrointestinal disturbances, anemia, kidney disease, and, in severe cases, neuromuscular and neurological dysfunction. Of particular concern are low-level lead exposures during infancy and childhood. Such exposures are associated with decrements in neurobehavioral performance, including intelligence quotient performance, psychomotor performance, reaction time, and growth. Children are highly susceptible to the effects of lead.

Volatile Organic Compounds. Hydrocarbons are organic gases that are formed from hydrogen and carbon and sometimes other elements. Hydrocarbons that contribute to formation of O_3 are referred to and regulated as VOCs (also referred to as reactive organic gases). Combustion engine exhaust, oil refineries, and fossil-fueled power plants are the sources of hydrocarbons. Other sources of hydrocarbons include evaporation from petroleum fuels, solvents, dry cleaning solutions, and paint.

The primary health effects of VOCs result from the formation of O_3 and its related health effects. High levels of VOCs in the atmosphere can interfere with oxygen intake by reducing the amount of available oxygen through displacement. Carcinogenic forms of hydrocarbons, such as benzene, are considered TACs. There are no separate health standards for VOCs as a group.

Non-Criteria Pollutants

Toxic Air Contaminants. A substance is considered toxic if it has the potential to cause adverse health effects in humans, including increasing the risk of cancer upon exposure, or acute and/or chronic noncancer health effects. A toxic substance released into the air is considered a TAC. TACs are identified by federal and state agencies based on a review of available scientific evidence. In the State of California, TACs are identified through a two-step process that was established in 1983 under the Toxic Air Contaminant Identification and Control Act. This two-step process of risk identification and risk management and reduction was designed to protect residents from the health effects of toxic substances in the air. In addition, the California Air Toxics "Hot Spots" Information and Assessment Act, Assembly Bill (AB) 2588, was enacted by the legislature in 1987 to address public concern over the release of TACs into the atmosphere. The law requires facilities emitting toxic substances to provide local air pollution control districts with information that will allow an assessment of the air toxics problem, identification of air toxics emissions sources, location of resulting hotspots, notification of the public exposed to significant risk, and development of effective strategies to reduce potential risks to the public over 5 years.

Examples include certain aromatic and chlorinated hydrocarbons, certain metals, and asbestos. TACs are generated by a number of sources, including stationary sources such as dry cleaners, gas stations, combustion sources, and laboratories; mobile sources such as automobiles; and area sources such as landfills. Adverse

health effects associated with exposure to TACs may include carcinogenic (i.e., cancer-causing) and noncarcinogenic effects. Noncarcinogenic effects typically affect one or more target organ systems and may be experienced on either short-term (acute) or long-term (chronic) exposure to a given TAC.

Diesel Particulate Matter. Diesel particulate matter (DPM) is part of a complex mixture that makes up diesel exhaust. Diesel exhaust is composed of two phases, gas and particle, both of which contribute to health risks. More than 90% of DPM is less than 1 micrometer in diameter (about 1/70th the diameter of a human hair), and thus is a subset of $PM_{2.5}$ (CARB 2016b). DPM is typically composed of carbon particles ("soot," also called black carbon, or BC) and numerous organic compounds, including over 40 known cancer-causing organic substances. Examples of these chemicals include polycyclic aromatic hydrocarbons, benzene, formaldehyde, acetaldehyde, acrolein, and 1,3-butadiene (CARB 2016b). The CARB classified "particulate emissions from diesel-fueled engines" (i.e., DPM; 17 CCR 93000) as a TAC in August 1998. DPM is emitted from a broad range of diesel engines: on-road diesel engines of trucks, buses, and cars and off-road diesel engines, including locomotives, marine vessels, and heavy-duty construction equipment, among others. Approximately 70% of all airborne cancer risk in California is associated with DPM (CARB 2000). To reduce the cancer risk associated with DPM, CARB adopted a diesel risk reduction plan in 2000 (CARB 2000). Because it is part of $PM_{2.5}$, DPM also contributes to the same noncancer health effects as $PM_{2.5}$ exposure. These effects include premature death; hospitalizations and emergency department visits for exacerbated chronic heart and lung disease, including asthma; increased respiratory symptoms; and decreased lung function in children. Several studies suggest that exposure to DPM may also facilitate development of new allergies (CARB 2016b). Those most vulnerable to noncancer health effects are children whose lungs are still developing and the elderly who often have chronic health problems.

Odorous Compounds. Odors are generally regarded as an annoyance rather than a health hazard. Manifestations of a person's reaction to odors can range from psychological (e.g., irritation, anger, or anxiety) to physiological (e.g., circulatory and respiratory effects, nausea, vomiting, and headache). The ability to detect odors varies considerably among the population and overall is subjective. People may have different reactions to the same odor. An odor that is offensive to one person may be perfectly acceptable to another (e.g., coffee roaster). An unfamiliar odor is more easily detected and is more likely to cause complaints than a familiar one. Known as odor fatigue, a person can become desensitized to almost any odor, and recognition may only occur with an alteration in the intensity. The occurrence and severity of odor impacts depend on the nature, frequency, and intensity of the source; wind speed and direction; and the sensitivity of receptors.

Valley Fever. Coccidioidomycosis, more commonly known as "valley fever," is an infection caused by inhalation of the spores of the *Coccidioides immitis* fungus, which grows in the soils of the southwestern United States. When fungal spores are present, any activity that disturbs the soil, such as digging, grading, or other earth-moving operations, can cause the spores to become airborne and thereby increase the risk of exposure. The ecologic factors that appear to be most conducive to survival and replication of the spores are high summer temperatures, mild winters, sparse rainfall, and alkaline sandy soils.

Valley fever is not considered highly endemic to Riverside County. Per the California Department of Public Health, the 7-year average (2012–2018) for coccidioidomycosis cases in Riverside County is 2.1 cases per 100,000 people per year. For the zip code 92563, where the project site is located, incidences of coccidioidomycosis are too few to be reliably used to calculate a rate (Lopez, pers. comm. 2018). Statewide incidences in 2018 were 18.8 per 100,000 people (CDPH 2019).

Even if present at a site, earth-moving activities may not result in increased incidence of valley fever. Propagation of *Coccidioides immitis* is dependent on climatic conditions, with the potential for growth and surface exposure

highest following early seasonal rains and long dry spells. *Coccidioides immitis* spores can be released when filaments are disturbed by earth-moving activities, although receptors must be exposed to and inhale the spores to be at increased risk of developing valley fever. Moreover, exposure to *Coccidioides immitis* does not guarantee that an individual will become ill—approximately 60% of people exposed to the fungal spores are asymptomatic and show no signs of an infection (USGS 2000).

Sensitive Receptors

Some land uses are considered more sensitive to changes in air quality than others, depending on the population groups and the activities involved. People most likely to be affected by air pollution include children, the elderly, athletes, and people with cardiovascular and chronic respiratory diseases. Facilities and structures where these air pollution-sensitive people live or spend considerable amounts of time are known as sensitive receptors. Land uses where air pollution-sensitive individuals are most likely to spend time include schools and schoolyards, parks and playgrounds, daycare centers, nursing homes, hospitals, and residential communities (sensitive sites or sensitive land uses) (CARB 2005). The SCAQMD identifies sensitive receptors as residences, schools, playgrounds, childcare centers, long-term healthcare facilities, rehabilitation centers, convalescent centers, and retirement homes (SCAQMD 1993). Residential land uses are located along the project site boundary to the east of the project. The closest off-site sensitive receptors to the project site include residences located approximately 30 feet east of the project site boundary.

4.2.2 Relevant Plans, Policies, and Ordinances

Federal

Criteria Air Pollutants. The federal Clean Air Act, passed in 1970 and last amended in 1990, forms the basis for the national air pollution control effort. The EPA is responsible for implementing most aspects of the Clean Air Act, including setting National Ambient Air Quality Standards (NAAQS) for major air pollutants; setting hazardous air pollutant (HAP) standards; approving state attainment plans; setting motor vehicle emission standards; issuing stationary source emission standards and permits; and establishing acid rain control measures, stratospheric O_3 protection measures, and enforcement provisions. Under the Clean Air Act, NAAQS are established for the following criteria pollutants: O_3, CO, NO_2, SO_2, PM_{10}, $PM_{2.5}$, and lead.

The NAAQS describe acceptable air quality conditions designed to protect the health and welfare of the citizens of the nation. The NAAQS (other than for O_3, NO_2, SO_2, PM_{10}, $PM_{2.5}$, and those based on annual averages or arithmetic mean) are not to be exceeded more than once per year. The NAAQS for O_3, NO_2, SO_2, PM_{10}, and $PM_{2.5}$ are based on statistical calculations over 1- to 3-year periods, depending on the pollutant. The Clean Air Act requires the EPA to reassess the NAAQS at least every 5 years to determine whether adopted standards are adequate to protect public health based on current scientific evidence. States with areas that exceed the NAAQS must prepare a state implementation plan that demonstrates how those areas will attain the NAAQS within mandated time frames. A more detailed discussion of the NAAQS, as well as the California Ambient Air Quality Standards (CAAQS; discussed below), is provided in Appendix B.

Hazardous Air Pollutants. The 1977 federal Clean Air Act amendments required the EPA to identify National Emission Standards for Hazardous Air Pollutants to protect public health and welfare. HAPs include certain volatile organic chemicals, pesticides, herbicides, and radionuclides that present a tangible hazard, based on scientific studies of exposure to humans and other mammals. Under the 1990 federal Clean Air Act Amendments, which expanded the control program for HAPs, 189 substances and chemical families were identified as HAPs.

State

Criteria Air Pollutants. The federal Clean Air Act delegates the regulation of air pollution control and the enforcement of the NAAQS to the states. In California, the task of air quality management and regulation has been legislatively granted to CARB, with subsidiary responsibilities assigned to air quality management districts and air pollution control districts at the regional and county levels. CARB, which became part of the California Environmental Protection Agency in 1991, is responsible for ensuring implementation of the California Clean Air Act of 1988, responding to the federal Clean Air Act, and regulating emissions from motor vehicles and consumer products.

CARB has established the CAAQS, which are generally more restrictive than the NAAQS. As stated previously, an ambient air quality standard defines the maximum amount of a pollutant averaged over a specified period of time that can be present in outdoor air without harm to the public's health. For each pollutant, concentrations must be below the relevant CAAQS before a basin can attain the corresponding CAAQS. Air quality is considered "in attainment" if pollutant levels are continuously below the CAAQS and violate the standards no more than once each year. The CAAQS for O_3, CO, SO_2 (1-hour and 24-hour), NO_2, PM_{10}, and $PM_{2.5}$ and visibility-reducing particles are values that are not to be exceeded. All others are not to be equaled or exceeded.

California air districts have based their thresholds of significance for California Environmental Quality Act (CEQA) purposes on the levels that scientific and factual data demonstrate that the air basin can accommodate without affecting the attainment date for the NAAQS or CAAQS. Since an ambient air quality standard is based on maximum pollutant levels in outdoor air that would not harm the public's health, and air district thresholds pertain to attainment of the ambient air quality standard, this means that the thresholds established by air districts are also protective of human health.

The NAAQS and CAAQS are presented in Table 4.2-1.

Table 4.2-1. Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards[a]	National Standards[b]	
		Concentration[c]	*Primary*[c,d]	*Secondary*[c,e]
O_3	1 hour	0.09 ppm (180 μg/m³)	—	Same as Primary Standard[f]
	8 hours	0.070 ppm (137 μg/m³)	0.070 ppm (137 μg/m³)[f]	
NO_2[g]	1 hour	0.18 ppm (339 μg/m³)	0.100 ppm (188 μg/m³)	Same as Primary Standard
	Annual Arithmetic Mean	0.030 ppm (57 μg/m³)	0.053 ppm (100 μg/m³)	
CO	1 hour	20 ppm (23 mg/m³)	35 ppm (40 mg/m³)	None
	8 hours	9.0 ppm (10 mg/m³)	9 ppm (10 mg/m³)	
SO_2[h]	1 hour	0.25 ppm (655 μg/m³)	0.075 ppm (196 μg/m³)	—
	3 hours	—	—	0.5 ppm (1,300 μg/m³)
	24 hours	0.04 ppm (105 μg/m³)	0.14 ppm (for certain areas)[g]	—
	Annual	—	0.030 ppm (for certain areas)[g]	—

Table 4.2-1. Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards[a]	National Standards[b]	
		Concentration[c]	*Primary*[c,d]	*Secondary*[c,e]
PM_{10}[i]	24 hours	50 μg/m³	150 μg/m³	Same as Primary Standard
	Annual Arithmetic Mean	20 μg/m³	—	
$PM_{2.5}$[i]	24 hours	—	35 μg/m³	Same as Primary Standard
	Annual Arithmetic Mean	12 μg/m³	12.0 μg/m³	15.0 μg/m³
Lead[j,k]	30-day Average	1.5 μg/m³	—	—
	Calendar Quarter	—	1.5 μg/m³ (for certain areas)[k]	Same as Primary Standard
	Rolling 3-Month Average	—	0.15 μg/m³	
Hydrogen sulfide	1 hour	0.03 ppm (42 μg/m³)	—	—
Vinyl chloride[j]	24 hours	0.01 ppm (26 μg/m³)	—	—
Sulfates	24- hours	25 μg/m³	—	—
Visibility reducing particles	8 hour (10:00 a.m. to 6:00 p.m. PST)	Insufficient amount to produce an extinction coefficient of 0.23 per kilometer due to the number of particles when the relative humidity is less than 70%	—	—

Source: CARB 2016c.

Notes: O_3 = ozone; ppm = parts per million by volume; μg/m³ = micrograms per cubic meter; mg/m³= milligrams per cubic meter; NO_2 = nitrogen dioxide; CO = carbon monoxide; SO_2 = sulfur dioxide; PM_{10} = particulate matter with an aerodynamic diameter less than or equal to 10 microns; $PM_{2.5}$ = particulate matter with an aerodynamic diameter less than or equal to 2.5 microns.

a California standards for O_3, CO, SO_2 (1-hour and 24-hour), NO_2, suspended particulate matter (PM_{10}, $PM_{2.5}$), and visibility-reducing particles are values that are not to be exceeded. All others are not to be equaled or exceeded. CAAQS are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.

b National standards (other than O_3, NO_2, SO_2, particulate matter, and those based on annual averages or annual arithmetic mean) are not to be exceeded more than once per year. The O_3 standard is attained when the fourth highest 8-hour concentration measured at each site in a year, averaged over 3 years, is equal to or less than the standard. For PM_{10}, the 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 μg/m³ is equal to or less than 1. For $PM_{2.5}$, the 24-hour standard is attained when 98% of the daily concentrations, averaged over 3 years, are equal to or less than the standard.

c Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based on a reference temperature of 25°C and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.

d National Primary Standards: The levels of air quality necessary, with an adequate margin of safety, to protect the public health.

e National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

f On October 1, 2015, the national 8-hour O_3 primary and secondary standards were lowered from 0.075 to 0.070 ppm.

g To attain the national 1-hour standard, the 3-year average of the annual 98th percentile of the 1-hour daily maximum concentrations at each site must not exceed 100 parts per billion (ppb). Note that the national 1-hour standard is in units of ppb. California standards are in units of ppm. To directly compare the national 1-hour standard to the California standards, the units can be converted from ppb to ppm. In this case, the national standard of 100 ppb is identical to 0.100 ppm.

h On June 2, 2010, a new 1-hour SO_2 standard was established, and the existing 24-hour and annual primary standards were revoked. To attain the national 1-hour standard, the 3-year average of the annual 99th percentile of the 1-hour daily maximum

concentrations at each site must not exceed 75 ppb. The 1971 SO_2 national standards (24-hour and annual) remain in effect until 1 year after an area is designated for the 2010 standard, except that in areas designated nonattainment of the 1971 standards, the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standards are approved.

[i] On December 14, 2012, the national annual $PM_{2.5}$ primary standard was lowered from 15 μg/m³ to 12.0 μg/m³. The existing national 24-hour $PM_{2.5}$ standards (primary and secondary) were retained at 35 μg/m³, as was the annual secondary standard of 15 μg/m³. The existing 24-hour PM_{10} standards (primary and secondary) of 150 μg/m³ were also retained. The form of the annual primary and secondary standards is the annual mean averaged over 3 years.

[j] CARB has identified lead and vinyl chloride as TACs with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.

[k] The national standard for lead was revised on October 15, 2008, to a rolling 3-month average. The 1978 lead standard (1.5 μg/m³ as a quarterly average) remains in effect until 1 year after an area is designated for the 2008 standard, except that in areas designated nonattainment for the 1978 standard, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standard are approved.

Toxic Air Contaminants. The state Air Toxics Program was established in 1983 under AB 1807 (Tanner). The California TAC list identifies more than 700 pollutants, of which carcinogenic and noncarcinogenic toxicity criteria have been established for a subset of these pollutants pursuant to the California Health and Safety Code. In accordance with AB 2728, the state list includes the (federal) HAPs. In 1987, the Legislature enacted the Air Toxics "Hot Spots" Information and Assessment Act of 1987 (AB 2588) to address public concern over the release of TACs into the atmosphere. AB 2588 law requires facilities emitting toxic substances to provide local air pollution control districts with information that will allow an assessment of the air toxics problem, identification of air toxics emissions sources, location of resulting hotspots, notification of the public exposed to significant risk, and development of effective strategies to reduce potential risks to the public over 5 years. TAC emissions from individual facilities are quantified and prioritized. "High-priority" facilities are required to perform a health risk assessment (HRA), and if specific thresholds are exceeded, the facility operator is required to communicate the results to the public in the form of notices and public meetings.

In 2000, CARB approved a comprehensive Diesel Risk Reduction Plan to reduce diesel emissions from both new and existing diesel-fueled vehicles and engines (CARB 2000). The regulation is anticipated to result in an 80% decrease in statewide diesel health risk in 2020 compared with the diesel risk in 2000. Additional regulations apply to new trucks and diesel fuel, including the On-Road Heavy Duty Diesel Vehicle (In-Use) Regulation, the On-Road Heavy Duty (New) Vehicle Program, the In-Use Off-Road Diesel Vehicle Regulation, and the New Off-Road Compression-Ignition (Diesel) Engines and Equipment program. These regulations and programs have timetables by which manufacturers must comply and existing operators must upgrade their diesel-powered equipment. There are several Airborne Toxic Control Measures that reduce diesel emissions, including In-Use Off-Road Diesel-Fueled Fleets (13 CCR 2449 et seq.) and In-Use On-Road Diesel-Fueled Vehicles (13 CCR 2025).

California Health and Safety Code Section 41700. Section 41700 of the Health and Safety Code states that a person shall not discharge from any source whatsoever quantities of air contaminants or other material that cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public; or that endanger the comfort, repose, health, or safety of any of those persons or the public; or that cause, or have a natural tendency to cause, injury or damage to business or property. This section also applies to sources of objectionable odors.

Local

South Coast Air Quality Management District. The South Coast Air Quality Management District (SCAQMD) is the regional agency responsible for the regulation and enforcement of federal, state, and local air pollution control regulations in the SCAB, where the project is located. The SCAQMD operates monitoring stations in the SCAB, develops rules and regulations for stationary sources and equipment, prepares emissions inventory and air quality management planning documents, and conducts source testing and inspections. The SCAQMD's Air

Quality Management Plans (AQMPs) include control measures and strategies to be implemented to attain state and federal ambient air quality standards in the SCAB. The SCAQMD then implements these control measures as regulations to control or reduce criteria pollutant emissions from stationary sources or equipment.

The most recent adopted AQMP is the 2016 AQMP (SCAQMD 2017), which was adopted by the SCAQMD governing board on March 3, 2017. The 2016 AQMP is a regional blueprint for achieving air quality standards and healthful air. The 2016 AQMP represents a new approach, focusing on available, proven, and cost effective alternatives to traditional strategies, while seeking to achieve multiple goals in partnership with other entities promoting reductions in GHGs and toxic risk, as well as efficiencies in energy use, transportation, and goods movement (SCAQMD 2017). Because mobile sources are the principal contributor to the SCAB's air quality challenges, the SCAQMD has been and will continue to be closely engaged with CARB and the EPA, who have primary responsibility for these sources. The 2016 AQMP recognizes the critical importance of working with other agencies to develop funding and other incentives that encourage the accelerated transition of vehicles, buildings, and industrial facilities to cleaner technologies in a manner that benefits not only air quality but also local businesses and the regional economy. These "win-win" scenarios are key to implementation of this 2016 AQMP with broad support from a wide range of stakeholders.

Applicable Rules

Emissions that would result from mobile, area, and stationary sources during construction and operation of the project are subject to the rules and regulations of the SCAQMD. The SCAQMD rules applicable to the project may include the following:

- **Rule 401 – Visible Emissions:** This rule establishes the limit for visible emissions from stationary sources.
- **Rule 402 – Nuisance:** This rule prohibits the discharge of air pollutants from a facility that cause injury, detriment, nuisance, or annoyance to the public or damage to business or property.
- **Rule 403 – Fugitive Dust:** This rule requires fugitive dust sources to implement best available control measures for all sources and prohibits all forms of visible particulate matter from crossing any property line. SCAQMD Rule 403 is intended to reduce PM_{10} emissions from any transportation, handling, construction, or storage activity that has the potential to generate fugitive dust.
- **Rule 431.2 – Sulfur Content of Liquid Fuels:** The purpose of this rule is to limit the sulfur content in diesel and other liquid fuels for the purpose of reducing the formation of SO_x and particulates during combustion and of enabling the use of add-on control devices for diesel-fueled internal combustion engines. The rule applies to all refiners, importers, and other fuel suppliers such as distributors, marketers, and retailers, as well as to users of diesel, low-sulfur diesel, and other liquid fuels for stationary-source applications in the SCAQMD. The rule also affects diesel fuel supplied for mobile sources.
- **Rule 461 – Gasoline Transfer and Dispensing:** This rule requires testing of vapor recovery systems for gasoline dispensing facilities from certified vapor recovery testing companies and contractors. This rule applies to the transfer of gasoline from any tank truck, trailer, or railroad tank car into any stationary storage tank or mobile fueler, and from any stationary storage tank or mobile fueler into any mobile fueler or motor fuel tank.
- **Rule 1110.2 – Emissions from Gaseous- and Liquid-Fueled Engines:** This rule applies to stationary and portable engines rated at greater than 50 horsepower. The purpose of Rule 1110.2 is to reduce NO_x, VOCs, and CO emissions from engines. Emergency engines, including those powering standby generators, are generally exempt from the emissions and monitoring requirements of this rule because they have permit conditions that limit operation to 200 hours or less per year as determined by an elapsed operating time meter.

- **Rule 1113 – Architectural Coatings:** This rule requires manufacturers, distributors, and end users of architectural and industrial maintenance coatings to reduce VOC emissions from the use of these coatings, primarily by placing limits on the VOC content of various coating categories.

Southern California Association of Governments. The Southern California Association of Governments (SCAG) is the regional planning agency for Los Angeles, Orange, Ventura, Riverside, San Bernardino, and Imperial Counties and serves as a forum for regional issues relating to transportation, the economy, community development, and the environment. SCAG serves as the federally designated metropolitan planning organization for the Southern California region and is the largest metropolitan planning organization in the United States.

With respect to air quality planning and other regional issues, SCAG has prepared the 2008 Regional Comprehensive Plan: Helping Communities Achieve a Sustainable Future (2008 RCP) for the region (SCAG 2008). The 2008 RCP sets the policy context in which SCAG participates in and responds to the SCAQMD air quality plans and builds off the SCAQMD AQMP processes that are designed to meet health-based criteria pollutant standards in several ways (SCAG 2008). First, it complements AQMPs by providing guidance and incentives for public agencies to consider best practices that support the technology-based control measures in AQMPs. Second, the 2008 RCP emphasizes the need for local initiatives that can reduce the region's GHG emissions that contribute to climate change, an issue that is largely outside the focus of local attainment plans, which is assessed in Chapter 3. Third, the 2008 RCP emphasizes the need for better coordination of land use and transportation planning, which heavily influences the emissions inventory from the transportation sectors of the economy. This also minimizes land use conflicts, such as residential development near freeways, industrial areas, or other sources of air pollution.

On April 7, 2016, SCAG's Regional Council adopted the 2016–2040 Regional Transportation Plan/Sustainable Communities Strategy (2016 RTP/SCS). The 2016 RTP/SCS is a long-range visioning plan that balances future mobility and housing needs with economic, environmental, and public health goals. The 2016 RTP/SCS charts a course for closely integrating land use and transportation so that the region can grow smartly and sustainably. The 2016 RTP/SCS was prepared through a collaborative, continuous, and comprehensive process with input from local governments, county transportation commissions, tribal governments, nonprofit organizations, businesses, and local stakeholders within Imperial, Los Angeles, Orange, Riverside, San Bernardino, and Ventura Counties. In June 2016, SCAG received its conformity determination from the Federal Highway Administration and the Federal Transit Administration indicating that all air quality conformity requirements for the 2016 RTP/SCS and associated 2015 Federal Transportation Improvement Program Consistency Amendment through Amendment 15-12 have been met (SCAG 2016). The SCAQMD 2016 AQMP applies the updated SCAG growth forecasts assumed in the 2016 RTP/SCS.

City of Murrieta. The Air Quality Element of the City's General Plan 2035 (City of Murrieta 2011) includes goals and policies that would be applied to the project related to air quality. These applicable goals and policies are as follows:

GOAL AQ-1 Improved air quality through participation in regional and local efforts.

GOAL AQ-3 Reduced emissions during construction activities.

Policy AQ-3.1 Ensure that construction activities follow current SCAQMD rules, regulations, and thresholds.

Policy AQ-3.2 Ensure all applicable best management practices are used in accordance with the SCAQMD to reduce emitting criteria pollutants during construction.

Policy AQ-3.3 Require all construction equipment for public and private projects comply with CARB's vehicle standards. For projects that may exceed daily construction emissions established by the SCAQMD, Best Available Control Measures will be incorporated to reduce construction emissions to below daily emission standards established by the SCAQMD.

Policy AQ-3.4 Require project proponents to prepare and implement a Construction Management Plan, which will include Best Available Control Measures among others. Appropriate control measures will be determined on a project by project basis, and should be specific to the pollutant for which the daily threshold is exceeded.

GOAL AQ-5 Air quality is improved through an efficient circulation system, reduced traffic congestion, and reduced vehicle miles traveled.

Policy AQ-5.1 Encourage employers to implement transportation demand management (TDM) measures, such as the following programs to reduce trips and vehicle miles traveled:

- Transit subsidies
- Bicycle facilities
- Alternating work schedules
- Ridesharing
- Telecommuting and work-at-home programs
- Employee education
- Preferential parking for carpools/vanpools

Policy AQ-5.2 Re-designate truck routes away from sensitive land uses including schools, hospitals, elder and childcare facilities, or residences, where feasible.

Policy AQ-5.7 Reduce industrial truck idling by enforcing California's 5-minute maximum law, requiring warehouse and distribution facilities to provide adequate on site truck parking, and requiring refrigerated warehouses to provide generators for refrigerated trucks.

GOAL AQ-6 Stationary source pollution (point source and area source) are minimized through existing and future regulations and new technology.

Policy AQ-6.7 During the design review process, encourage the use of measures to reduce indoor air quality impacts (i.e., air filtration systems, kitchen range top exhaust fans, and low-VOC paint and carpet for new developments and busy roadways with significant volumes of heavy truck traffic).

GOAL AQ-7 Particulate matter and fugitive dust emissions are reduced throughout the City.

Policy AQ-7.4 Consider the suspension of all grading operations, not including dust control actions, at construction projects when the source represents a public nuisance or potential safety hazard due to reduced visibility on streets surrounding the property.

The City has established a policy program that addresses air quality through new development and balanced growth, land use compatibility, and coordination and compliance with regulatory agencies and new regulations/requirements. The responsibility of implementing the goals and policies of the Air Quality Element are assigned to the City's Community Development Department, and in some instances, this authority is shared with the SCAQMD and the SCAG.

Regional and Local Air Quality Conditions

South Coast Air Basin Attainment Designation

Pursuant to the 1990 federal Clean Air Act amendments, the EPA classifies air basins (or portions thereof) as "attainment" or "nonattainment" for each criteria air pollutant, based on whether the NAAQS have been achieved. Generally, if the recorded concentrations of a pollutant are lower than the standard, the area is classified as "attainment" for that pollutant. If an area exceeds the standard, the area is classified as "nonattainment" for that pollutant. If there is not enough data available to determine whether the standard is exceeded in an area, the area is designated as "unclassified" or "unclassifiable." The designation of "unclassifiable/attainment" means that the area meets the standard or is expected to be meet the standard despite a lack of monitoring data. Areas that achieve the standards after a nonattainment designation are re-designated as maintenance areas and must have approved Maintenance Plans to ensure continued attainment of the standards. The California Clean Air Act, like its federal counterpart, called for the designation of areas as "attainment" or "nonattainment," but based on CAAQS rather than the NAAQS. Table 4.2-2 depicts the current attainment status of the project site with respect to the NAAQS and CAAQS, as well as the attainment classifications for the criteria pollutants are outlined in Table 4.2-2.

Table 4.2-2. South Coast Air Basin Attainment Classification

Pollutant	Designation/Classification	
	National Standards	*California Standards*
Ozone (O_3) – 1 hour	No National Standard	**Nonattainment**
Ozone (O_3) – 8 hour	**Extreme Nonattainment**	**Nonattainment**
Nitrogen Dioxide (NO_2)	Unclassifiable/Attainment	Attainment
Carbon Monoxide (CO)	Attainment/Maintenance	Attainment
Sulfur Dioxide (SO_2)	Unclassifiable/Attainment	Attainment
Coarse Particulate Matter (PM_{10})	Attainment/Maintenance	**Nonattainment**
Fine Particulate Matter ($PM_{2.5}$)	**Serious Nonattainment**	**Nonattainment**
Lead (Pb)	**Nonattainment**	Attainment
Hydrogen Sulfide	No National Standard	Unclassified
Sulfates	No National Standard	Attainment
Visibility-Reducing Particles	No National Standard	Unclassified
Vinyl Chloride	No National Standard	No designation

Sources: EPA 2016c (national); CARB 2016d (California).

Notes: Bold text = not in attainment; Nonattainment = does not meet the standards; Extreme Nonattainment = has a design value of 0.163 ppm and above; Unclassifiable/Attainment = meets the standard or is expected to be meet the standard despite a lack of monitoring data; Attainment = meets the standards; Attainment/Maintenance = achieve the standards after a nonattainment designation; Unclassified or Unclassifiable = insufficient data to classify.

In summary, the SCAB is designated as a nonattainment area for federal and state O_3 standards and federal and state $PM_{2.5}$ standards. The SCAB is designated as a nonattainment area for state PM_{10} standards; however, it is designated as an attainment area for federal PM_{10} standards. The SCAB is designated as an attainment area for federal and state CO standards, federal and state NO_2 standards, and federal and state SO_2 standards. While the SCAB has been designated as nonattainment for the federal rolling 3-month average lead standard, it is designated attainment for the state lead standard (CARB 2016d; EPA 2016c).

Despite the current nonattainment status, air quality within the SCAB has generally improved since the inception of air pollutant monitoring in 1976. This improvement is mainly due to lower-polluting on-road motor vehicles, more stringent regulation of industrial sources, and the implementation of emission reduction strategies by the SCAQMD. This trend toward cleaner air has occurred in spite of continued population growth. Despite this growth, air quality has improved significantly over the years, primarily due to the impacts of the region's air quality control program. PM_{10} levels have declined almost 50% since 1990, and $PM_{2.5}$ levels have also declined 50% since measurements began in 1999 (SCAQMD 2013). Similar improvements are observed with O_3, although the rate of O_3 decline has slowed in recent years.

Local Ambient Air Quality

CARB, air districts, and other agencies monitor ambient air quality at approximately 250 air quality monitoring stations across the state. The SCAQMD monitors local ambient air quality at the project site. Air quality monitoring stations usually measure pollutant concentrations 10 feet above ground level; therefore, air quality is often referred to in terms of ground-level concentrations. The most recent background ambient air quality data from 2016 to 2018 are presented in Table 4.2-3. The Lake Elsinore monitoring station, located at 506 West Flint Street, Lake Elsinore, California 92530, is the nearest air quality monitoring station to the project site, located approximately 10.3 miles northwest from the project site. The data collected at this station are considered representative of the air quality experienced in the project vicinity. Air quality data for CO, O_3, NO_2, CO, and PM_{10} from the Lake Elsinore monitoring station are provided in Table 4.2-3. Because SO_2 and $PM_{2.5}$ are not monitored at the Lake Elsinore monitoring station, SO_2 measurements were taken from the Rubidoux monitoring station (5888 Mission Boulevard, Rubidoux, California 92509, approximately 30 miles northwest from the project site), and $PM_{2.5}$ measurements are taken from the Temecula monitoring station (12705 Pechanga Road, Temecula, California 92592, approximately 11.5 miles southeast from the project site). The number of days exceeding the ambient air quality standards are also shown in Table 4.2-3.

Table 4.2-3. Local Ambient Air Quality Data

Monitoring Station	Unit	Averaging Time	Agency/ Method	Ambient Air Quality Standard	Measured Concentration by Year			Exceedances by Year		
					2016	*2017*	*2018*	*2016*	*2017*	*2018*
Ozone (O_3)										
Lake Elsinore	ppm	Maximum 1-hour concentration	California	0.09	0.124	0.121	0.116	15	23	23
	ppm	Maximum 8-hour concentration	California	0.070	0.093	0.098	0.095	44	54	30
			National	0.070	0.093	0.098	0.095	44	54	30
Nitrogen Dioxide (NO_2)										
Lake Elsinore	ppm	Maximum 1-hour concentration	California	0.18	0.051	0.049	0.041	0	0	0
			National	0.100	0.0513	0.0490	0.041	0	0	0
	ppm	Annual concentration	California	0.030	—	—	—	—	—	—
			National	0.053	0.008	0.008	0.009	—	—	—
Carbon Monoxide (CO)										
Lake Elsinore	ppm	Maximum 1-hour concentration	California	20	—	—	—	—	—	—
			National	35	1.2	1.2	1.1	0	0	0
	ppm	Maximum 8-hour concentration	California	9.0	—	—	—	—	—	—
			National	9	0.6	0.8	0.8	0	0	0
Sulfur Dioxide (SO_2)										
Rubidoux	ppm	Maximum 1-hour concentration	National	0.075	0.056	0.020	0.017	—	—	—
	ppm	Maximum 24-hour concentration	National	0.14	0.0012	0.003	0.001	—	—	—
	ppm	Annual concentration	National	0.030	0.0002	0.0008	0.0005	—	—	—
Coarse Particulate Matter (PM_{10})[a]										
Lake Elsinore	µg/m³	Maximum 24-hour concentration	California	50	—	—	—	—	—	—
			National	150	99	86	104	0	0	0
	µg/m³	Annual concentration	California	20	—	—	—	—	—	—

Table 4.2-3. Local Ambient Air Quality Data

Monitoring Station	Unit	Averaging Time	Agency/ Method	Ambient Air Quality Standard	Measured Concentration by Year			Exceedances by Year		
					2016	*2017*	*2018*	*2016*	*2017*	*2018*
Fine Particulate Matter ($PM_{2.5}$)[a]										
Temecula	µg/m³	Maximum 24-hour concentration	National	35	18.9	16.7	—	—	—	—
	µg/m³	Annual concentration	California	12	9.8	6.5 [a]	—	—	—	—
			National	12.0	9.6[a]	6.5 [a]	—	—	—	—

Sources: CARB 2017; EPA 2016d.

Notes: ppm = parts per million; — = not available; µg/m³ = micrograms per cubic meter.

Data taken from CARB iADAM (http://www.arb.ca.gov/adam) and EPA AirData (https://www.epa.gov/outdoor-air-quality-data) represent the highest concentrations experienced over a given year. Exceedances of national and California standards are only shown for O_3 and particulate matter. Daily exceedances for particulate matter are estimated days because PM_{10} and $PM_{2.5}$ are not monitored daily. All other criteria pollutants did not exceed national or California standards during the years shown. There is no national standard for 1-hour O_3, annual PM_{10}, or 24-hour SO_2, nor is there a California 24-hour standard for $PM_{2.5}$.

Lake Elsinore Monitoring Station is located at 506 W Flint Street, Lake Elsinore, California 92530.

Rubidoux Monitoring Station is located 5888 Mission Boulevard, Rubidoux, California 92509.

Temecula Monitoring Station is located at 12705 Pechanga Road, Temecula, California 92592.

[a] Measurements of PM_{10} and $PM_{2.5}$ are usually collected every 6 days and every 1 to 3 days, respectively. Number of days exceeding the standards is a mathematical estimate of the number of days concentrations would have been greater than the level of the standard had each day been monitored. The numbers in parentheses are the measured number of samples that exceeded the standard.

4.2.3 Thresholds of Significance

The significance criteria used to evaluate the project impacts to air quality is based on the recommendations provided in Appendix G of the CEQA Guidelines. For the purposes of this air quality analysis, a significant impact would occur if the project would (14 CCR 15000 et seq.):

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

Appendix G of the CEQA Guidelines (14 CCR 15000 et seq.) indicates that, where available, the significance criteria established by the applicable air quality management district or air pollution control district may be relied upon to determine whether the project would have a significant impact on air quality.

The SCAQMD has established Air Quality Significance Thresholds, as revised in March 2015, which set forth quantitative emission significance thresholds below which a project would not have a significant impact on air quality. The quantitative air quality analysis provided herein applies the SCAQMD thresholds identified in Table 4.2-4 to determine the potential for the project to result in a significant impact under CEQA.

Table 4.2-4. South Coast Air Quality Management District Air Quality Significance Thresholds

Criteria Pollutants Mass Daily Thresholds		
Pollutant	***Construction (pounds per day)***	***Operation (pounds per day)***
VOCs	75	55
NO_x	100	55
CO	550	550
SO_x	150	150
PM_{10}	150	150
$PM_{2.5}$	55	55
Lead[a]	3	3
TACs and Odor Thresholds		
TACs[b]	Maximum incremental cancer risk ≥10 in 1 million Cancer Burden >0.5 excess cancer cases (in areas ≥1 in 1 million) Chronic and acute hazard index ≥1.0 (project increment)	
Odor	Project creates an odor nuisance pursuant to SCAQMD Rule 402	
Ambient Air Quality Standards for Criteria Pollutants[c]		
NO_2 1-hour average NO_2 annual arithmetic mean	SCAQMD is in attainment; project is significant if it causes or contributes to an exceedance of the following attainment standards: 0.18 ppm (state) 0.030 ppm (state) and 0.0534 ppm (federal)	

Table 4.2-4. South Coast Air Quality Management District Air Quality Significance Thresholds

Criteria Pollutants Mass Daily Thresholds	
CO 1-hour average CO 8-hour average	SCAQMD is in attainment; project is significant if it causes or contributes to an exceedance of the following attainment standards: 20 ppm (state) and 35 ppm (federal) 9.0 ppm (state/federal)
PM_{10} 24-hour average PM_{10} annual average	10.4 μg/m^3 (construction)[d] 2.5 μg/m^3 (operation) 1.0 μg/m^3
$PM_{2.5}$ 24-hour average	10.4 μg/m^3 (construction)[d] 2.5 μg/m^3 (operation)

Source: SCAQMD 2019.
Notes: VOC = volatile organic compounds; NO_x = oxides of nitrogen; CO = carbon monoxide; SO_x = sulfur oxides; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter; TAC = toxic air contaminant; SCAQMD = South Coast Air Quality Management District; NO_2 = nitrogen dioxide; ppm = parts per million; μg/m^3 = micrograms per cubic meter.
Greenhouse gas emissions thresholds for industrial projects, as added in the March 2015 revision to the SCAQMD Air Quality Significance Thresholds, were not include included in Table 4.2-4 as they are addressed within the greenhouse gas emissions analysis and not the air quality study.

[a] The phaseout of leaded gasoline started in 1976. Since gasoline no longer contains lead, the project is not anticipated to result in impacts related to lead; therefore, it is not discussed in this analysis.
[b] TACs include carcinogens and noncarcinogens.
[c] Ambient air quality standards for criteria pollutants are based on SCAQMD Rule 1303, Table A-2, unless otherwise stated.
[d] Ambient air quality threshold are based on SCAQMD Rule 403.

The evaluation of whether the project would conflict with or obstruct implementation of the applicable air quality plan is based on the SCAQMD CEQA Air Quality Handbook (SCAQMD 1993), Chapter 12, Sections 12.2 and 12.3. The first criterion assesses if the project would result in an increase in the frequency or severity of existing air quality violations or cause or contribute to new violations, or delay the timely attainment of air quality standards of the interim emissions reductions specified in the AQMP, which is addressed in detail under in Section 4.2.4. The second criterion is if the project would exceed the assumptions in the AQMP or increments based on the year of project buildout and phase.

To evaluate the potential for the project 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, this analysis applies the SCAQMD's construction and operational criteria pollutants mass daily thresholds, as shown in Table 4.2-4. A project would potentially result in a cumulatively considerable net increase in O_3, which is a nonattainment pollutant, if the project's construction or operational emissions would exceed the SCAQMD VOC or NO_x thresholds shown in Table 4.2-4. These emissions-based thresholds for O_3 precursors are intended to serve as a surrogate for an "ozone significance threshold" (i.e., the potential for adverse O_3 impacts to occur). This approach is used because O_3 is not emitted directly, and the effects of an individual project's emissions of O_3 precursors (VOC and NO_x) on O_3 levels in ambient air cannot be determined through air quality models or other quantitative methods.

The assessment of the project's potential to expose sensitive receptors to substantial pollutant concentrations includes a localized significance threshold (LST) analysis, as recommended by the SCAQMD, to evaluate the potential of localized air quality impacts to sensitive receptors in the immediate vicinity of the project from construction and operation. For project sites of 5 acres or less, the SCAQMD LST Methodology (SCAQMD 2009) includes lookup tables that can be used to determine the maximum allowable daily emissions that would satisfy the localized significance criteria (i.e., the emissions would not cause an exceedance of the applicable concentration limits for NO_2, CO, PM_{10}, and $PM_{2.5}$) without performing project-specific dispersion modeling. Although the proposed development area of the site is greater than 5 acres

(estimated to be 26 acres), the project would disturb less than 5 acres in one day, as discussed in detail in the following text, so it is appropriate to use the lookup tables for the LST evaluation.

The LST significance thresholds for NO_2 and CO represent the allowable increase in concentrations above background levels in the vicinity of a project that would not cause or contribute to an exceedance of the relevant ambient air quality standards, while the threshold for PM_{10} represents compliance with Rule 403 (Fugitive Dust). The LST significance threshold for $PM_{2.5}$ is intended to ensure that construction emissions do not contribute substantially to existing exceedances of the $PM_{2.5}$ ambient air quality standards. The allowable emission rates depend on the following parameters:

- Source-receptor area (SRA) in which the project is located
- Size of the project site
- Distance between the project site and the nearest sensitive receptor (e.g., residences, schools, hospitals)

The project site is located in SRA 26 (Temecula Valley). The SCAQMD provides guidance for applying the California Emissions Estimator Model (CalEEMod) to the LSTs. LST pollutant screening level concentration data is currently published for 1-, 2-, and 5-acre sites for varying distances. The maximum number of acres disturbed on the peak day was estimated using the "Fact Sheet for Applying CalEEMod to Localized Significance Thresholds" (SCAQMD 2011), which provides estimated acres per 8-hour day for crawler tractors, graders, rubber-tired dozers, and scrapers. Based on the SCAQMD guidance, and assuming an excavator can grade 0.5 acres per 8-hour day (similar to graders, dozers, and tractors), it was estimated that the maximum acres on the project site that would be disturbed by off-road equipment would be 4 acres per day (three excavators, two dozers, and three tractors operating during the grading phase). Because the total disturbed acreage would be approximately 26 acres over approximately 136 days, the estimate of 4 acres per day of disturbance is conservative. The SCAQMD lookup table does not include 4 acres; thus, the lookup table values for 2-acre and 5-acre sites within SRA 26 were interpolated.

The nearest sensitive-receptor land use (a residence) is located approximately 30 feet east of the project property boundary, approximately 150 feet or more from actual building construction work. As such, the LST receptor distance was assumed to be 82 feet (25 meters), which is the shortest distance provided by the SCAQMD lookup tables. The LST values from the SCAQMD lookup tables for SRA 26 (Temecula Valley) for an interpolated 4-acre project site and a receptor distance of 25 meters are shown in Table 4.2-5.

Table 4.2-5. Construction Localized Significance Thresholds for Source Receptor Area 26 (Temecula Valley)

Pollutant	Threshold (pounds per day)
NO_2	325
CO	1,677
PM_{10}	11
$PM_{2.5}$	7

Source: SCAQMD 2009.
Notes: NO_2 = nitrogen dioxide; CO = carbon monoxide; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter.
Localized significance thresholds (LSTs) were determined based on the values for an interpolated 4-acre site at a distance of 25 meters from the nearest sensitive receptor.

The construction HRA applies the SCAQMD risk thresholds presented in Table 4.2-4, which are a maximum incremental cancer risk greater than or equal to 10 in 1 million and a chronic hazard index greater than or equal to 1.0 (project increment). The CO hotspot assessment and construction HRA are evaluated under the potential for the project to expose sensitive receptors to substantial pollutant concentrations (Section 4.2.4), along with the LST analysis.

The potential for the project to result in other emissions, specifically an odor impact (Section 4.2.4), is based on the project's land use type and anticipated construction activity, and the potential for the project to create an odor nuisance pursuant to SCAQMD Rule 402.

4.2.4 Impacts Analysis

Project Design Features

To reduce construction and operational emissions to the extent feasible, Costco would incorporate the following project design features (PDFs) into the new facility (**PDF-AQ/GHG-1**):

a. New and renewable building materials shall be extracted and manufactured within the region whenever possible, reducing transportation emissions.
b. The project shall use pre-manufactured building components, including structural framing and metal panels, to help minimize waste during construction.
c. The main building structure shall be constructed with a pre-engineered system that uses 100% recycled steel materials and is designed to minimize the amount of material utilized.
d. Roof material shall be 100% recycled standing seam metal panel, designed to maximum efficiency for spanning the structure.
e. Exterior skin metal shall be 100% recycled.
f. Construction waste shall be recycled whenever possible.
g. Floor sealant contains no volatile organic compounds (VOCs) and represents over 80% of the floor area.
h. LED lamps shall be installed in the parking lots.
i. Parking lot and exterior lights are controlled by the building's automated energy management system.
j. Pre-manufactured metal wall panels with insulation carry a higher Resistance Value (more commonly known as R-Value), and greater solar reflectivity shall be installed to help conserve energy. Building heat absorption is further reduced by a decrease in the thermal mass of the metal wall when compared to a typical masonry block wall.
k. Costco would design the roofing structure to accommodate the additional structural load of the solar panels to allow for the flexibility for possible future installation.
l. The project shall plant native, drought-tolerant vegetation that would use less water than other common species.
m. The project shall install an irrigation system that uses deep-root watering bubblers for parking lot trees to minimize usage and ensure that water goes directly to the intended planting areas.
n. High-efficiency restroom fixtures shall be installed.
o. Building envelopes shall be insulated to meet or exceed current energy code requirements.

p. Heating, ventilation, and air conditioning (HVAC) comfort systems shall be controlled by a computerized building management system to maximize efficiency.
q. HVAC units shall be high-efficiency, direct-ducted units.
r. HVAC units shall not use hydrochlorofluorocarbons.
s. Interior lighting shall be controlled by the overall project energy management system.
t. Gas water heaters shall be direct vent and high efficiency.
u. Extensive recycling/reuse program shall be implemented for warehouse and office space including tires, cardboard, grease, plastics, and electronic waste.
v. All Costco trucks shall be equipped with an engine idle shut off timer.
w. Three electric vehicle (EV) charging stations shall be installed in the parking lot.
x. Within 2 years of opening the Costco Warehouse, a 708-kilowatt photovoltaic system shall be installed, which would generate a system output of 1,128,400 kilowatt-hours per year.
y. Stalls designated as Clean Air Vehicle/Van Pool would encourage use of such vehicles by employees and customers.

Vineyard II Retail Development would incorporate the following PDFs into the new facilities (**PDF-AQ/GHG-2**):

a. Design the roofing structure to accommodate the additional structural load of the solar panels to allow for the flexibility for possible future installation.
b. LED lamps shall be installed in the parking lots and outdoor lighting fixtures.
c. Parking lot and exterior lights shall be controlled by a time clock and photo cell device to turn lights off at dawn.
d. Fourteen EV charging stations shall be installed in the parking lot, four of which shall be tied to a solar source from the roofs of two buildings at the time of opening.
e. Electrical outlets on site shall allow recharging of battery-operated landscape maintenance equipment by landscape maintenance staff.
f. Each trash enclosure in the retail center shall have a recycling bin slot for each tenant.
g. Non-potable irrigation lines shall be installed in preparation for future recycled water.

Dust Control Strategies

The project would include various construction dust control strategies as a PDF. Compliance with these dust control measures would be identified on grading plan approvals. The following dust control strategies are proposed (**PDF-AQ-1**):

a. During clearing, grading, earth-moving, excavation, or transportation of cut or fill materials, water trucks or sprinkler systems shall be used to prevent dust from leaving the site and to create a crust after each day's activities cease.
b. During construction, water trucks or sprinkler systems shall be used to keep all areas of vehicle movement damp enough to prevent dust from leaving the site. At a minimum, this would include wetting down such areas later in the morning, after work is completed for the day, and whenever winds exceed 15 miles per hour during active operations. Watering of active disturbance areas, including active grading

areas and unpaved roads, would occur approximately every two hours of active operations, approximately three times per work day (at a minimum).

c. Speeds on unpaved roads shall be reduced to less than 15 miles per hour.
d. All grading and excavation operations shall be halted when wind speeds exceed 25 miles per hour.
e. Dirt and debris spilled onto paved surfaces at the project site and on the adjacent roadways shall be swept, vacuumed, and/or washed at the end of each workday.
f. All trucks hauling dirt, sand, soil, or other loose material to and from the construction site shall be covered and/or a minimum 2 feet of freeboard shall be maintained.

Would the project conflict with or obstruct implementation of the applicable air quality plan?

Potentially Significant Impact. As previously discussed, the project site is located within the SCAB under the jurisdiction of the SCAQMD, which is the local agency responsible for administration and enforcement of air quality regulations for the area. The SCAQMD has established criteria for determining consistency with the AQMP, currently the 2016 AQMP, in Chapter 12, Sections 12.2 and 12.3, in the SCAQMD CEQA Air Quality Handbook (SCAQMD 1993). The criteria are as follows (SCAQMD 1993):

- **Consistency Criterion No. 1:** The proposed project will not result in an increase in the frequency or severity of existing air quality violations or cause or contribute to new violations, or delay the timely attainment of air quality standards of the interim emissions reductions specified in the AQMP.
- **Consistency Criterion No. 2:** The proposed project will not exceed the assumptions in the AQMP or increments based on the year of project buildout and phase.

Consistency Criterion No. 1

The impact discussion below discusses the project's potential impacts regarding CEQA Guidelines Appendix G Threshold 2 (the project's potential to violate any air quality standard or contribute substantially to an existing or projected air quality violation impact analysis). As discussed below, the project would exceed the SCAQMD significance threshold for VOCs and NO_x. Therefore, the project would result in an increase in the frequency or severity of existing air quality violations. Because the project would result in an increase in the frequency and severity of existing air quality violations with mitigation, the project would conflict with Consistency Criterion No. 1 of the SCAQMD CEQA Air Quality Handbook.

Consistency Criterion No. 2

While striving to achieve the NAAQS for O_3 and $PM_{2.5}$ and the CAAQS for O_3, PM_{10}, and $PM_{2.5}$ through a variety of air quality control measures, the 2016 AQMP also accommodates planned growth in the SCAB. Projects are considered consistent with, and would not conflict with or obstruct implementation of, the AQMP if the growth in socioeconomic factors (e.g., population, employment) is consistent with the underlying regional plans used to develop the AQMP (per Consistency Criterion No. 2 of the SCAQMD CEQA Air Quality Handbook).

The SCAQMD primarily uses demographic growth forecasts for various socioeconomic categories (e.g., population, housing, employment by industry) developed by the SCAG for its RTP/SCS (SCAG 2016), which is based on general plans for cities and counties in the SCAB, for the development of the AQMP emissions inventory (SCAQMD

2017).[5] The SCAG 2016 RTP/SCS, and associated Regional Growth Forecast, are generally consistent with the local plans; therefore, the 2016 AQMP is generally consistent with local government plans. The City General Plan Land Use Map designates the project site as Commercial (City of Murrieta 2011). The City's Zoning Map shows the site as being zoned Regional Commercial (City of Murrieta 2014). The project would be consistent with the current zoning and land use designation. Accordingly, the project would meet Consistency Criterion No. 2 of the SCAQMD CEQA Air Quality Handbook.

As described previously, the project would result in an increase in the frequency and severity of existing air quality violations and would conflict with Consistency Criterion No. 1. However, implementation of the project would not exceed the demographic growth forecasts in the SCAG 2016 RTP/SCS; therefore, the project would also be consistent with the SCAQMD 2016 AQMP, which based future emission estimates on the SCAG 2016 RTP/SCS. Thus, the project would not conflict with Consistency Criterion No. 2. The project would exceed the SCAQMD significance threshold for VOC and NO_x and would conflict with Consistency Criterion No. 1; therefore, impacts related to the project's potential to conflict with or obstruct implementation of the applicable air quality plan would be potentially significant.

Would the project 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?

Construction Emissions

Potentially Significant Impact. Construction of the project would result in the temporary addition of pollutants to the local airshed caused by on-site sources (i.e., off-road construction equipment, rock crushing, rock popping, soil disturbance, and VOC off-gassing) and off-site sources (i.e., on-road haul trucks, vendor trucks, and worker vehicle trips). Construction emissions can vary substantially from day to day, depending on the level of activity, the specific type of operation, and for dust, the prevailing weather conditions. Therefore, such emission levels can only be approximately estimated with a corresponding uncertainty in precise ambient air quality impacts.

Criteria air pollutant emissions associated with temporary construction activity were quantified using CalEEMod. Construction emissions were calculated for the estimated worst-case day over the construction period associated with each phase and reported as the maximum daily emissions estimated during each year of construction (2020[6] through 2021). Construction schedule assumptions, including phase type, duration, and sequencing, were based on information provided by the project applicant and is intended to represent a reasonable scenario based on the best information available. Default values provided in CalEEMod were used where detailed project information was not available.

[5] Information necessary to produce the emission inventory for the SCAB is obtained from the SCAQMD and other governmental agencies, including CARB, the California Department of Transportation (Caltrans), and SCAG. Each of these agencies is responsible for collecting data (e.g., industry growth factors, socioeconomic projections, travel activity levels, emission factors, emission speciation profile, and emissions) and developing methodologies (e.g., model and demographic forecast improvements) required to generate a comprehensive emissions inventory. SCAG incorporates these data into their Travel Demand Model for estimating/projecting vehicle miles traveled and driving speeds. SCAG's socioeconomic and transportation activities projections in their 2016 RTP/SCS are integrated in the 2016 AQMP (SCAQMD 2017).

[6] The analysis assumes a construction start date of September 2020, which represents the earliest date construction would initiate. Assuming the earliest start date for construction represents the worst-case scenario for criteria air pollutant and GHG emissions because equipment and vehicle emission factors for later years would be slightly less due to more stringent standards for in-use off-road equipment and heavy-duty trucks, as well as fleet turnover replacing older equipment and vehicles in later years.

Implementation of the project would generate air pollutant emissions from entrained dust, off-road equipment, vehicle emissions, architectural coatings, and asphalt pavement application. Entrained dust results from the exposure of earth surfaces to wind from the direct disturbance and movement of soil, resulting in PM_{10} and $PM_{2.5}$ emissions. The project would implement various dust control strategies (**PDF-AQ-1**) and would be required to comply with SCAQMD Rule 403 to control dust emissions generated during the grading activities. Emission reductions from implementing **PDF-AQ-1** are as follows. Proposed construction practices that would be employed to reduce fugitive dust emissions include watering of the active sites and unpaved roads three times per day depending on weather conditions and restricting vehicle speed on unpaved roads to 15 miles per hour. Internal combustion engines used by construction equipment, vendor trucks (i.e., delivery trucks), and worker vehicles would result in emissions of VOCs, NO_x, CO, PM_{10}, and $PM_{2.5}$. The application of architectural coatings, such as exterior application/interior paint and other finishes, and application of asphalt pavement would also produce VOC emissions; however, the contractor is required to procure architectural coatings from a supplier in compliance with the requirements of SCAQMD's Rule 1113 (Architectural Coatings).

Emissions associated with rock crushing, rock popping, and associated diesel-engine generators were quantified in a separate calculation, since CalEEMod does not account for rock crushing, rock popping, and blasting.

Table 4.2-6 presents the estimated maximum daily construction emissions generated during construction of the project. The values shown are the maximum summer or winter daily emissions results from CalEEMod and include estimated emissions from rock crushing and popping activities, which were estimated outside of CalEEMod. Details of the construction emission calculations are provided in Appendix B.

Table 4.2-6. Estimated Maximum Daily Construction Criteria Air Pollutant Emissions – Unmitigated

Year	VOC	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
	pounds per day					
Vineyard II						
2020	8.70	97.93	54.43	0.13	14.91	9.38
2021	31.30	98.85	84.44	0.21	10.35	6.12
Costco						
2020	7.05	83.71	44.95	0.14	14.84	8.91
2021	30.60	77.26	62.24	0.17	9.78	5.25
Costco Rock Crushing and Rock Popping						
2020	2.60	23.25	18.58	0.06	1.24	0.94
Warm Springs Parkway						
2020	4.08	42.62	31.72	0.06	4.86	3.25
Warm Springs Parkway Crushing and Blasting						
2020	2.60	24.95	25.27	0.26	1.21	0.94
Total						
2020	25.04	272.46	174.96	0.66	37.06	23.42
2021	61.90	176.11	146.68	0.38	20.13	11.37
Maximum Daily Emissions	**61.90**	**272.46**	**174.96**	**0.66**	**37.06**	**23.42**
SCAQMD Threshold	*75*	*100*	*550*	*150*	*150*	*55*
Threshold Exceeded?	**No**	**Yes**	**No**	**No**	**No**	**No**

Notes: VOC = volatile organic compound; NO_x = oxides of nitrogen; CO = carbon monoxide; SO_x = sulfur oxides; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter; SCAQMD = South Coast Air Quality Management District.

See Appendix B for complete results.
The values shown are the maximum summer or winter daily emissions results from CalEEMod. These emissions reflect CalEEMod "mitigated" output, which accounts for compliance with SCAQMD Rule 1113 (Architectural Coatings) and implementation of the project's fugitive dust control strategies, including watering of the project site and unpaved roads three times per day, and restricting vehicle speed on unpaved roads to 15 miles per hour.

Maximum daily emissions of NO_x, CO, SO_x, PM_{10}, and $PM_{2.5}$ emissions would occur during the grading phase in 2019 as a result of off-road equipment operation, rock popping, rock crushing, and on-road vendor trucks and haul trucks. The overlap of the building construction phase and the architectural coatings phases in 2020 would produce the maximum daily VOC emissions. As shown in Table 4.2-6, daily construction emissions would not exceed the SCAQMD significance thresholds for VOC, CO, SO_x, PM_{10}, or $PM_{2.5}$ during construction in all construction years. However, the daily construction emissions would exceed the SCAQMD significance thresholds for NO_x in 2020 and 2021. Although construction-generated emissions would be temporary and would not represent a long-term source of criteria air pollutant emissions, impacts would be potentially significant and thus, require mitigation.

Operational Emissions

Potentially Significant Impact. The project involves development of a new retail development consisting of a Costco Wholesale warehouse and a gasoline dispensing facility, and the Vineyard II retail development consisting of a fitness center, a major retail pad, four smaller retail shops, one casual dining restaurant with a drive through, one fast-food restaurant with a drive through, and associated parking spaces. Operation of the project would generate VOC, NO_x, CO, SO_x, PM_{10}, and $PM_{2.5}$ emissions from mobile sources, including vehicle trips from customers, employees, and delivery trips; area sources, including the use of consumer products, architectural coatings for repainting, and landscape maintenance equipment (the Vineyard II project will require rechargeable, battery-operated landscape maintenance equipment and will provide exterior outlets for recharging on site, two of which will be tied to solar panel source on the roofs of two of the buildings on the Vineyard II site); and energy sources, including combustion of fuels used for space and water heating and cooking appliances. Pollutant emissions associated with long-term operations were quantified using CalEEMod. Project-generated mobile source emissions were estimated in CalEEMod based on project-specific trip rates. CalEEMod default values were used to estimate emissions from the project area and energy sources. Criteria air pollutant emissions were not quantified from implementation of project's **PDF-AQ/GHG-1** and **PDF-AQ/GHG-2**.

Table 4.2-7 presents the maximum daily area, energy, and mobile source emissions associated with operation (year 2021) of the project. Operational year 2021 was assumed upon completion of construction. The values shown are the maximum summer or winter daily emissions results from CalEEMod. Details of the operational emission calculations are provided in Appendix B.

Table 4.2-7. Estimated Maximum Daily Operational Criteria Air Pollutant Emissions – Unmitigated

Emission Source	VOC	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
	pounds per day					
Area	58.11	<0.01	0.15	<0.01	<0.01	<0.01
Energy	0.08	0.74	0.62	0.01	0.06	0.06
Mobile	17.20	55.92	362.44	1.02	98.84	24.81
Off-Road	0.39	3.54	3.50	<0.01	0.25	0.23
Total	**75.78**	**60.20**	**366.71**	**1.04**	**99.15**	**25.10**
SCAQMD Threshold	*55*	*55*	*550*	*150*	*150*	*55*
Threshold Exceeded?	**Yes**	**Yes**	**No**	**No**	**No**	**No**

Notes: VOC = volatile organic compound; NO_x = oxides of nitrogen; CO = carbon monoxide; SO_x = sulfur oxides; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter; SCAQMD = South Coast Air Quality Management District; PDF = project design feature.

See Appendix B for complete results.
Totals may not sum due to rounding.
The values shown are the maximum summer or winter daily emissions results from CalEEMod. These emissions reflect CalEEMod "unmitigated" output and operational year 2021, which accounts for compliance with SCAQMD Rule 1113 (Architectural Coatings) and implementation of project's **PDF-AQ/GHG-1** and **PDF-AQ/GHG-2**, including installing low flow bathroom faucets and toilets, and installing water efficient irrigation systems. VOC emissions from gas dispensing operations are included in area source emissions.
VOC emissions – 52.93 lb/day of the total 58.11 lb/day area source VOC emissions are from gas dispensing operations.

As shown in Table 4.2-7, the combined daily area, energy, and mobile source emissions would not exceed the SCAQMD operational thresholds for CO, SO_x, PM_{10}, and $PM_{2.5}$. However, the project-generated emissions would exceed the SCAQMD operational threshold for VOC and NO_x. Thus, the project's operational impacts would be potentially significant.

Air pollution is largely a cumulative impact. The nonattainment status of regional pollutants is a result of past and present development, and the SCAQMD develops and implements plans for future attainment of ambient air quality standards. Based on these considerations, project-level thresholds of significance for criteria pollutants are relevant in the determination of whether a project's individual emissions would have a cumulatively significant impact on air quality.

In considering cumulative impacts from the project, the analysis must specifically evaluate a project's contribution to the cumulative increase in pollutants for which the SCAB is designated as nonattainment for the CAAQS and NAAQS. If a project's emissions would exceed the SCAQMD significance thresholds, it would be considered to have a cumulatively considerable contribution to nonattainment status in the SCAB. The basis for analyzing the project's cumulatively considerable contribution is if the project's contribution accounts for a significant proportion of the cumulative total emissions (i.e., it represents a "cumulatively considerable contribution" to the cumulative air quality impact because it would exceed the SCAQMD significance thresholds) and consistency with the SCAQMD 2016 AQMP, which addresses the cumulative emissions in the SCAB.

The SCAB has been designated as a national nonattainment area for O_3 and $PM_{2.5}$ and a California nonattainment area for O_3, PM_{10}, and $PM_{2.5}$. The nonattainment status is the result of cumulative emissions from various sources of air pollutants and their precursors within the SCAB, including motor vehicles, off-road equipment, and commercial and industrial facilities. Construction and operation of the project would generate VOC and NO_x emissions (which are precursors to O_3) and emissions of PM_{10} and $PM_{2.5}$. As indicated in Tables 4.2-6 and 4.2-7, project-generated construction and operational emissions of NO_x and operational emissions of VOCs would exceed the applicable SCAQMD emission-based significance thresholds for NO_x and VOCs. As discussed in the analysis of the project's potential to conflict with or obstruct implementation of the applicable air quality plan, the project would not conflict with the SCAQMD 2016 AQMP, but would still result in a potentially significant impact under Criterion 1 above.

Based on the project-generated construction and operational emissions of NO_x and operational emissions of VOC, the project would result in a cumulatively considerable increase in emissions of nonattainment pollutants. Impacts would be potentially significant and thus require mitigation.

Would the project expose sensitive receptors to substantial pollutant concentrations?

Localized Significance Thresholds Analysis

Potentially Significant Impact. Sensitive receptors are those individuals more susceptible to the effects of air pollution than the population at large. People most likely to be affected by air pollution include children, the elderly, and people with cardiovascular and chronic respiratory diseases. According to the SCAQMD, sensitive receptors include residences, schools, playgrounds, childcare centers, long-term healthcare facilities, rehabilitation centers, convalescent centers, and retirement homes (SCAQMD 1993). The closest off-site sensitive receptors to the project site include residences located approximately 30 feet east of the project site boundary.

An LST analysis has been prepared to determine potential impacts to nearby sensitive receptors during construction of the project. As indicated in the discussion of the thresholds of significance (Section 4.2.3), the SCAQMD also recommends the evaluation of localized NO_2, CO, PM_{10}, and $PM_{2.5}$ impacts as a result of construction activities to sensitive receptors in the immediate vicinity of the project site. The impacts were analyzed using methods consistent with those in SCAQMD's Final Localized Significance Threshold Methodology (2009). According to the Final Localized Significance Threshold Methodology, "off-site mobile emissions from the project should not be included in the emissions compared to the LSTs" (SCAQMD 2009). Hauling of soils and construction materials associated with the project construction are not expected to cause substantial air quality impacts to sensitive receptors along off-site roadways. Localized emissions from the trucks would be relatively brief in nature and would cease once the trucks pass through the main streets.

Construction activities associated with the project would result in temporary sources of on-site fugitive dust and construction equipment emissions. As discussed above, off-site emissions from vendor trucks, haul trucks, and worker vehicle trips are not included in the LST analysis. The maximum allowable daily emissions that would satisfy the SCAQMD localized significance criteria for SRA 26 are presented in Table 4.2-8 and compared to the maximum daily on-site construction emissions generated during the project.

Table 4.2-8. Localized Significance Thresholds Analysis for Project Construction

Maximum On-Site Emissions	NO_2	CO	PM_{10}	$PM_{2.5}$
	Pounds per Day			
Construction Emissions	181.95	139.88	24.11	16.47
SCAQMD LST	*325*	*1,677*	*11*	*7*
LST Exceeded?	No	No	Yes	Yes

Source: SCAQMD 2009.
Notes: NO_2 = nitrogen dioxide; CO = carbon monoxide; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter; SCAQMD = South Coast Air Quality Management District; LST = localized significance threshold.
See Appendix B for complete results.
LSTs are shown for an interpolated 4-acre project sites corresponding to a distance to a sensitive receptor of 25 meters.
These estimates implementation of the project's fugitive dust control strategies, including watering of the project site and unpaved roads three times per day, and restricting vehicle speed on unpaved roads to 15 miles per hour.
Greatest on-site NO_2, CO, PM_{10}, and $PM_{2.5}$ emissions are associated with the overlap between the site preparation, grading, rock crushing and rock popping, and paving phases in November 2020 through April 2021.

Although diesel equipment would be subject to the CARB air toxic control measures for in-use off-road diesel fleets, which would minimize DPM emissions, as shown in Table 4.2-8, construction activities would generate emissions in excess of site-specific LSTs for PM_{10} and $PM_{2.5}$; therefore, localized construction impacts during construction of the project would be potentially significant and thus require mitigation.

Valley Fever

Less-than-Significant Impact. As discussed above, valley fever is not highly endemic to Riverside County, and within the County, the incidence rate in the project site is below the County average and the statewide average. Construction of the project would comply with SCAQMD Rule 403 (Fugitive Dust), which requires fugitive dust sources to implement best available control measures for all sources and prohibits all forms of visible particulate matter from crossing any property line. SCAQMD Rule 403 is intended to reduce PM_{10} emissions from any transportation, handling, construction, or storage activity that has the potential to generate fugitive dust. In addition, the project would implement various dust control strategies as included in **PDF-AQ-1**. The nearest sensitive-receptor land use (existing residence) is located approximately 30 feet east of the project boundary. Based on the low incidence rate of coccidioidomycosis on the project site and in the County, and with the project's implementation of dust control strategies, it is not anticipated that earth-moving activities during project construction would result in exposure of nearby sensitive receptors to valley fever. Therefore, the project would have a less-than-significant impact with respect to valley fever exposure for sensitive receptors.

Health Impacts of Carbon Monoxide

Less-than-Significant Impact. To verify that the project would not cause or contribute to a violation of the CO standard, a screening evaluation of the potential for CO hotspots was conducted based on the Traffic Impact Analysis (TIA) (Appendix I) results and the California Department of Transportation (Caltrans) Institute of Transportation Studies Transportation Project-Level Carbon Monoxide Protocol (CO Protocol) (Caltrans 1997).

The project's TIA evaluated 18 intersections. As determined by the TIA using data from Caltrans Performance Measurement System (PeMS) for Interstate 215 where available and the Makena Hills Traffic Study (2017, see Appendix I), the following intersections under the Cumulative Year (2020) operate at level of service (LOS) E or worse during the AM or PM peak hours (Appendix I):

- Nutmeg Street/Clinton Keith Road (LOS E in PM)
- California Oaks Road/Clinton Keith Road (LOS E in PM)
- Murrieta Oaks Avenue/Clinton Keith Road (LOS E in AM and PM)
- Whitewood Road/Clinton Keith Road (LOS E in PM)

Operational 2021 year was assumed for the TIA; thus, the CO analysis was prepared for the operational year consistent with the TIA. For each scenario (existing with project; existing with ambient growth and the project; existing with ambient growth, cumulative projects, and the project), the screening evaluation presents LOS with project improvements (mitigation), whether the recommended improvements (mitigation measures) are feasible, and whether a quantitative CO hotspots analysis may be required. According to the CO Protocol, there is a cap on the number of intersections that need to be analyzed for any one project. For a single project with multiple intersections, only the three intersections representing the worst LOS ratings of the project, and, to the extent they are different intersections, the three intersections representing the highest traffic volumes, need be analyzed. For each intersection failing a screening test as described in this protocol, an additional intersection should be analyzed (Caltrans 2010).

Based on the CO hotspot screening evaluation (in Appendix D of the Costco Murrieta Air Quality and Greenhouse Gas Emissions Analysis Technical Report, provided as Appendix B to this EIR), the intersections that exceeded the CO hotspot screening criteria shown above all have different geometries and are signalized. Therefore, all intersections that exceeded the CO hotspot screening criteria were evaluated. The potential impact of the project on local CO levels was assessed at this intersection with the Caltrans CL4 interface based on the California LINE Source Dispersion Model (CALINE4), which allows microscale CO concentrations to be estimated along each roadway corridor or near intersections (Caltrans 1998a).

The emissions factor represents the weighted average emissions rate of the local SCAB vehicle fleet expressed in grams per mile per vehicle. Consistent with the TIA, emissions factors for 2021 were used for the analysis. Emissions factors for 2021 were predicted by EMFAC 2017 based on a 5-mile-per-hour average speed for all of the intersections for approach and departure segments. The hourly traffic volume anticipated to travel on each link, in units of vehicles per hour, was based on the traffic report.

Four receptor locations at each intersection were modeled to determine CO ambient concentrations. A receptor was assumed on the sidewalk at each corner of the modeled intersections, for a total of four receptors adjacent to the intersection, to represent the future possibility of extended outdoor exposure. CO concentrations were modeled at these locations to assess the maximum potential CO exposure. A receptor height of 5.9 feet (1.8 meters) was used in accordance with Caltrans recommendations for all receptor locations (Caltrans 1998b).

The SCAQMD provides projected future concentrations of CO emissions to assist the CEQA practitioner with a CO Hotspots Analysis. The projected future 1-hour CO background concentration of 5.1 parts per million (ppm) for 2021 for the Rubidoux monitoring station was assumed in the CALINE4 model for 2021 (SCAQMD 2002). The maximum CO concentration measured at the Lake Elsinore monitoring station over the last 3 years was 1.2 ppm, which was measured in 2016 and 2017; as such, the SCAQMD projected 1-hour CO ambient concentration of 5.1 ppm is a conservative assumption. The 8-hour average CO concentration was added to the SCAQMD projected 8-hour CO ambient concentration of 3.2 ppm for 2021 from the Rubidoux monitoring station to compare to the CAAQS (SCAQMD 2002).

The CALINE4 predicted CO concentrations are shown in Table 4.2-9. Model input and output data are provided in Appendix C of the Costco Murrieta Air Quality and Greenhouse Gas Emissions Analysis Technical Report (Appendix B of this EIR).

Table 4.2-9. CALINE4 Predicted Carbon Monoxide Concentrations

Intersection	Maximum Modeled Carbon Monoxide Project Plus Ambient Impact (ppm)	
	1-hour	*8-hour*
Nutmeg Street/Clinton Keith Road	5.3	4.04
California Oaks Road/Clinton Keith Road	5.4	4.11
Murrieta Oaks Avenue/Clinton Keith Road	5.4	4.11
Whitewood Road/Clinton Keith Road	5.2	3.97

Source: Caltrans 1998a (CALINE4).
Note: ppm = parts per million.

As shown in Table 4.2-9, the maximum CO concentration predicted for the 1-hour averaging period at the studied intersections would be 5.4 ppm, which is below the 1-hour CO CAAQS of 20 ppm (CARB 2016c). The maximum predicted 8-hour CO concentration of 4.11 ppm at the studied intersections would be below the 8-hour CO CAAQS of 9.0 ppm (CARB 2016c). Neither the 1-hour nor 8-hour CAAQS would be equaled or exceeded at any of the

intersections studied. Accordingly, the project would not cause or contribute to violations of the CAAQS, and would not result in exposure of sensitive receptors to localized high concentrations of CO. As such, impacts would be less than significant to sensitive receptors with regard to potential CO hotspots resulting from the project or its contribution to cumulative traffic-related CO impacts, and no mitigation is required.

Health Impacts of Toxic Air Contaminants

Potentially Significant Impact. Analysis of the health impacts of toxic air contaminants is presented below.

Construction Health Risk

An HRA was performed to estimate the Maximum Individual Cancer Risk and the Chronic Hazard Index for residential receptors as a result of project construction. Results of the construction HRA are presented in Table 4.2-10.

Table 4.2-10. Construction Health Risk Assessment Results – Unmitigated

Impact Parameter	Units	Project Impact	CEQA Threshold	Level of Significance
Maximum Individual Cancer Risk – Residential	Per Million	36.20	10	**Potentially Significant**
Chronic Hazard Index – Residential	Index Value	0.038	1.0	Less than Significant

Source: SCAQMD 2015.
Note: CEQA = California Environmental Quality Act.
See Appendix B.

As shown in Table 4.2-10, project construction activities would result in a Residential Maximum Individual Cancer Risk of 36.20 in 1 million, which exceeds the significance threshold of 10 in 1 million. Project construction would result in a Residential Chronic Hazard Index of 0.038, which is below the 1.0 significance threshold. The project construction TAC health risk impacts would be potentially significant and thus require mitigation.

Operational Health Risk

An HRA was performed to estimate the Maximum Individual Cancer Risk, the Chronic Hazard Index, and the Acute Hazard Index for residential receptors as a result of project operation including delivery truck trips, delivery truck idling, transport refrigeration unit emissions, light-duty trucks and passenger vehicles idling at the gas station, and Costco gasoline dispensing facility. Results of the operational HRA are presented in Table 4.2-11.

Table 4.2-11. Operational Health Risk Assessment Results – Unmitigated

Impact Parameter	Units	Project Impact	CEQA Threshold	Level of Significance
Maximum Individual Cancer Risk – Residential	Per Million	9.02	10	Less than Significant
Chronic Hazard Index – Residential	Index Value	0.025	1.0	Less than Significant
Acute Hazard Index – Residential	Index Value	0.086	1.0	Less than Significant

Source: SCAQMD 2015.
Notes: CEQA = California Environmental Quality Act.
See Appendix B.

As shown in Table 4.2-11, project operational activities would result in a Residential Maximum Individual Cancer Risk of 9.02in 1 million, which would be less than the significance threshold of 10 in 1 million. Project operation would also result in a Residential Chronic Hazard Index and Acute Hazard Index of 0.025 and 0.086, respectively, which are below the 1.0 significance threshold.

The cumulative health risk was assessed for exposure from project construction and operation. The unmitigated construction and operational activities would result in a Residential Maximum Individual Cancer Risk of 41.18 in 1 million, which would exceed the significance threshold of 10 in 1 million.

Since the cancer risk from project operation at the maximally exposed individual resident exceeds 1 in a million, cancer burden, for which a SCAQMD significance threshold of 0.5, is evaluated. The maximum 70-year cancer risk for project operation was estimated at 10.62 in a million with HARP2 using the Population-Wide option in the model, which is specified for use in cancer burden estimates. The zone of impact was estimated to be 1.90 square kilometers. The total population in this area was estimated to be approximately 1,508 persons, based on the average densities of the census tracts that would be within the zone of impact (Census Tract 507) (U.S. Census Bureau 2010). Multiplying the maximum estimated 70-year cancer risk by the project population gives a cancer burden of 0.016. Accordingly, this would be less than the SCAQMD cancer burden threshold of 0.5. Thus, the impact with respect to potential cancer burden due to project operations would be less than significant. The project's operational TAC health risk impacts would be less than significant.

Health Effects of Criteria Air Pollutants

Potentially Significant Impact. Construction and operation of the project would result in emissions that would exceed the SCAQMD thresholds for VOC and NO_x. Project construction and operation would not exceed SCAQMD thresholds for CO, SO_x, $PM_{10,}$ or $PM_{2.5}$.

The California Supreme Court decision on December 24, 2018, in *Sierra Club v. County of Fresno* (Friant Ranch), requires projects with significant air quality impacts to "relate the expected adverse air quality impacts to likely health consequences or explain why it is not feasible at the time of drafting to provide such an analysis, so that the public may make informed decisions regarding the costs and benefits of the project" (Friant Ranch at p. 6).

In requiring a health risk type analysis for criteria air pollutants, it is important to understand how O_3 is formed, dispersed and regulated. Ground level O_3 (smog) is not directly emitted into the air, but is instead formed when precursor pollutants such as VOCs or NO_X are emitted into the atmosphere and undergo complex chemical reactions in the process of sunlight.[7] Once formed, O_3 can be transported long distances by wind.[8] Because of the complexity of O_3 formation, a specific tonnage amount of VOCs or NO_X emitted in a particular area does not equate to a particular concentration of O_3 in that area.[9] In fact, even rural areas that have relatively low tonnages of emissions of VOCs or NO_X can have high levels of O_3 concentrations simply due to wind transport and other meteorological conditions such as temperature inversion and high pressure systems. Conversely, areas that have substantially more VOCs or NO_X emissions could experience lower concentrations of O_3 simply because sea breezes disperse the emissions.[10]

7 San Joaquin Valley Air Pollution Control District (SJVAPCD), Application for Leave to File Amicus Curiae Brief of SJVAPCD in Support of Defendant and Respondent, County of Fresno and Real Party in Interest and Respondent, Friant Ranch, L.P., Page 4, April 13, 2015.

8 U.S. EPA, Ground-level Ozone: Basic Information, www.epa.gov/airquality/ozonepollution/basic.html.

9 SJVAPCD, Application for Leave to File Amicus Curiae Brief of SJUAPCD in Support of Defendant and Respondent, County of Fresno and Real Party in Interest and Respondent, Friant Ranch, L.P., Page 4, April 13, 2015.

10 SJVAPCD, 2007 Ozone Plan, Executive Summary p. ES-6. www.valleyair.org/Air_Quality_Plans/AQ_Final_Adopted_Ozone2007.htm.

The lack of link between the tonnage of precursor pollutants and the concentration of O_3 formed is important because it is not necessarily the tonnage of precursor pollutants that causes human health effects; rather, it is the concentration of resulting O_3 that causes these effects.[11] Indeed, the ambient air quality standards, which are statutorily required to be set by EPA at levels that are requisite to protect the public health, are established as concentrations of O_3 and not as tonnages of their precursor pollutants.[12] Because the ambient air quality standards are focused on achieving a particular concentration region-wide, the tools and plans for attaining the ambient air quality standards are regional in nature.

The computer models (e.g., Community Multiscale Air Quality modeling platform)[13] used to simulate and predict an attainment date for O_3 are based on regional inventories of precursor pollutants and meteorology within an air basin. At a very basic level, the models simulate future O_3 levels based on predicted changes in precursor emissions basin-wide. These computer models are not designed to determine whether the emissions generated by an individual development project will affect the date that the air basin attains the ambient air quality standards. Instead, the models help inform regional planning strategies based on the extent that all of the emission-generating sources within the air basin must be controlled in order to reach attainment.[14]

The SCAQMD and the San Joaquin Valley Air Pollution Control District have indicated that it is not feasible to quantify project-level health impacts based on existing modeling.[15,16] Even if a metric could be calculated, it would not be reliable because the models are equipped to model the impact of all emission sources in an air basin on attainment and would likely not yield valid information or a measurable increase in O_3 concentrations sufficent to accurately quantify O_3-related health imacts for an individual project.

In the case of the project, regional construction emissions exceed the SCAQMD's recommended daily significance thresholds for NO_X during construction and operation and for VOCs during operation. However, this does not mean that one can determine the concentration of O_3 that will be created at or near the project site on a particular day or month of the year, or the specific human health impacts that may occur from such exceedance. Meteorology, the presence of sunlight, and other complex chemical factors all combine to determine the ultimate concentrations and locations of O_3. This is especially true for a project like the project, where most of the criteria pollutant emissions derive not from a single point source, but from area-wide sources (consumer products, paint, etc.) or mobile sources (cars and trucks) driving to, from, and around the project site.

In addition, it would not be feasible to model the impact on attainment of the ambient air quality standards that these over-regional thresholds emissions from the project may have with any degree of reliability or certainty. As discussed above, the currently available tools are equipped to model the impact of all emission sources in an air basin on attainment. According to the most recent EPA-approved SCAQMD basin-wide emissions inventory, the VOC inventory is 162.4 tons per day (324,800 pounds), with 293.1 tons per day (586,200 pounds) of NO_X

11 SJVAPCD, Application for Leave to File Amicus Curiae Brief of SJVAPCD in Support of Defendant and Respondent, County of Fresno and Real Party in Interest and Respondent, Friant Ranch, L.P., Page 5, April 13, 2015.

12 U.S. EPA, Table of Ozone National Ambient Air Quality Standards, https://www.epa.gov/ground-level-ozone-pollution/table-historical-ozone-national-ambient-air-quality-standards-naaqs.

13 The SCAQMD 2016 AQMP ozone attainment demonstration was developed using the U.S. EPA recommended Community Multiscale Air Quality (version 5.0.2) modeling platform with SAPRC07 chemistry, and the Weather Research and Forecasting Model (WRF) (version 3.6) meteorological fields.

14 SJVAPCD, Application for Leave to File Amicus Curiae Brief of SJVAPCD in Support of Defendant and Respondent, County of Fresno and Real Party in Interest and Respondent, Friant Ranch, L.P., Page 6-7, April 13, 2015.

15 SCAQMD, Application of the SCAQMD for Leave to File Brief of Amicus Curiae in Support of Neither Party and Brief of Amicus Curiae, April 6, 2015.

16 SJVAPCD, Application for Leave to File Amicus Curiae Brief of SJVAPCD in Support of Defendant and Respondent, County of Fresno and Real Party in Interest and Respondent, Friant Ranch, L.P., April 13, 2015.

emissions for the baseline year of 2012.[17] From a scientific standpoint, it takes a large amount of additional precursor emissions to cause a modeled increase in ambient O_3 levels over an entire region. As an example, the SCAQMD's 2012 AQMP showed that reducing baseline year 2008 NO_X by 432 tons per day and reducing VOC by 187 tons per day would only reduce O_3 levels at the SCAQMD's monitor site with the highest levels by 9 parts per billion.[18] SCAQMD also conducted pollutant modeling for proposed Rule 1315, in which the CEQA analysis accounted for essentially all of the increases in emisssions due to new or modified sources in the SCAQMD between 2010 and 2030, or approximately 6,620 pounds per day of NO_X and 89,947 pounds per day of VOC. The results of the analysis showed that this increase of regional pollutant emissions would contribute to a small increase in the air basin-wide O_3 concentrations in 2030 by 2.6 parts per billion and less than 1 part per billion of NO_2.[19] Based on these results, current modeling methods are only able to provide results on a large scale and lack the resolution to model smaller sources such as individual projects. Therefore, O_3 modeling for individual projects would not be feasible or provide meaningful data to assess health impacts.

Based on the above information, at the project level, the project would represent a relatively small project, since peak daily construction regional NO_X emissions of 272 pounds per day and operational regional NO_X emissions of 60 pounds per day are more than the SCAQMD's signficance threshold. This represents approximately 172% and 109%, respectively, of the emissions analyzed by SCAQMD related to Rule 1315. Furthermore, approximately 24% of the project's peak daily construction NO_X emissions and 93% of the project's operational NO_X emissions would be regional (e.g., emitted by mobile sources distributed across region's roadway network), making them different from the identified stationary sources as modeled in SCAQMD's analysis of Rule 1315, which would add to the difficulties of modeling project-related emissions.

Running the regional-scale photochemical grid model used for predicting O_3 attainment with the emissions from the project (which equates to approximately a very small fraction of the VOC and NO_X in the air basin) is not likely to yield valid information regarding a measurable increase in O_3 concentrations sufficient to accurately quantify the project's O_3-related health impacts. Any identified modeled increase in O_3 concentrations would not be accurate, as it would be well within the error margins of such models. Similarly, it would also not be feasible to identify the project's impact on the days of nonattainment per year. Based on this information, a general description of the adverse health impacts resulting from the pollutants at issue is all that can be meaningfully provided at this time. Please see the above description of general adverse health impacts resulting from NO_X and VOCs.

CO tends to be a localized impact associated with congested intersections. The associated potential for CO hotspots were discussed previously and are determined to be a less-than-significant impact. Thus, the project's CO emissions would not contribute to significant health effects associated with this pollutant.

Construction and operation of the project would also not exceed regional thresholds for PM_{10} or $PM_{2.5}$; however, construction of the project would exceed localized thresholds for PM_{10} or $PM_{2.5}$ with implementation of **Mitigation Measure (MM) AQ-1**. However, the construction impacts would be temporary and would cease upon completion of construction. The project would not result in substantial DPM emissions during construction and operation, and therefore, would not result in significant health effects related to DPM exposure with implementation of **MM-AQ-1**.

[17] SCAQMD, Final 2016 AQMP, Figure 3-1, March 2017, www.aqmd.gov/docs/default-source/clean-air-plans/air-quality-management-plans/2016-air-quality-management-plan/final-2016-aqmp/final2016aqmp.pdf?sfvrsn=15.

[18] SCAQMD, Final 2012 AQMP, February 2013, www.aqmd.gov/home/library/clean-air-plans/air-quality-mgt-plan/final-20212-air-quality-management-plan; then follow "Appendix V: Modelling & Attainment Demonstrations" hyperlink, pp. v-4-2, v-7-4, v-7-24.

[19] SCAQMD, Final Program Environmental Assessment for Re-Adoption of Proposed Rule 1315, 2011 (pp. 1–11). https://www.aqmd.gov/home/research/documents-reports/lead-agency-scaqmd-projects/aqmd-projects---year-2011/re-adoption-of-proposed-rule-1315.

Additionally, the project would implement dust control strategies and be required to comply with SCAQMD Rule 403, which limits the amount of fugitive dust generated during construction. Emissions of particulate matter during construction would be temporary and cease upon completion of construction, and the project would implement dust control measures and use Tier 4 Final off-road equipment. Furthermore, there would be minimal contribution of particulate matter during operation, so the project is not anticipated to result in health effects associated with PM_{10} or $PM_{2.5}$. Furthermore, the project would reduce PM emissions with implementation of **MM-AQ-1**.

In summary, because construction and operation of the Project could result in exceedances of the SCAQMD significance thresholds for VOC and NO_x, the potential health effects associated with criteria air pollutants, specifically O_3, are considered potentially significant. Notably, there are numerous scientific and technological complexities associated with correlating criteria air pollutant emissions from an individual project to specific health effects or potential additional nonattainment days, and there are currently no modeling tools that could provide reliable and meaningful additional information regarding health effects from criteria air pollutants generated by individual projects. These subjects are discussed further in Appendix B.

Would the project result in other emissions (such as those leading to odors adversely affecting a substantial number of people)?

Less-than-Significant Impact. The occurrence and severity of potential odor impacts depends on numerous factors. The nature, frequency, and intensity of the source; the wind speeds and direction; and the sensitivity of receiving location each contribute to the intensity of the impact. Although offensive odors seldom cause physical harm, they can be annoying and cause distress among the public and generate citizen complaints.

Odors would be potentially generated from vehicles and equipment exhaust emissions during construction of the project. Potential odors produced during construction would be attributable to concentrations of unburned hydrocarbons from tailpipes of construction equipment, architectural coatings, and asphalt pavement application. Such odors would disperse rapidly from the project site and generally occur at magnitudes that would not affect substantial numbers of people. Therefore, impacts associated with odors during construction would be less than significant.

Land uses and industrial operations associated with odor complaints include agricultural uses, wastewater treatment plants, food-processing plants, chemical plants, composting, refineries, landfills, dairies, and fiberglass molding (SCAQMD 1993). Operation of the project would have the potential to create odors related to vehicle fueling at the proposed gas station. These odors would be temporary and dissipated quickly by regional air movement and localized winds, and no buildup of odors is expected to occur. Furthermore, the closest residential receptors are located 640 feet from the proposed gas station. Also, the gasoline dispensing facility would be equipped with phase I and phase II controls to be in compliance with CARB and SCAQMD requirements for vapor recovery to collect gasoline vapors during fuel delivery or fuel storage and vehicle fueling, which would also have a co-benefit for controlling odors. Therefore, project operations would result in an odor impact that is less than significant.

4.2.5 Mitigation Measures

MM-AQ-1: To reduce the potential for criteria air pollutants, specifically particulate matter (PM) and oxides of nitrogen (NO_x), as a result of construction of the project, the applicant shall:

Prior to the start of construction activities, the project applicant, or its designee, shall ensure that all 75-horsepower or greater diesel-powered equipment is powered with California Air Resources

Board (CARB)-certified Tier 4 Final engines, except where the project applicant establishes to the satisfaction of the City of Murrieta (City) that Tier 4 Final equipment is not available.

An exemption from these requirements may be granted by the City in the event that the City is provided with sufficient evidence that equipment with the required tier is not reasonably available and corresponding reductions in criteria air pollutant emissions are achieved from other construction equipment. Before an exemption may be considered by the City, the applicant shall: (1) be required to demonstrate that two construction fleet owners/operators in Riverside County were contacted and that those owners/operators confirmed Tier 4 Final equipment could not be located within Riverside County; and (2) the proposed replacement equipment has been evaluated using the California Emissions Estimator Model or other industry standard emission estimation method and documentation provided to the City to confirm the project-generated emissions do not exceed applicable South Coast Air Quality Management District mass daily thresholds of significance and localized significance thresholds.

MM-AQ-2: To reduce the potential impacts from criteria air emissions, specifically to reduce VOC and NO_x impacts, as a result of operation of the project, the applicant shall:

A. Provide preferential parking for electric vehicles (EVs), compressed natural gas vehicles, and carpool/vanpool rideshare vehicles.
B. Offer transit subsidies for 100% of employees of the project for 3 to 6 months.

As discussed in under the evaluation of the project's potential to generate VOC and NOx emissions in excess of the SCAQMD thresholds, the project would implement **PDF-AQ/GHG-1**, **PDF-AQ/GHG-2**, **MM-AQ-1**, and **MM-AQ-2** to reduce construction and operational emissions to the extent feasible.

4.2.6 Level of Significance After Mitigation

Would the project conflict with or obstruct implementation of the applicable air quality plan?

Significant and Unavoidable Impact. As presented in Table 4.2-12, construction emissions would be reduced to below the SCAQMD's thresholds with implementation of **MM-AQ-1**. However, the project would exceed significance thresholds of NO_x during operation with implementation of **MM-AQ-2**; thus, the impact related to the project's potential to conflict with or obstruct implementation of the SCAQMD 2016 AQMP would remain significant and unavoidable.

Would the project result in a cumulatively considerable new increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?

Construction

Less than Significant with Mitigation Incorporated. **MM-AQ-1** would reduce impacts related to criteria pollutant emissions during construction. To reduce NO_x emissions from construction activities, **MM-AQ-1**, requiring Tier 4 Final construction equipment, would be implemented. Implementation of **MM-AQ-1** would result in mitigated construction emissions summarized in Table 4.2-12. The values shown are the maximum summer or winter daily emissions results from CalEEMod.

Table 4.2-12. Estimated Maximum Daily Construction Criteria Air Pollutant Emissions – Mitigated

Year	VOC	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
	pounds per day					
Vineyard II						
2020	1.60	12.86	55.34	0.13	10.89	5.69
2021	27.52	33.85	101.05	0.23	9.24	3.57
Costco						
2020	2.60	26.94	47.54	0.14	11.48	5.83
2021	26.19	26.30	67.90	0.17	7.09	2.77
Costco Rock Crushing and Rock Popping						
2020	2.60	23.25	18.58	0.06	1.24	0.94
Warm Springs Parkway						
2020	1.03	5.92	36.02	0.06	0.91	0.35
Warm Springs Parkway Crushing and Blasting						
2020	2.60	24.95	25.27	0.26	1.21	0.94
Total						
2020	10.44	93.93	182.74	0.66	25.73	13.75
2021	53.71	60.15	168.95	0.41	16.34	6.33
Maximum Daily Emissions	**53.71**	**93.93**	**182.74**	**0.66**	**25.73**	**13.75**
SCAQMD Threshold	*75*	*100*	*550*	*150*	*150*	*55*
Threshold Exceeded?	**No**	**No**	**No**	**No**	**No**	**No**

Notes: VOC = volatile organic compound; NO_x = oxides of nitrogen; CO = carbon monoxide; SO_x = sulfur oxides; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter; SCAQMD = South Coast Air Quality Management District.
See Appendix B for complete results.
The values shown are the maximum summer or winter daily emissions results from CalEEMod. These emissions reflect CalEEMod mitigated output, which accounts for compliance with SCAQMD Rule 1113 (Architectural Coatings), implementation of the project's fugitive dust control strategies, including watering of the project site and unpaved roads three times per day and restricting vehicle speed on unpaved roads to 15 miles per hour, and implementation of **MM-AQ-1**, which requires equipment over 75 horsepower to meet specific engine emission standards (Tier 4 Final).

As shown in Table 4.2-12, following implementation of **MM-AQ-1**, project-generated NO_x emissions during construction would be reduced to below the SCAQMD's NO_x construction threshold. As such, impacts regarding NO_x emissions during construction activities would be mitigated to a less-than-significant level.

Operational

Significant and Unavoidable Impact. The major contributors to maximum operational daily emissions of VOC are from gasoline dispensing and mobile source emissions. Due to the size and type of the project, it is not feasible to implement mitigation measures to reduce the mobile source emissions. Land use strategies such as proximity to transit stations and implementation of **MM-AQ-2** cannot be quantified due to uncertainty of quantified reductions from usage; therefore, reductions from **MM-AQ-2** are not quantified. Thus, operational VOC emissions would remain significant and unavoidable.

Would the project expose sensitive receptors to substantial pollutant concentrations?

Localized Significance Thresholds

Significant and Unavoidable Impact. As shown in Table 4.2-8, construction activities would generate emissions in excess of site-specific LSTs; therefore, site-specific construction impacts during construction of the project would be potentially significant. Implementation of **MM-AQ-1** would reduce project construction-generated criteria air pollutant emissions to the extent feasible. The emission results after incorporation of **MM-AQ-1** are presented in Table 4.2-13. As shown in Table 4.2-13, maximum daily on-site emissions of PM_{10} and $PM_{2.5}$ would exceed the LST; therefore, impacts after mitigation are significant and unavoidable.

Table 4.2-13. Localized Significance Thresholds Analysis for Project Construction – Mitigated

Maximum On-Site Emissions	NO_2	CO	PM_{10}	$PM_{2.5}$
	Pounds per Day			
Construction Emissions	35.37	147.86	14.78	8.73
SCAQMD LST	*325*	*1,677*	*11*	*7*
LST Exceeded?	**No**	**No**	**Yes**	**Yes**

Source: SCAQMD 2009.
Notes: NO_2 = nitrogen dioxide; CO = carbon monoxide; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter; SCAQMD = South Coast Air Quality Management District; LST = localized significance threshold.
See Appendix B for complete results.
Localized significance thresholds are shown for an interpolated 4-acre project sites corresponding to a distance to a sensitive receptor of 25 meters.
These estimates implementation of the project's fugitive dust control strategies, including watering of the project site and unpaved roads three times per day, and restricting vehicle speed on unpaved roads to 15 miles per hour.
Emissions include reductions from implementation of **MM-AQ-1**.
Greatest on-site NO_2, CO, PM_{10}, and $PM_{2.5}$ emissions are associated with the overlap between the site preparation, grading, rock crushing and rock popping, and paving phases in November 2020 through April 2021.

Health Impacts of Toxic Air Contaminants

Less than Significant with Mitigation Incorporated. As shown in Table 4.2-10, the construction HRA results from the unmitigated scenario show cancer risks exceeding the 10 in 1 million threshold and thus a potentially significant impact at the maximally exposed individual residential receptors. Implementation of **MM-AQ-1** would reduce project construction-generated DPM emissions to the extent feasible by requiring that equipment meet Tier 4 Final engine emission standards. The construction HRA results after incorporation of **MM-AQ-1** are presented in Table 4.2-14. Thus, impacts after mitigation are less than significant.

Table 4.2-14. Construction Health Risk Assessment Results – Mitigated

Impact Parameter	Units	Project Impact	CEQA Threshold	Level of Significance
Maximum Individual Cancer Risk – Residential	Per Million	3.96	10	Less than Significant
Chronic Hazard Index – Residential	Index Value	0.004	1.0	Less than Significant

Source: SCAQMD 2015.
Notes: CEQA = California Environmental Quality Act.
See Appendix B.

The cumulative mitigated construction and operational activities would result in a Residential Maximum Individual Cancer Risk of 8.94 in 1 million, which would be less than the significance threshold of 10 in 1 million.

4.2.7 Cumulative Impacts

Air pollution by nature is largely a cumulative impact. The nonattainment status of regional pollutants is a result of past and present development, and the SCAQMD develops and implements plans for future attainment of ambient air quality standards. Based on these considerations, project-level thresholds of significance for criteria pollutants are used by the SCAQMD to determine whether a project's individual emissions would have a cumulatively significant impact on air quality. The potential for the project to result in a cumulatively considerable impact, specifically a cumulatively considerable new increase of any criteria pollutant for which the project region is nonattainment under an applicable NAAQS and/or CAAQS, is addressed in Section 4.2.4. As set forth therein, because the project would exceed the project-level thresholds for regional NO_x and VOC emissions during operation and project-level LSTs for PM_{10} and $PM_{2.5}$ during construction, the project's cumulative impacts with respect to such emissions would be considerable and significant. The project construction and operation would not exceed the cancer risk and chronic hazard index thresholds with implementation of mitigation; therefore, the project's cumulative impacts with respect to impacts of TACs is less than significant. Furthermore, the project's construction odor impacts would be short term in nature and disperse rapidly, and the project gasoline dispensing facility would be equipped with phase I and phase II controls, which would also have a co-benefit for controlling odors. Therefore, project construction and operations would result in an odor cumulative impact that is less than significant.

4.2.8 References

13 CCR 2025. Regulation to Reduce Emissions of Diesel Particulate Matter, Oxides of Nitrogen and Other Criteria Pollutants, from In-Use Heavy-Duty Diesel-Fueled Vehicles.

13 CCR 2449–2449.3 and Appendix A. General Requirements for In-Use Off-Road Diesel-Fueled Fleets.14 CCR 15000–15387 and Appendices A–L. Guidelines for Implementation of the California Environmental Quality Act, as amended.

14 CCR 15000–15387 and Appendices A–L. Guidelines for Implementation of the California Environmental Quality Act, as amended.

17 CCR 93000. Substances Identified as Toxic Air Contaminants. In Subchapter 7, Toxic Air Contaminants.

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4.3 Biological Resources

This section describes the potentially adverse impacts to special-status species as identified in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife (CDFW) or U.S. Fish and Wildlife Service (USFWS), resulting from implementation of the proposed Costco/Vineyard II Retail Development Project (project). This section identifies associated regulatory requirements, describes the existing biological resources of the project site, evaluates potential impacts, and identifies mitigation measures related to implementation of the project.

The information and analysis contained in this section are based on the April 2020 Biological Resources Letter Report and MSHCP Consistency for the Costco/Vineyard II Retail Development Project, City of Murrieta, California, prepared by Dudek for the project, provided as Appendix C of this Environmental Impact Report (EIR). The Biological Resources Letter Report included a literature review and field reconnaissance, as well as a Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP) consistency analysis. To meet the requirements of the MSHCP, a habitat assessment was conducted to identify suitable habitat for burrowing owl (*Athene cunicularia*) within the project site, the off-site grading area, two off-site storm drain lines, and natural habitat within an associated 500-foot buffer surrounding the site (collectively referred to as the study area). In addition, a habitat assessment was conducted to identify suitable habitat for the following narrow endemic plant species: San Diego ambrosia (*Ambrosia pumila*), many-stemmed dudleya (*Dudleya multicaulis*), spreading navarretia (*Navarretia fossalis*), Wright's trichocoronis (*Trichocoronis wrightii* var. *wrightii*), California orcutt grass (*Orcuttia californica*), and Munz's onion (*Allium munzii*). Access was not available within all natural habitat within the 500-foot buffer due to private property ownership and active construction. Therefore, vegetation mapping and the habitat assessment were both conducted using public roads and/or using aerial signatures of those communities occurring within the proposed project footprint.

For this analysis, "special-status" species are those that are (1) listed, proposed for listing, or candidates for listing under the federal Endangered Species Act as threatened or endangered; (2) listed or candidates for listing under the California Endangered Species Act as threatened or endangered; (3) California state fully protected species; (4) a CDFW Species of Special Concern; (5) a species listed on the CNPS Inventory of Rare and Endangered Plants with a California Rare Plant Rank of 1B or 2B; or (6) an MSHCP covered species (Appendix C). "Listed species" refer to species that fall into category 1 or 2 from the above definition. They are listed, proposed for listing, or candidates for listing as threatened or endangered under the federal Endangered Species Act or the California Endangered Species Act. "Non-listed species" refer to all other categories of special-status species from the above definition.

4.3.1 Existing Conditions

4.3.1.1 Vegetation Communities and Land Covers

The project site is characterized by six vegetation communities and two land cover types: California buckwheat scrub, disturbed California buckwheat scrub, fourwing saltbush scrub, chamise–black sage chaparral, chamise–California buckwheat, Mediterranean California naturalized annual and perennial grasslands grassland, disturbed habitat, and developed land. Figure 4.3-1, Biological Resources Map, illustrates the distribution of vegetation communities and land covers, and Table 4.3-1 provides a summary of each land cover's extent within the study area.

Table 4.3-1. Vegetation Communities and Land Covers within the Project Site, Off-Site Grading Area, Off-Site Storm Drain Lines, and Associated Study Area

Vegetation Community/Land Cover	Acreage
California Buckwheat Scrub	13.32
Disturbed California Buckwheat Scrub	0.87
Disturbed Fourwing Saltbush Scrub	0.65
Chamise–Black Sage Chaparral	0.32
Chamise–California Buckwheat	0.94
Mediterranean California naturalized annual and perennial grasslands	3.45
Disturbed Habitat	32.46
Developed Land	20.95
Total	**72.98***

Source: Appendix C.
***72.98 acres represents the project parcel, the off-site grading area, two off-site storm drain lines, and the natural habitat within a 500-foot buffer (i.e., the associated study area.) The proposed project includes the 26.3-acre project site, 2.46-acre off-site grading area, and 0.43 acres of off-site storm drain lines.

California Buckwheat Scrub

The California buckwheat (*Eriogonum fasciculatum*) vegetation community is an open to continuous shrub layer where California buckwheat typically dominates. The shrub layer often occurs in two separate strata: low shrubs at 0–2 meters tall and tall shrubs at 1–5 meters tall. A variety of native or non-native species may make up the herb layer, and emergent trees only infrequently occur (Klein and Evens 2006).

California buckwheat scrub is located in the northern portion of the study area on the east side of Antelope Road. A small portion of California buckwheat scrub intersects with the western portion of the off-site grading area. This vegetation community is dominated by California buckwheat with low cover of black sage (*Salvia mellifera*).

Disturbed California Buckwheat Scrub

Disturbed California buckwheat vegetation community occurs on the east side of the project site and the steep slopes on the east and west sides of Antelope Road. The vegetation community on the eastern side of the project site is primarily dominated by California buckwheat; however, it also contains low cover of deerweed (*Acmispon glaber*) and tree tobacco (*Nicotiana glauca*), with an understory of common Mediterranean grass (*Schismus barbatus*) and bare ground. The vegetation community along either side of Antelope Road is heavily disturbed due to artificially incised slopes associated with the former mass-grading activities conducted on the project site and the grading of Antelope Road. Scattered California buckwheat occurs along the slopes, in addition to intermittent black sage. The herbaceous layer contains a low cover of non-native grasses, but is mostly composed of bare ground.

Disturbed Fourwing Saltbush Scrub

The fourwing saltbush scrub alliance is not recognized within the Vegetation Alliances of Western Riverside County (Klein and Evens 2006), but it is described in a Manual of California Vegetation, 2nd Edition, as being either dominated or co-dominated by fourwing saltbush (*Atriplex canescens*) in the shrub canopy (Sawyer et al. 2009). The shrub canopy is typically open or intermittent with a variable herbaceous layer composed of seasonal herbs or non-native grasses. Emergent trees may also be available at a low cover. Associated shrub species include burrowbush (*Ambrosia dumosa*), allscale saltbush (*Atriplex polycarpa*), and bush seepweed (*Suaeda nigra*) (Sawyer et al. 2009).

Within the study area, a disturbed form of this vegetation community occupies a small section of the eastern side of the project site, directly adjacent to the disturbed habitat of the former mass grading operations. This community is dominated by fourwing saltbush, but also contains a low cover of California buckwheat. The understory is composed of non-native grasses and bare ground.

Chamise – Black Sage Chaparral

The chamise–black sage chaparral vegetation community is co-dominated by chamise (*Adenostoma fasciculatum*) and black sage, with an intermittent to continuous canopy within the shrub layer. The shrub layer may occur in two separate strata: low shrubs at 0.5 to 2 meters tall and taller shrubs 1 to 5 meters tall (Klein and Evens 2006).

This vegetation community is located within the southern portion of the study area. It is composed primarily of chamise and black sage, but also contains some California buckwheat and a sparse understory of non-native grasses.

Chamise – California Buckwheat Association

The chamise–California buckwheat vegetation association is either dominated or co-dominated by chamise and California buckwheat, with a shrub layer of open to continuous canopy. The shrub layer may occur in two strata: low shrubs at 0 to 2 meters tall and taller shrubs 0.5 to 5 meters tall. Trees may occur at trace cover, and the herbaceous layer typically remains open to intermittent (Klein and Evens 2006).

This association occurs in small patches on the western side of the study area, outside of the project site. These patches are composed primarily of chamise, but are also co-dominated by a continuous presence of California buckwheat. The herbaceous layer is composed of non-native grasses.

Mediterranean California Naturalized Annual and Perennial Grassland

As defined by Klein and Evens (2006), Mediterranean California naturalized annual and perennial grassland is usually dominated by annual grasses and herbs of various assortments that are in upland habitats. Specifically, red brome (*Bromus madritensis* ssp. *rubens*) or ripgut brome (*B. diandrus*) are abundant with other non-native and native species.

Non-native grassland occupies the western side of the study area, outside of the project site. This vegetation community is composed primarily of weedy species, including brome species (*Bromus* sp.), short-podded mustard (*Hirschfeldia incana*), common Mediterranean grass, dove weed (*Croton setiger*), prickly wild lettuce (*Lactuca serriola*), and common cryptantha (*Cryptantha intermedia*). A single blue elderberry (*Sambucus nigra* ssp. *caerulea*) is located on the southwestern side of the study area, and several Peruvian peppertrees (*Schinus molle*) are clustered at the northwestern edge of the study area; however, neither of these trees warrant their own vegetation community due to the small scale of their cover.

Developed Land

Although not recognized by the Vegetation Alliances of Western Riverside County (Klein and Evens 2006), "developed land" refers to areas that have been constructed on or disturbed so severely that native vegetation is no longer supported. Developed land includes areas with permanent or semi-permanent structures, pavement or hardscape, landscaped areas, and areas with a large amount of debris or other materials.

The portions of the study area mapped as developed include active construction taking place in the southern portion of the study area directly south of the project site and associated roads within the study area. This area contains the southern off-site storm drain line. The construction south of the project site is not depicted on the most recent aerial photography; therefore, the aerial used for project figures does not display this development.

Disturbed Habitat

Although not recognized by the Vegetation Alliances of Western Riverside County (Klein and Evens 2006), the classification of disturbed habitat is due to the predominance of bare ground and compacted soils with a sparse covering of non-native plant species and other disturbance-tolerant plant species. Oberbauer et al. (2008) describes disturbed habitat as an area that has been physically disturbed by previous human activity and is no longer recognizable as a native or naturalized vegetation association but that continues to retain a soil substrate.

Disturbed habitat is located within the majority of the project site and off-site grading area in locations where mass grading operations previously occurred. Additionally, the northern off-site storm drain line is located within disturbed habitat. This land cover encompasses the majority of the mass grading operation activities and is primarily composed of bare ground; however, the northeastern side of the project site also contains a low cover of tree tobacco, deerweed, and short-podded mustard. In addition, there are two individual mulefat (*Baccharis salicifolia*) plants within the project site, but these individuals did not warrant their own vegetation community due to the small scale of their cover.

4.3.1.2 Plants and Wildlife

Floral Diversity

A total of 31 species of native or naturalized plants—17 native (55%) and 14 non-native (45%)—were recorded within the study area. This low plant diversity reflects the study area's disturbed environment and its proximity to adjacent developed areas. Plant species observed within the study area are listed in Appendix C.

Wildlife

Twelve bird species were detected within the study area, including house finch (*Haemorhous mexicanus*), Anna's hummingbird (*Calypte anna*), American kestrel (*Falco sparverius*), Say's phoebe (*Sayornis saya*), and California towhee (*Melozone crissalis*). No active bird nests were observed within the study area during the reconnaissance survey; however, the vegetated portions of the study area could support nesting birds. No amphibian species were observed, and none are expected to occur due to the lack of aquatic habitat. One reptile species was observed during the survey: western fence lizard (*Sceloporus occidentalis*). One mammal species was observed during the survey: coyote (*Canis latrans*). The low wildlife diversity reflects the relatively disturbed nature of the study area, and the lack of contiguous habitat. Wildlife species observed within the study area are listed in Appendix C.

4.3.1.3 Special-Status Plant Species

Based on the results of the literature review and database searches (see Appendix C), 59 special-status plant species have been documented within the region. All of these species were evaluated for potential to occur within the study area. Criteria used included soils, current disturbance levels, vegetation communities present, elevation ranges, and previous known locations based on the California Natural Diversity Database, California Native Plant Society, and Calflora records.

There are no federally or state-listed as endangered plant species with a potential to occur in the study area. Due to the disturbed nature of the project site, all non-listed special-status species were determined to either have low potential or were not expected to occur within the project site. Four non-listed special-status species have a moderate potential to occur outside of the project site, within the buffer portion of the study area: smooth tarplant (*Centromadia pungens* ssp. *laevis*), Parry's spineflower (*Chorizanthe parryi* var. *parryi*), intermediate Mariposa lily (*Calochortus weedii* var. *intermedius*), and white rabbit-tobacco (*Pseudognaphalium leucocephalum*). All species except for white rabbit-tobacco are fully covered under the MSHCP (County of Riverside 2003). A list and determination of potential to occur for these species can be found in Appendix C.

No plant species listed or proposed for listing as rare, threatened, or endangered by either CDFW or USFWS were detected within the study area. No plant species considered sensitive by the California Native Plant Society were observed. The study area is not within Critical Habitat for any special-status plant species (USFWS 2020).

4.3.1.4 Special-Status Wildlife Species

No wildlife species listed or proposed for listing as rare, threatened, or endangered by either CDFW or USFWS were detected within the study area. The study area is not within Critical Habitat for any special-status wildlife species (USFWS 2020).

Attachment F to Appendix C lists 43 special-status wildlife species that are known to occur in the U.S. Geological Survey 7.5-minute Murrieta quadrangle and the eight surrounding quadrangles (CDFW 2020). For each species listed, a determination was made regarding potential use of the study area by the species (known habitat preferences) based on information gathered during the field reconnaissance and knowledge of the species' relative distributions in the area.

The federally listed threatened coastal California gnatcatcher (*Polioptila californica californica*) has a low potential to occur on the project site because there is no remaining vegetation due to the former mass grading activities, and a moderate potential to occur in the study area outside the project site. Coastal California gnatcatcher is a fully covered species under the MSHCP (County of Riverside 2003). The federally listed endangered and state-listed threatened Stephens' kangaroo rat (*Dipodomys stephensi*) has a low potential to occur in both the project site and the study area; however, it is a fully covered species under the MSHCP (County of Riverside 2003). The project site is within the Stephens' Kangaroo Rat Habitat Conservation Plan area, which provides "take" authorization for Stephens' kangaroo rat within its boundaries (RCHCA 1996).

Due to the disturbed nature of the project site, all non-listed special-status wildlife species were determined to either have low potential or were not expected to occur within the project site. Seven non-listed, special-status species have a moderate potential to occur within the study area outside of the project site: California glossy snake (*Arizona elegans occidentalis*), San Diegan tiger whiptail (*Aspidoscelis tigris stejnegeri*), San Diego banded gecko (*Coleonyx variegatus abbotti*), red diamondback rattlesnake (*Crotalus ruber*), Blainville's horned lizard (*Phrynosoma blainvillii*), coast patch-nosed snake (*Salvadora hexalepis virgultea*), and San Diego black-tailed jackrabbit (*Lepus californicus bennettii*). All of these species except for California glossy snake and coast patch-nosed snake are fully covered under the MSCHP. None of these species were observed within the study area during the reconnaissance survey. A list and determination of potential to occur for these species can be found in Attachment F to Appendix C.

Burrowing Owl Habitat Assessment

The proposed project is located within the MSHCP Burrowing Owl Habitat Assessment Area. In accordance with the MSHCP, a habitat assessment was conducted for this species (County of Riverside 2003).

Burrowing owl is a California Species of Special Concern. With a relatively wide-ranging distribution throughout the west, burrowing owl is considered to be a habitat generalist (Lantz et al. 2004). In California, burrowing owl is a yearlong resident of open, dry grassland and desert habitats, and in grass, forb, and open shrub stages of pinyon–juniper and ponderosa pine habitats (Zeiner et al. 1990). Preferred habitat is generally typified by short, sparse vegetation with few shrubs; level to gently sloping topography; and well-drained soils (Haug et al. 1993).

The presence of burrows is the most essential component of burrowing owl habitat, since burrows are required for nesting, roosting, cover, and catching prey. In California, western burrowing owl most commonly lives in burrows created by California ground squirrels (*Spermophilus (Otospermophilus) beecheyi*). Burrowing owl may occur in human-altered landscapes such as agricultural areas, ruderal grassy fields, vacant lots, and pastures if the vegetation structure is suitable (i.e., open and sparse), useable burrows are available, and foraging habitat is close (Gervais et al. 2008). Debris piles, riprap, culverts, and pipes can also be used for nesting and roosting.

The nearest documented occurrence of burrowing owl is approximately 2.5 miles southeast of the study area. This occurrence was documented in 2003 (CDFW 2020).

The project site is primarily disturbed, as it has previously operated as an active mass-grading operation. This disturbed habitat is comprised of unvegetated, compacted soils that do not contain California ground squirrel activity or burrows. There is a section of open, disturbed fourwing saltbush scrub habitat (0.65 acres) on the eastern side of the project site. This area could provide potential low-quality potential foraging habitat for burrowing owl due to its small extent and lack of continuity with surrounding higher-quality habitat. No California ground squirrel burrows or other burrows 4 inches or greater in diameter that could provide nesting habitat for burrowing owl were observed within the study area. Currently, potential for this species to occur is low; however, should the project site continue to remain fallow prior to construction, suitability of the project site for this species could increase.

4.3.1.5 Nesting Birds

The project site is primarily disturbed as a previous mass-grading operation; however, the natural habitat on the eastern side of the site provides potential nesting habitat for commonly occurring birds such as Anna's hummingbird and house finch. In addition, ground-nesting birds such as killdeer (*Charadrius vociferus*) may use the developed portion of the project site. The project site does not contain large trees suitable for raptor nesting.

4.3.1.6 Jurisdictional Waters and Significant Drainage Courses

A concrete roadside ditch is located along the northwestern boundary of the study area, along Interstate (I) 215, outside of the project site. This feature lies in a topographic low point and appears to convey freeway runoff from the south, which then sheetflows into an area in the northwestern portion of the study area. There is no further evidence of ponding or surface flows, and runoff conveyed by this ditch is assumed to percolate or evaporate. Because this feature was artificially created in uplands and is not supported by a freshwater source, it is not considered jurisdictional by the U.S. Army Corps of Engineers, Regional Water Quality Control Board, or CDFW. Figure 4.3-1 illustrates the location of this feature.

The southeastern corner of the study area contains a v-ditch leading to a storm drain within the residential communities to the east. This feature is not located within the proposed project site. This feature appears to originate south of the project site along the eastern edge of the study area. The v-ditch collects runoff and conveys it north to a storm drain located within the residential communities east of the project site. According to the Water Quality Management Plan, the storm drain system later connects with Warm Springs Creek (Smith 2019). Because this feature was artificially created in uplands and is not supported by a freshwater source, it would not be considered jurisdictional by the U.S. Army Corps of Engineers, Regional Water Quality Control Board, and CDFW. Figure 4.3-1 illustrates the location of this feature.

No other potential jurisdictional features were observed within the study area.

4.3.1.7 Wildlife Corridors and Habitat Linkages

Wildlife corridors are linear features that connect large patches of natural open space and provide avenues for the migration of animals. Habitat linkages are small patches that join larger blocks of habitat and help reduce the adverse effects of habitat fragmentation; they may be continuous habitat or discrete habitat islands that function as stepping stones for wildlife dispersal. Wildlife movement through the project site is unlikely due to the developed nature of surrounding land uses. The remnants of a mass-grading operation occupy the majority of the project site; I-215 lies to the west and north, a small subdivision lies to the east, and a school exists to the south. Therefore, the study area has limited to no value as a potential wildlife corridor or habitat linkage.

4.3.1.8 Western Riverside County MSHCP Consistency Analysis

The project site is located in the MSHCP Southwest Area Plan area and must comply with the relevant section of the MSHCP (County of Riverside 2003). The project site is not within an MSHCP Criteria Cell or Cell Group (Figure 4.3-2, Western Riverside County MSHCP); therefore, no "reserve assembly" requirements would apply to the project site. Additionally, the project site is not within an MSHCP Amphibian, Mammal, or Criteria Area Species survey area; therefore, habitat assessments for species covered within these survey areas are not required.

Chapter 6 of the MSHCP outlines additional implementation measures with which permittees must comply. The relevant section of the MSHCP (County of Riverside 2003) and requirements are listed below. Project compliance with the requirements identified below is discussed in Section 4.3.4, Impacts Analysis.

- MSHCP Section 6.1.2, Riparian/Riverine and Vernal Pools Guidelines
- MSHCP Section 6.1.3, Narrow Endemic Plant Species
- MSHCP Section 6.3.2, Additional Survey Needs and Procedures

MSHCP Section 6.1.2, Riparian/Riverine Resources

The MSHCP defines riparian/riverine areas as "lands which contain habitat dominated by trees, shrubs, persistent emergent, or emergent mosses and lichens, which occur close to or which depend upon soil moisture from a nearby freshwater source; or areas with freshwater flow during all or a portion of the year" (County of Riverside 2003). The MSHCP further clarifies those areas "demonstrating characteristics as described above which are artificially created are not included in these definitions" (County of Riverside 2003).

The study area contains an unvegetated roadside ditch on the northwestern side of the project site that appears to manage road runoff associated with I-215. The majority of the ditch is concrete-lined, and runoff conveyed by the ditch sheetflows and dissipates into undeveloped areas within the study area. This feature is artificially created, does not rely on a freshwater source, and does not convey flows to downstream riverine resources; therefore, it is not a riverine resource as defined by the MSHCP (County of Riverside 2003).

The study area also contains an unvegetated v-ditch conveying street runoff to a storm drain located within the residential communities to the east. According to the Water Quality Management Plan, the storm drain system outlets in Warm Springs Creek. This feature is not located within the project site. Because this feature is artificially created and does not rely on a freshwater source, it would not be considered a riverine resource as defined by the MSHCP.

The project site contains an individual mulefat plant at two separate locations. These plants are not sufficient to support riparian bird species such as least Bell's vireo (*Vireo bellii pusillus*), southwestern willow flycatcher (*Empidonax traillii extimus*), or yellow-billed cuckoo (*Coccyzus americanus*). This is due to the small size of their extent, the lack of understory or closed-canopy features that give depth to the vegetation community, the lack of continuity with higher-quality habitat, and the project site surroundings (existing development).

Vernal Pool and Fairy Shrimp Habitat

No vernal pool indicator plants were identified within the study area. The study area does not contain clay soils, bedrock, or other poorly drained soils typically associated with vernal pools (USDA 2020). During the survey, no other topographic low points were observed within the study area, and none are present on historic aerials (Google Earth 2020). The project site contained evidence of ponding (damp soils, soil cracks) in several locations during the February 28, 2020, site visit; however, the area had experienced rain 6 days prior and much of the preceding weeks. Additionally, the soils mapped in the project site are Cajalco and Las Posas series, both of which are considered well draining and not known to retain water. Due to the lack of suitable soils and lack of standing water following rain events, the project site is not considered suitable for special-status fairy shrimp species.

MSHCP Section 6.1.3, Narrow Endemic Plant Species

The project site is located within the Narrow Endemic Plant Species Survey Area 4 of the MSHCP area. In accordance with the MSHCP, a habitat assessment must be conducted for the target species and focused surveys completed if suitable habitat is present (County of Riverside 2003). The target narrow endemic plants are San Diego ambrosia, many-stemmed dudleya, spreading navarretia, Wright's trichocoronis, California orcutt grass, and Munz's onion. Details regarding the habitat requirements for each of these species is provided in Attachment E of Appendix C.

San Diego ambrosia, spreading navarretia, California orcutt grass, and Wright's trichocoronis are not expected to occur within the study area. These species are commonly found in association with vernal pools, and an evaluation of the study area did not yield conditions suitable for vernal pools (see further discussion about vernal pools in Appendix C).

Munz's onion and many-stemmed dudleya are also not expected to occur within the study area, since the study area lacks clay soils within which these species are associated. Because the habitat assessment for narrow endemic plant species did not identify habitat characteristics associated with these species (see Appendix C), focused narrow endemic plant species surveys are not required.

MSHCP Section 6.3.2, Additional Survey Needs and Procedures

The MSHCP establishes habitat assessment requirements for certain species of plants, birds, mammals, and amphibians. The project site is in a required habitat assessment area for burrowing owl (County of Riverside 2003). As discussed in Section 3.7, Special-Status Wildlife Species, of Appendix C, the habitat assessment did not identify potential burrowing owl habitat or suitable burrows features; therefore, focused surveys are not required. Site conditions can change prior to development, and California ground squirrels have the potential to move in and create suitable burrows for burrowing owl. To avoid potential for significant impacts to burrowing owl during construction activities, a pre-construction burrowing owl survey should be conducted and avoidance measures implemented if burrowing owls are present.

Should the project site remain fallow for a long enough duration such that it acquires sparse shrub cover and California ground squirrels, the site would become suitable for burrowing owl, and focused burrowing owl surveys would be required.

MSHCP Section 6.1.4, Urban/Wildlands Interface Guidelines

According to the MSHCP, the Urban/Wildlands Interface Guidelines are intended to address indirect effects associated with locating development in proximity to the MSHCP Conservation Area (County of Riverside 2003, p. 6–42). The project site is not adjacent to any conserved areas; however, a component of the proposed project is the creation of two bio-retention basins that will collect, filter, and store runoff before discharging it into the existing City of Murrieta storm drain system through three existing off-site storm drain pipes. These storm drain pipes are undergrounded through existing residential development and eventually link with Warm Springs Creek 1.5 miles to the east, an area described for conservation by the MSHCP (Smith 2019) (Figure 4). As such, the Urban/Wildlands Interface Guidelines are applicable. The proposed project will implement the following Urban/Wildlands Interface Guidelines from the MSHCP (County of Riverside 2003) that are applicable to downstream resources. The lighting and noise portion of the Urban/Wildlands Interface Guidelines are not applicable as the land use is not adjacent to a Conservation Area.

Drainage

Proposed developments in proximity to the MSHCP Conservation Area shall incorporate measures, including measures required through the National Pollutant Discharge Elimination System requirements, to ensure that the quantity and quality of runoff discharged to the MSHCP Conservation Area is not altered in an adverse way when compared with existing conditions. In particular, measures shall be put in place to avoid discharge of untreated surface runoff from developed and paved areas into the MSHCP Conservation Area. Stormwater systems shall be designed to prevent the release of toxins, chemicals, petroleum products, exotic plant materials, or other elements that might degrade or harm biological resources or ecosystem processes within the MSHCP Conservation Area. This can be accomplished using a variety of methods including natural detention basins, grass swales, or mechanical trapping devices. Regular maintenance shall occur to ensure effective operations of runoff control systems. As previously described, the proposed project includes two bio-filtration basins that will treat drainage associated with the proposed project and discharge it into existing storm drain systems at a rate equal or less than that of existing conditions.

Toxics

Land uses proposed in proximity to the MSHCP Conservation Area that use chemicals or generate bioproducts such as manure that are potentially toxic or may adversely affect wildlife species, habitat, or water quality shall incorporate measures to ensure that application of such chemicals does not result in discharge to the MSHCP Conservation Area. Measures such as those employed to address drainage issues shall be implemented.

Invasives

When approving landscape plans for development that is proposed adjacent to the MSHCP Conservation Area, Permittees shall consider the invasive, non-native plant species listed in Table 6-2 of the MSHCP and shall require revisions to landscape plans (subject to the limitations of their jurisdiction) to avoid the use of invasive species for the portions of development that are adjacent to the MSHCP Conservation Area. Considerations in reviewing the applicability of this list shall include proximity of planting areas to the MSHCP Conservation Areas, species considered in the planting plans, resources being protected within the MSHCP Conservation Area and their relative sensitivity to invasion, and barriers to plant and seed dispersal, such as walls, topography, and other features. As described in **Mitigation Measure (MM) BIO-1**, species listed in Table 6-2 of the MSCHP shall be avoided in the landscape plan.

4.3.2 Relevant Plans, Policies, and Ordinances

Federal

Federal Endangered Species Act

As part of the United States Code (USC), the Federal Endangered Species Act (FESA) of 1973 (16 USC 1531 et seq.), as amended, is administered by USFWS for most plant and animal species, and by the National Oceanic and Atmospheric Administration's National Marine Fisheries Service for certain marine species. This legislation is intended to provide a means to conserve the ecosystems upon which endangered and threatened species depend and to provide programs for the conservation of those species, thus preventing extinction of plants and wildlife. FESA defines an endangered species as "any species that is in danger of extinction throughout all or a significant portion of its range." A threatened species is defined as "any species that is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range." Under FESA, it is unlawful to "take" any listed species, and "take" is defined as, "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct" (16 USC 1531 et seq.).

FESA allows for the issuance of incidental take permits for listed species under Section 7, which is generally available for projects that also require other federal agency permits or other approvals, and under Section 10, which provides for the approval of habitat conservation plans on private property without any other federal agency involvement.

Migratory Bird Treaty Act

The Migratory Bird Treaty Act was originally passed in 1918 as four bilateral treaties, or conventions, for the protection of a shared migratory bird resource. The primary motivation for the international negotiations was to stop the "indiscriminate slaughter" of migratory birds by market hunters and others. The act protects more than 800 species of birds (including their parts, eggs, and nests) from killing, hunting, pursuing, capturing, selling, and shipping unless expressly authorized or permitted.

State

State of California Endangered Species Act

The California Endangered Species Act (CESA) (California Fish and Game Code, Section 2050 et seq.) provides protection and prohibits the take of plant, fish, or wildlife species listed by the State of California. Unlike under FESA, state-listed plants have the same degree of protection as wildlife, but insects and other invertebrates may not be listed. Take is defined similarly to FESA and is prohibited for both listed and candidate species. Take authorization may be obtained by project applicants from CDFW under CESA Section 2081, which allows take of a listed species for educational, scientific, or management purposes. In this case, private developers must consult with CDFW to develop a set of measures and standards for managing the listed species, including full mitigation for impacts, funding of implementation, and monitoring of mitigation measures.

Other Sections from the California Fish and Game Code

Sections 3511, 4700, 5050, and 5515 of the California Fish and Game Code outline protections for fully protected species of mammals, birds, reptiles, amphibians, and fish. Species that are fully protected by these sections may not be taken or possessed at any time. CDFW cannot issue permits or licenses that authorize the take of any fully protected species, except under certain circumstances such as scientific research and live capture and relocation of such species pursuant to a permit for the protection of livestock. Furthermore, it is the responsibility of CDFW to maintain viable populations of all native species. To that end, CDFW has designated certain vertebrate species as Species of Special Concern because declining population levels, limited ranges, and/or continuing threats have made them vulnerable to extinction.

California Native Plant Protection Act

The Native Plant Protection Act of 1977 directed CDFW to carry out the legislature's intent to "preserve, protect and enhance rare and endangered plants in this State." The Native Plant Protection Act gave the California Fish and Game Commission the power to designate native plants as "endangered" or "rare," and protect endangered and rare plants from take. CESA expanded on the original Native Plant Protection Act and enhanced legal protection for plants, but the Native Plant Protection Act remains part of the Fish and Game Code. To align with federal regulations, CESA created the categories of "threatened" and "endangered" species. It converted all "rare" animals to threatened species, but did not do so for rare plants. Thus, there are three listing categories for plants in California: rare, threatened, and endangered. Because rare plants are not included in CESA, mitigation measures for impacts to rare plants are specified in a formal agreement between CDFW and project applicants.

California Environmental Quality Act

The California Environmental Quality Act (CEQA) requires identification of a project's potentially significant impacts on biological resources and ways that such impacts can be avoided, minimized, or mitigated. CEQA also provides guidelines and thresholds for use by lead agencies for evaluating the significance of proposed impacts.

CEQA Guidelines Section 15380(b)(1) defines endangered animals or plants as species or subspecies whose "survival and reproduction in the wild are in immediate jeopardy from one or more causes, including loss of habitat, change in habitat, overexploitation, predation, competition, disease, or other factors." A rare animal or plant is defined in Section 15380(b)(2) as a species that, although not presently threatened with extinction, exists "in such small numbers throughout all or a significant portion of its range that it may become endangered if its

environment worsens; or … [t]he species is likely to become endangered within the foreseeable future throughout all or a significant portion of its range and may be considered 'threatened' as that term is used in the federal Endangered Species Act." Additionally, an animal or plant may be presumed to be endangered, rare, or threatened if it meets the criteria for listing, as defined further in CEQA Guidelines Section 15380(c).

Section IV, Appendix G (Environmental Checklist Form), of the CEQA Guidelines requires an evaluation of impacts to "any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and [Wildlife] or the U.S. Fish and Wildlife Service."

Local

City of Murrieta General Plan

The Murrieta General Plan 2035 establishes a "blueprint" for the City to help guide land use decisions. Several elements within the General Plan were established to address potential impacts to biological resources. Specifically, the Land Use, Conservation, and Recreation and Open Space Elements each have goals and policies that address potential impacts to candidate, sensitive, or special-status species and their habitats.

Western Riverside County Multiple Species Habitat Conservation Plan

The Western Riverside MSHCP is a comprehensive, multijurisdictional habitat conservation plan focusing on conservation of species and their associated habitats in Western Riverside County. The MSHCP is one of several large, multijurisdictional habitat-planning efforts in Southern California with the overall goal of maintaining biological and ecological diversity within a rapidly urbanizing region. The MSHCP allows Riverside County and its cities, including the City of Murrieta, to better control local land-use decisions and maintain a strong economic climate in the region while addressing the requirements of CESA and FESA (County of Riverside 2003).

The MSHCP serves as a habitat conservation plan pursuant to Section 10(a)(1)(B) of FESA (16 USC 1531 et seq.), and a Natural Communities Conservation Plan under the Natural Community Conservation Planning Act of 2001 (Fish and Game Code Section 2800 et seq.). The MSHCP allows the participating jurisdictions to authorize "take" of plant and wildlife species identified within the plan area. USFWS and CDFW have authority to regulate the take of threatened, endangered, and rare species. Under the MSHCP, the Wildlife Agencies have granted "take authorization" for otherwise lawful actions, such as public and private development that may incidentally take or harm individual species or their habitat outside of the MSHCP conservation area, in exchange for the assembly and management of a coordinated MSHCP conservation area.

The MSHCP is a "criteria-based plan" and does not rely on a hardline preserve map. Instead, within the MSHCP area, the MSHCP reserve is assembled over time from a smaller subset of the plan area referred to as the Criteria Area. The Criteria Area consists of Criteria Cells (Cells) and Cell Groupings, and flexible guidelines (Criteria) for the assembly of conservation within the Cells or Cell Groupings. Cells and Cell Groupings also may be included within larger units known as Cores, Linkages, or Non-Contiguous Habitat Blocks (County of Riverside 2003).

Western Riverside MSHCP Mitigation Fee

To implement the goals and objectives of the Western Riverside MSHCP and to mitigate the impacts caused by new development, lands supporting species covered by the MSHCP must be acquired and conserved. A standard fee, known as the Development Mitigation Fee, is paid to the City prior to construction to supplement the financing of the acquisition of lands supporting species covered by the MSHCP and to pay for a new

development's fair share of this cost. The Development Mitigation Fee assists in the maintenance of biological diversity and protects vegetation communities that are known to support threatened, endangered, or sensitive populations of plant and wildlife species (County of Riverside 2003).

Stephens' Kangaroo Rat Habitat Conservation Plan

The Habitat Conservation Plan for the Stephens' Kangaroo Rat in Western Riverside County (SKR HCP) was prepared by the Riverside County Habitat Conservation Agency, and approved by USFWS in agreement with the California Department of Fish and Game (now CDFW) on May 6, 1996. The agreement creates a network of reserves within western Riverside County occupied by and to be managed for Stephens' kangaroo rat. A total of 30,000 acres included as reserves are occupied by Stephens' kangaroo rat. The SKR HCP authorizes incidental take of Stephens' kangaroo rat and describes the conservation, mitigation, and monitoring measures that are applied under the Section 10(a) permit issued by USFWS and Management Authorization issued by CDFW. The SKR HCP describes the proposed conservation, mitigation, and monitoring measures to be implemented for the preservation of the federally endangered Stephens' kangaroo rat. The SKR HCP establishes a regional system of Core Reserves throughout western Riverside County for the specific conservation of Stephens' kangaroo rat and the ecosystem upon which it depends. A standard fee, known as the Development Mitigation Fee, is paid to the City prior to construction, to supplement the financing of Core Reserve management for the SKR HCP and to pay for a new development's fair share of this cost.

Tree Ordinance

The City of Murrieta Development Code, Article III, Section 16.42, Tree Preservation, identifies the following as protected trees:

- Native oak with a diameter at standard height of 4 inches or greater (smaller trees may also be protected under special circumstances as determined by the director).
- Trees of historical or cultural significance as identified by council resolution.
- Significant groves or stands of trees.
- Mature trees located on a parcel of 1 acre or more (smaller trees may also be protected under special circumstances as determined by the director).
- Any tree required to be planted or preserved as environmental mitigation for a discretionary permit.

There are no resources on the project site that meet the above criteria; therefore, a tree removal permit in accordance with the City of Murrieta Development Code is not required. There are no other local ordinances applicable to the project.

4.3.3 Thresholds of Significance

The significance criteria used to evaluate the project's impacts to biological resources are based on Appendix G of the CEQA Guidelines. According to Appendix G of the CEQA Guidelines, a significant impact related to biological resources would occur if the project would:

1. 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 Game1 or U.S. Fish and Wildlife Service.
2. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service.
3. Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.
4. 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.
5. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.
6. Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

4.3.4 Impacts Analysis

This section addresses potential impacts to special-status biological resources that could result from implementation of the proposed project. This section follows the CEQA checklist for biological resources. For the purposes of this biological analysis, it is assumed that the entire project site and off-site grading area would be permanently impacted. The two off-site storm drain lines are considered temporary impacts because the storm drain pipes will be undergrounded (see Figure 4.3-3, Impacts).

Would the project 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?

Special-Status Vegetation Communities

No Impact. No special-status vegetation communities occur on the project site; therefore, no impacts to special-status vegetation communities would occur with project implementation. Table 4.3-2, below, lists impacts to the land covers found on the project site, off-site grading area, and off-site storm drain lines.

[1] The California Department of Fish and Game changed its name to California Department of Fish and Wildlife effective January 1, 2013, but this language is taken directly from Appendix G of the CEQA Guidelines and has not been modified.

Table 4.3-2. Impacts to Land Covers on the Project Site, Off-Site Grading Area, and Off-Site Storm Drain Lines

Vegetation Community/Land Cover	Acreage
Project Site	
California Buckwheat	—
Disturbed California Buckwheat	—
Fourwing Saltbush	0.65
Chamise–Black Sage	—
Chamise–California Buckwheat Association	—
Mediterranean California Naturalized Annual and Perennial Grassland	—
Disturbed Land	25.62
Developed Land	<0.01
Project Site Total	**26.3**
Off-Site Grading Area	
California Buckwheat	0.28
Disturbed Land	2.18
Developed Land	<0.01
Off-Site Grading Area Total	**2.46**
Disturbed Land	0.31
Developed Land	0.13
Off-Site Storm Drain Lines Total	**0.43**
Grand Total	**29.17***

Source: Appendix C.

* Total impacts are larger than the 26.3-acre project site due to the inclusion of the 2.46-acre off-site grading area to the north and the 0.43-acre off-site storm drain lines to the north and south. Subtotals may not add due to rounding.

Special-Status Plant Species

Less-than-Significant Impact with Mitigation. There are no special-status plant species that have moderate or high potential to occur within the project site; therefore, there would be no direct impacts to special-status plant species with project implementation.

Four non-listed, special-status species have a moderate potential to occur within the buffer area of the study area. Indirect impacts could occur to these four special-status plants and their habitat. Potential indirect impacts to special-status plants include the generation of fugitive dust, the release of chemical pollutants, and the adverse effect of invasive plant species.

All species except for white rabbit-tobacco are fully covered under the MSHCP, and impacts to all species except for white rabbit-tobacco would be less than significant with payment of the MSHCP Development Mitigation Fee. Indirect impacts to non-covered special-status plants (white rabbit-tobacco) would be significant absent mitigation (Impact BIO-1). To avoid potential for significant impacts to white rabbit-tobacco during construction activities, general avoidance and minimization will be implemented that contain construction activities within the designated limits and prevent debris and toxins from spilling into the neighboring buffer area. Implementation of **MM-BIO-1** would reduce potential impacts to less than significant.

Special-Status Wildlife

Less-than-Significant Impact with Mitigation. Two federally listed threatened species—Stephens' kangaroo rat and coastal California gnatcatcher—have a low potential to occur within the project site. The project site is within the SKR HCP boundary (RCHCA 1996); therefore, impacts to Stephens' kangaroo rat would be less than significant with payment of the SKR HCP Development Mitigation Fee. Coastal California gnatcatcher is fully covered by the MSHCP; therefore, impacts to coastal California gnatcatcher would be less than significant with payment of the MSHCP Development Mitigation Fee.

Seven non-listed special-status wildlife species have the potential to occur adjacent to the project site, and the project could result in indirect impacts to these species. Indirect impacts could include noise, dust, pollution, and entrapment during construction activities. Five of these species are fully covered under the MSCHP, and impacts would be less than significant with payment of the MSHCP Development Mitigation Fee. Two species, California glossy snake and coast patch-nosed snake, are not covered by the MSHCP. Implementation of **MM-BIO-1** would reduce potential indirect impacts to these species to less than significant.

Burrowing Owl

The burrowing owl habitat assessment determined that suitable burrowing owl habitat is not present on site due to the absence of suitable burrows and limited foraging habitat (see Appendix C); therefore, the project would not result in significant impacts to burrowing owl habitat. If burrowing owl should occupy the site prior to initiation of construction activities, direct impacts to burrowing owl would be significant. Additionally, if burrowing owls occupy surrounding habitat within 500 feet of construction activities, indirect impacts could be significant. To avoid potential for significant impacts to burrowing owl during construction activities, a pre-construction burrowing owl survey should be conducted and avoidance measures implemented if burrowing owl are present (**MM-BIO-2**). Implementation of **MM-BIO-2** would reduce potential impacts to less than significant.

Nesting Birds

Project construction could result in direct and indirect impacts to nesting birds, including the loss of nests, eggs, and fledglings if vegetation clearing and ground-disturbing activities occur during the avian nesting season (typically March 1 through August 31). If the nesting bird season cannot be avoided, a nesting bird survey should be conducted and avoidance measures implemented if nests are documented within the project site or within 300 feet of the project site (**MM-BIO-3**). Implementation of **MM-BIO-3** would reduce potential impacts to less than significant.

Would the project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?

Less-than-Significant Impact. The MSHCP defines riparian/riverine areas as "lands which contain habitat dominated by trees, shrubs, persistent emergent, or emergent mosses and lichens, which occur close to or which depend upon soil moisture from a nearby freshwater source; or areas with freshwater flow during all or a portion of the year." The MSHCP further clarifies those areas "demonstrating characteristics as described above which are artificially created are not included in these definitions" (County of Riverside 2003).

As discussed in Section 4.3.1.8, Western Riverside County MSHCP Consistency Analysis, there are no areas that are a riverine resource as defined by the MSHCP.

Given that the project site does not support any MSHCP-defined riparian resources, MSHCP-riverine resources, or other sensitive natural communities, impacts associated with the project would be less than significant.

Would the project have a substantial adverse effect on state or 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?

No Impact. As discussed in Section 4.3.1.6, the project site does not contain jurisdictional waters; therefore, no impact to federal protected wetlands would occur.

Would the project 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?

No Impact. As discussed in Section 4.3.1.7, Wildlife Corridors and Habitat Linkages, the project site does not function as a wildlife corridor and does not support any wildlife nursery sites. As a result, implementation of the proposed project would result in no impacts to these resources.

Would the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

No Impact. Several elements within the City of Murrieta General Plan were established to address potential impacts to biological resources. Specifically, the Land Use, Conservation, and Recreation and Open Space Elements each have goals and policies that address potential impacts to candidate, sensitive, or special-status species and their habitats. As none of these species or habitats are present on the site, no further action is required.

The City of Murrieta Development Code, Article III, Section 16.42, Tree Preservation, identifies the following as protected trees:

- Native oak with a diameter at standard height of 4 inches or greater (smaller trees may also be protected under special circumstances as determined by the director).
- Trees of historical or cultural significance as identified by council resolution.
- Significant groves or stands of trees.
- Mature trees located on a parcel of 1 acre or more (smaller trees may also be protected under special circumstances as determined by the director).
- Any tree required to be planted or preserved as environmental mitigation for a discretionary permit.

There are no resources on the project site that meet the above criteria; therefore, a tree removal permit in accordance with the City of Murrieta Development Code is not required. There are no other local ordinances applicable to the project. As a result, implementation of the proposed project would result in no impacts to these resources.

Would the project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?

Less-than-Significant Impact with Mitigation Incorporated. The project site is located within the MSHCP plan area (County of Riverside 2003) and within the Stephens' Kangaroo Rat Habitat Conservation Plan boundary (RCHCA

1996). As discussed below and within Table 4.3-3, MSHCP Consistency Analysis, the project is consistent with the MSHCP and Stephens' Kangaroo Rat Habitat Conservation Plan.

The project site is within the MSHCP plan area. As described in Section 4.3.1.8, Western Riverside County MSHCP Consistency Analysis, the project site does not support riparian/riverine resources, vernal pools or fairy shrimp habitat, narrow endemic plant habitat, or Criteria Area species habitat; therefore, there are no requirements under the MSHCP for these resources. The project site is also not adjacent to conservation areas; however, the bio-filtration systems will connect to downstream resources available for conservation. Therefore, the Urban/Wildlife Interface Guidelines are applicable, as described in Section 4.3.1.8 of this report. The project site does not support burrowing owl habitat; however, burrowing owls have the potential to occupy the site in the future. With implementation of burrowing owl pre-construction surveys and avoidance and minimization measures, if applicable, the project would be consistent with the MSHCP burrowing owl requirements. With implementation of **MM-BIO-2**, Burrowing Owl Pre-construction Surveys; **MM-BIO-1**, General Avoidance and Minimization Measures; and payment of the MSHCP Development Mitigation Fee, the proposed project would be consistent with the MSHCP.

The project site is within the Stephens' Kangaroo Rat Habitat Conservation Plan boundary (RCHCA 1996). With payment of the Stephens' Kangaroo Rat Habitat Conservation Plan Development Mitigation Fee, the proposed project would be consistent with the Stephens' Kangaroo Rat Habitat Conservation Plan.

Table 4.3-3. Habitat Conservation Plan Consistency Analysis Summary

Policy	Discussion	Consistency
MSHCP Section 6.1.2 Riparian/Riverine, Vernal Pool and Fairy Shrimp Requirements	*Riparian/Riverine Resources* • The study area contains an unvegetated roadside ditch on the northwestern side of the study area that appears to be used to manage road runoff associated with I-215. This feature is artificially created and does not rely on a freshwater source, and does not convey flows to downstream riverine resources, and thus is not a riverine resource. • The study area contains an unvegetated v-ditch that carries runoff and leads to a storm drain within the properties east of the project site. Because this feature is artificially created and does not rely on a freshwater source, it would not be considered a riverine resource as defined by the MSHCP. *Vernal Pool and Fairy Shrimp Habitat* • The project site does not contain evidence of vernal pools. Soils mapped in the region are well-drained and are not known to retain ponded water. In addition, no vernal pool indicator plant species were identified within the area (see Appendix C).	Consistent
MSHCP Section 6.1.3 Narrow Endemic Plant Species Survey Requirements	The project site is located within the Narrow Endemic Plant Species Survey Area 4 of the MSHCP area. Dudek conducted a habitat assessment for narrow endemic plant species and did not identify habitat characteristics associated with these species (see Appendix C). Focused narrow endemic plant species surveys are not required.	Consistent
MSHCP Section 6.1.4 Urban/Wildlands Interface Guidelines	The project is not adjacent to conservation areas; however, the bio-filtration systems will connect to downstream resources available for conservation. Therefore, several of the Urban/Wildlife Interface Guidelines related to drainage, toxicants, and invasive species are applicable. The bio-filtration systems included as project design	Consistent

Table 4.3-3. Habitat Conservation Plan Consistency Analysis Summary

Policy	Discussion	Consistency
	features will meet the drainage and toxicant requirements. To prevent the spread of invasive species, **MM-BIO-1** would be required. Guidelines related to noise and lighting are not applicable because the project is not adjacent to a Conservation Area.	
MSHCP Section 6.3.2 Criteria Area Species Survey Requirements	The project site is in a required habitat assessment area for burrowing owl. The habitat assessment did not identify potential burrowing owl habitat or suitable burrows features (see Appendix C); therefore, focused surveys are not required. Site conditions can change prior to development, creating suitable habitat for burrowing owl. To avoid potential for significant impacts to burrowing owl during construction activities, **MM-BIO-2** would be required.	Consistent with mitigation incorporated
MSHCP Development Mitigation Fee	The project site is within the Western Riverside MSHCP boundary. With payment of the MSHCP Development Mitigation Fee, the proposed project would be consistent with the Western Riverside MSHCP.	Consistent with payment of mitigation fee
SKR HCP	The project site is within the SKR HCP boundary. With payment of the SKR HCP Development Mitigation Fee, the proposed project would be consistent with the SKR HCP.	Consistent with payment of mitigation fee

4.3.5 Mitigation Measures

The following mitigation measures address the proposed project's significant impacts on special-status wildlife species, vegetation communities, jurisdictional resources, the tree preservation ordinance, and related to compliance with the MSHCP. With implementation of these mitigation measures, all significant impacts would be reduced to less than significant.

MM-BIO-1 General Avoidance and Minimization Measures

The following avoidance and minimization measures shall be implemented during project construction activities:

- Construction limits along the northern boundary of the off-site grading area and western side of the northern off-site storm drain line shall be clearly flagged so that adjacent native vegetation is avoided.
- Construction work and operations and maintenance areas shall be kept clean of debris, such as trash and construction materials. Fully covered trash receptacles that are animal-proof shall be installed and used during construction to contain all food, food scraps, food wrappers, beverage containers, and other miscellaneous trash. Trash contained within the receptacles shall be removed at least once a week from the project site.
- Nighttime construction shall be minimized to the extent possible. However, if nighttime activity (e.g., equipment maintenance) is necessary, the speed limit shall be 10 miles per hour.
- Staging and storage areas for spoils, equipment, materials, fuels, lubricants, and solvents shall be located within the project site or adjacent developed areas.
- To prevent inadvertent entrapment of wildlife during construction, all excavated steep-walled holes or trenches more than 2 feet deep shall be covered with plywood or similar materials at

the close of each working day, or be provided with one or more escape ramps constructed of earth fill or wooden planks. Before such holes or trenches are filled, they shall be thoroughly inspected for trapped wildlife. If trapped animals are observed, escape ramps or structures shall be installed immediately to allow escape.

- All pipes, culverts, and similar structures with a diameter of 4 inches or more that are stored at a construction site for one or more overnight periods shall be thoroughly inspected for wildlife and nesting birds before the pipe is buried, capped, or otherwise used or moved in any way. If an animal is discovered inside a pipe, that section of pipe shall not be moved until the animal has either moved from the structure on its own accord or until the animal has been captured and relocated by a qualified biologist.

The following avoidance and minimization measure shall be implemented as part of project operations:

- The project landscape plan shall avoid the use of any invasive, non-native plant species rated as "high" or "moderate" by the California Invasive Plant Council's Invasive Plant Inventory (Cal-IPC 2020).
- The project landscape plan shall avoid the use of any species listed in Table 6-2 of the MSHCP.

MM-BIO-2 Prior to initiation of construction activities, a burrowing owl pre-construction survey shall be conducted in accordance with the Burrowing Owl Survey Instructions for the Western Riverside Multiple Species Habitat Conservation Plan Area (RCA 2006). In accordance with these instructions, the survey shall occur within 30 days prior to ground-disturbance activities. A minimum of one survey site visit within the described timeframe prior to disturbance is required to confirm presence or absence of burrowing owl on the site. Pre-construction surveys shall be conducted by a qualified biologist.

If surveys confirm occupied burrowing owl habitat is located within the project site or within 500 feet of the project site, avoidance measures shall be implemented consistent with the requirements of the Western Riverside County Multiple Species Habitat Conservation Plan.

MM-BIO-3 To maintain compliance with the Migratory Bird Treaty Act and California Fish and Game Code, if ground disturbance and/or vegetation clearance activities are scheduled to occur during the avian nesting season, a pre-construction nesting bird survey shall be conducted by a qualified biologist within the project site and a 300-foot buffer around the project site. Surveys shall be conducted within 3 days prior to initiation of activity and be conducted between dawn and noon.

If an active nest is detected during the nesting bird survey, avoidance buffers shall be implemented as determined by a qualified biologist. The buffer shall be of a distance to ensure avoidance of adverse effects to the nesting bird by accounting for topography, ambient conditions, species, nest location, and activity type. All nests shall be monitored as determined by the qualified biologist until nestlings have fledged and dispersed, or it is confirmed that the nest has been unsuccessful or abandoned.

4.3.6 Level of Significance After Mitigation

Compliance with **MM-BIO-1** through **MM-BIO-3** would reduce significant impacts to less than significant.

4.3.7 Cumulative Impacts

A significant adverse cumulative biological resources impact would occur when construction or operation of the cumulative projects would encroach into areas containing sensitive biological resources, affect the movement of wildlife species, or affect the functionality of a planned conservation area. The proposed project has the potential to result in significant impacts to special-status plants and special-status wildlife. Compliance with mitigation measures identified in Section 4.3.5 would reduce potentially significant impacts to less than significant.

If cumulative projects are located within a MSHCP or SKR HCP area, they would be required to comply with the policies and regulations therein, including all required protocol surveys, mitigation requirements, and fee payments used to fund conservation efforts. Consistency with the MSHCP and SKR HCP would result in the ability of a project to rely on the MSHCP and SKR HCP for mitigation related to cumulative biological impacts. Thus, impacts would not be cumulatively considerable.

Cumulative projects that would occur on previously undeveloped land would be required to identify and mitigate any potentially significant impacts to biological resources. Projects that would occur on previously developed land or in a highly urbanized area would have less potential to significantly impact biological resources; however, there is a potential for nesting birds to be present in vegetation. The combined construction of projects within the vicinity of the proposed project could deprive some species of a significant amount of habitable space. However, it is anticipated that species that are potentially affected by cumulative projects would be subject to the same requirements of CEQA as the proposed project. These determinations would be made on a case-by-case basis, and the effects of cumulative projects on nesting birds would be mitigated to the extent feasible in accordance with CEQA and other applicable legal requirements.

Therefore, for the reasons described above, cumulative effects on biological resources would be less than significant.

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SOURCE: DigitalGlobe 2018

DUDEK

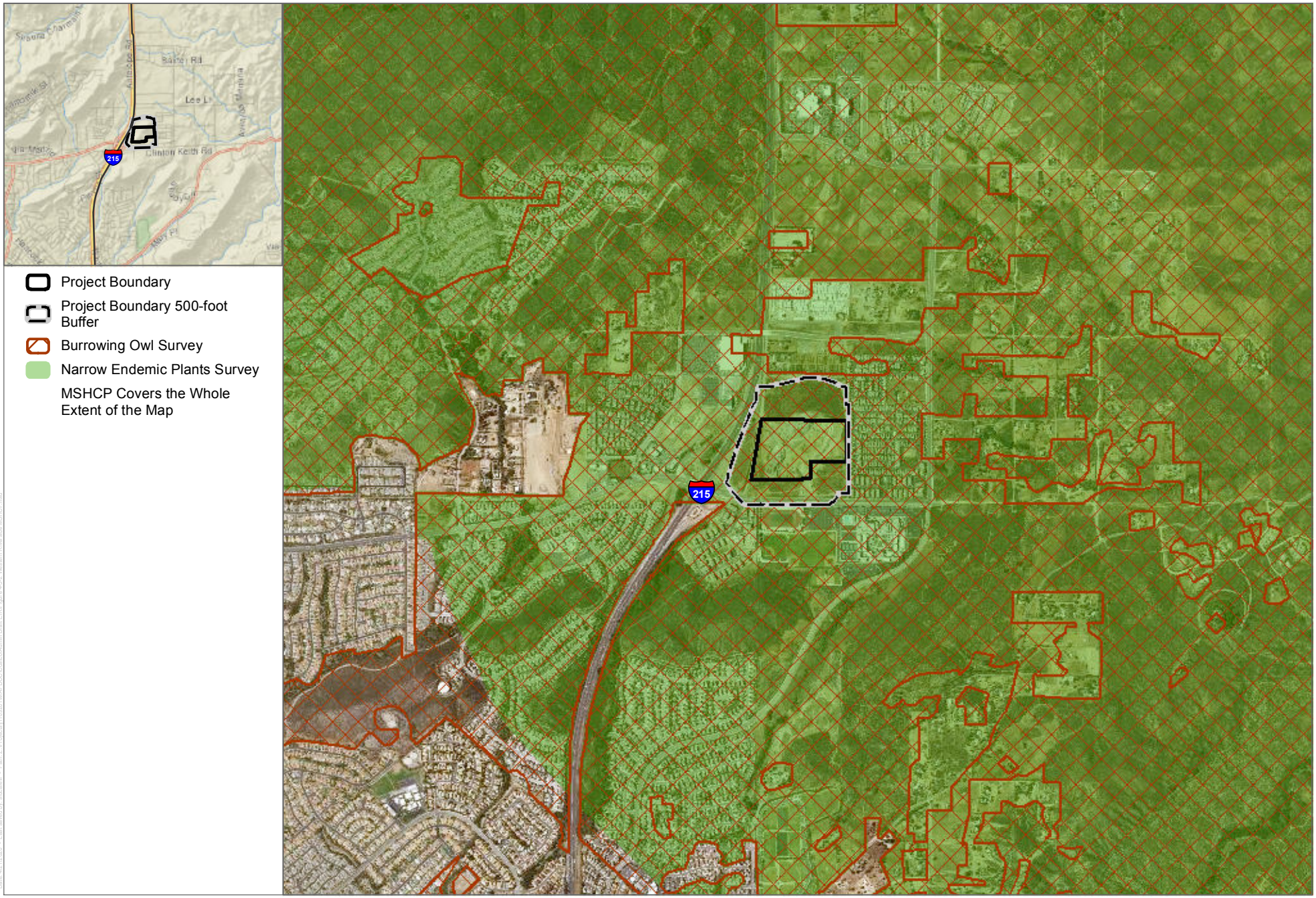
0 250 500 Feet

FIGURE 4.3-1

Biological Resources

Costco/Vineyard II Retail Development Project, City of Murrieta, California

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SOURCE: NAIP 2016; County of Riverside (Accessed in 2018)

DUDEK

0 750 1,500 Feet

FIGURE 4.3-2

Western Riverside MSHCP

Costco/Vineyard II Retail Development Project, City of Murrieta, California

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SOURCE: DigitalGlobe 2018

DUDEK

0 250 500 Feet

FIGURE 4.3-3

Impacts

Costco/Vineyard II Retail Development Project, City of Murrieta, California

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4.4 Cultural Resources

This section describes the existing cultural resources of the Costco/Vineyard II Retail Development Project (project) site, identifies associated regulatory requirements, evaluates potential impacts, and identifies mitigation measures related to implementation of the project. The following analysis is based, in part, on the Cultural Resources Inventory Report, included as Appendix D of this Environmental Impact Report (EIR).

4.4.1 Existing Conditions

Eastern Information Center Records Search

On June 4, 2018, a California Historical Resources Information System records search was conducted at the Eastern Information Center (EIC), located on the University of California, Riverside, campus, for the proposed project site and a 1.0-mile (1,608-meter) records search buffer (study area). This search included their collections of mapped prehistoric, historic, and built environment resources, Department of Parks and Recreation Site Records, technical reports, and ethnographic references. Additional consulted sources included historical maps of the study area, the National Register of Historic Places, the California Register of Historical Resources (CRHR), the California Historic Property Data File, the lists of California State Historical Landmarks, California Points of Historical Interest, and the Archaeological Determinations of Eligibility.

Previously Conducted Cultural Resources Studies

Records from the EIC indicate that 65 previous cultural resources technical investigations have been conducted within 1 mile (1,608 meters) of the project site between 1977 and 2017. Of these, two previous studies overlap with the project site, two are adjacent to the project site, and the remaining 61 studies are within the records search buffer. Table 4.4-1 summarizes all 65 previous cultural resource studies followed by a brief summary of each overlapping and adjacent study.

Table 4.4-1. Previously Conducted Cultural Resource Studies within the Record Search Area

EIC Report Number (RI-)	Authors	Year	Title	Proximity To Project Site
00232	Kenneth Daly	1977	Environmental Impact Evaluation: Archaeological Assessment of a Portion of the NW 1/4 of the SE 1/4 of Section 35, T6S, R3W, Murrieta 7.5' Quadrangle, Riverside County, California	Outside
00233	Kenneth Daly	1977	Environmental Impact Evaluation: Archaeological Assessment of the Hachten Property, Located in a Portion of the S 1/2 of Section 35, T6S, R3W, Murrieta 7.5' Quadrangle, Riverside County, California	Outside
00294	James Baldwin	1978	Environmental Impact Evaluation: Archaeological Assessment of Tentative Parcel Map 11830, Near Rancho California, Riverside County, California	Outside
00383	Christopher E. Dover	1978	Environmental Impact Evaluation: Archaeological Assessment of Tentative Parcel Map 12030, Near Murrieta, Riverside County, California	Outside

Table 4.4-1. Previously Conducted Cultural Resource Studies within the Record Search Area

EIC Report Number (RI-)	Authors	Year	Title	Proximity To Project Site
00445	James McManus	1978	Environmental Impact Evaluation: An Archaeological Assessment of Tentative Parcel 13335, South of Keller Road, Riverside County, California	Outside
00447	Christopher E. Dover	1995	Cultural Resources Impact and Constraints Analysis of the 291-Acre Golden City Project, Murrieta USGS Quadrangle, Riverside County, California	Outside
00531	James P. Barker	1979	Environmental Impact Evaluation: An Archaeological Assessment of Tentative Parcel 14725, Northwest of the Hogbacks, Southwestern Riverside County, California	Outside
00627	Renee Giansanti	1979	Environmental Impact Evaluation: An Archaeological Assessment of Tentative Parcels 15142, 15203, 15096, and Tentative Tract 14851, Paloma Valley Area of Riverside County, California	Outside (Adjacent)
00638	Renee Giansanti	1979	Environmental Impact Evaluation: An Archaeological Assessment of 60 Acres of Land in the Paloma Valley Area of Riverside. The Exact Location Being the SW 1/4 of Section 35, T6S, R3W, SBBM, Murrieta 7.5' Series USGS Quadrangle.	Outside (Adjacent)
00664	Joan Oxendine	1979	A Report of an Archaeological Survey of 20 Acres in T 7S, R 3W, S 36, Murrieta Quadrangle, Riverside County, California	Outside
01105	Christopher E. Drover	1980	Environmental Impact Evaluation: Archaeological Assessment of Tentative Map 15285	Outside
01208	Alan Davis	1981	Environmental Impact Evaluation: An Archaeological Assessment of Tentative Parcel 17467, Northeast of Murrieta in Riverside County, California	Outside
01243	Roger J. Desautels	1981	An Archaeological Assessment of TPM 17760	Outside
01258	Roger J. Desautels	1981	An Archaeological Assessment of TPM 17629	Outside
01322	Ken Kroesen	1981	Environmental Impact Evaluation: An Archaeological Assessment of Tentative Parcel 18007, North of the Hogbacks in Western Riverside County, California	Outside
01360	Jean A. Salpas	1981	An Archaeological Assessment of Parcel 17419	Outside
02117	Victor DeMunck	1987	Archaeological Assessment of Tentative Parcel 22151 near Murrieta in Riverside County, California	Outside
02118	Bissell, Ronald M.	1992	Cultural Resources Reconnaissance of the Hamilton Property, Approximately 273 Acres in Riverside County, California	Outside
02119	Mary Robbins-Wade and Timothy G. Gross	1999	Archaeological Resources Inventory and Evaluation for the Murrieta Oaks Project, Murrieta, Riverside County, California.	Outside

Table 4.4-1. Previously Conducted Cultural Resource Studies within the Record Search Area

EIC Report Number (RI-)	Authors	Year	Title	Proximity To Project Site
02217	Drover, C.E.	1988	An Archaeological Assessment of Vesting Tentative Tract 23342, Near Murrieta Hot Springs, Riverside County, California	Outside
02506	Drover, C.E.	1989	Environmental Impact Evaluation: An Archaeological Assessment of the Greer Ranch Project Riverside County, California	Outside
02780	Christopher E. Drover	1990	A Cultural Resource Assessment: Adobe Springs II Vesting Tentative Tract 25135 near Murrieta Hot Springs, California	Outside
02865	Jean A. Keller	1990	An Archaeological Assessment of Tentative Parcel Map 25950 Riverside County, California	Outside
03117	Christopher E. Drover	1990	Environmental Impact Evaluation: An Archaeological Assessment of Tentative Tract 26262, Murrieta, California	Outside
03118	Jean A. Keller	1995	A Phase I Cultural Resources Assessment of the Western Half of Tentative Tract Map 26262, +/- 14.5 Acres of Land in Murrieta, Riverside County, California	Outside
03119	Jean A. Keller	1995	Phase IV Archaeological Monitoring of Demolition of the James Place Structures, Tentative Tract Map 26262, Murrieta, Riverside County, California	Outside
03584	Carolyn E. Kyle, Petei McHenry, and Dennis R. Gallegos	1993	Cultural Resource Survey Report for the California Oaks Reservoir Project Rancho California Water District, County of Riverside, California.	Outside
04121	Mason, Roger, Philippe Lapin, and Wayne H. Bonner	1998	Cultural Resources Records Search and Survey Report for a Pacific Bell Mobile Services Telecommunications Facility: CM122-01, City of Murrieta, California	Outside
04207	Jean A. Keller	1998	A Phase I Cultural Resources Assessment of Murrieta Crossing (Plot Plan 98-030) +57.0 Acres of Land in Murrieta, Riverside County, California	Outside
04626	Cotterman, Cary D.	2001	Cultural Resources Records Search and Field Survey Report for a Nextel Communications Telecommunications Facility: Number CA-7239 Located in Murrieta, Riverside County, California	Outside
04638	Jean A. Keller	2000	A Phase I Cultural Resources Assessment of Lincoln Ranch (TTM 29217), 245.0 Acres of Land in the City of Murrieta, Riverside County, California	Outside
04639	Jean A. Keller	2002	A Phase I Cultural Resources Assessment of United Church of The Valley (CUP 01-0235), 7.0 Acres of Land in The City of Murrieta, Riverside County, California	Outside
04640	Jean A. Keller	2001	A Phase I Cultural Resources Assessment of Vesting Tentative Tract Map 30280, 10.0 Acres of Land in the City of Murrieta, Riverside County, California	Outside

Table 4.4-1. Previously Conducted Cultural Resource Studies within the Record Search Area

EIC Report Number (RI-)	Authors	Year	Title	Proximity To Project Site
04702	Hogan, Michael, Bai "Tom" Tang, and Mariam Dahdul	2004	Historical/Archaeological Resources Survey Report, Tentative Tract Number 31998, City of Murrieta, Riverside County, California	Outside
05113	Horne, Melinda C.	2002	Negative Archaeological Survey Report Route 215, Post Mile 08-RIV-215-KP, Murrieta, Riverside County, California	Outside
05197	Riordan Goodwin and Robert E. Reynolds	2003	Cultural and Paleontological Resources Assessment: Lincoln Ranch Tract 29217-3, City of Murrieta, Riverside County, California	Outside
05362	Jean A. Keller	2003	A Phase I Cultural Resource Assessment of Development Plan 03-161 (The Orchard at Stone Creek) +/- 54.0 Acres of Land in the City of Murrieta, Riverside County, California	Outside
05669	Hogan, Michael, Bai Tang, and Mariam Dahduk	2004	Historical/Archaeological Resources Survey Report: Tentative Tract Number 31999, City of Murrieta, Riverside County, California	Outside
06049	David C. Hanna	2004	Archaeological Testing and Monitoring at Greer Ranch Within the City of Murrieta, Riverside County, California	Outside
06232	Bai Tang, Michael Hogan, and Josh Smallwood	2004	Historical/Archaeological Resources Survey Report: Assessor Parcel Number 359-240-038, 28175 Lee Lane, City of Murrieta, Riverside County, California	Outside
06444	Tang, Bai, Michael Hogan, Matthew Wetherbee, and John J. Eddy	2004	Historical/Archaeological Resources Survey Report: Antelope Industrial Park, City of Murrieta, Riverside County, California	Outside
06659	Hogan, Michael, Deirdre Encarnacion, and Josh Smallwood	2006	Archaeological Survey Report: Linnel Lane Overcrossing at I-215 and Meadowlark Lane Improvement, City of Murrieta, Riverside County, California, 08-RIV-215-PM 13.0-KP 20.9, EA 0H820	Outside
06733	Riordan Goodwin and Patricia Tuck	2004	Cultural Resource Monitoring Program: Lincoln Ranch Tract 29271-3, City of Murrieta, Riverside County, California	Outside
06825	Jeanette McKenna	2005	Environmental Phase I Report: Nextel Communications Facility IRENE (CA-8306-B), Project Number N-3007-04	Outside
06876	John Elliot Jones and Michael K. Lerch	2006	Archaeological Survey of the Auld Subsurvey Transmission Lines, Murrieta, Riverside County, California	Outside
07030	Jean A. Keller	2006	A Phase I Cultural Resources Assessment of NWC Linnel Lane and Mcelwain Road 10-Acre Site	Outside
07041	Jordan, Stacey	2007	Archaeological Survey Report for Southern California Edison Company Relocation of the Garboni 12 kV and Leon 12 KV Circuits Project Riverside County, California	Outside

Table 4.4-1. Previously Conducted Cultural Resource Studies within the Record Search Area

EIC Report Number (RI-)	Authors	Year	Title	Proximity To Project Site
07045	Anna M. Hoover	2006	An Archaeological Record Search and Survey Report on Murrieta 56, APN 392-290-002, 56.18 Acres in the City of Murrieta, Riverside County, California	Outside
07049	Robinson, Mark C.	2007	Historical Property Survey Report (08-RIV-215, PM 11.9-13.7, [KP19.30-21.03], EA 32780)	Inside (Overlapping)
07476	Richardson, Karma O.K. and Robin D. Turner	2007	A Cultural Resource Assessment of the Proposed Commercial Development for 15 +/- Acres at 35070 Antelope Road, Murrieta, Riverside County, California	Outside
08278	Lorna Billat	2009	Letter Report: Proposed Cellular Tower Project(s) in Riverside County, California, Site Number(s)/Name(s): LA-3439B/TCO Cool CA2639 Antelope TCNS# 54935	Outside
08283	Lorna Billat	2009	Letter Report: Proposed Cellular Tower Project(s) in Riverside County, California, Site Number(s)/Name(s): CA-2639/Antelope TCNS #57797	Outside
08302	Bai Tang	2009	Historical/Archaeological Resources Survey Report Meadowlark Lane Extension Project (South Segment)	Outside
08645	Jean A. Keller	2009	A Phase I Cultural Resources Assessment of DPO 2008-2749 +/- 4.45 Acres of Land in the City of Murrieta, Riverside County, California	Outside
08665	—	2011	Archaeological Monitoring Program For the Meadowlark Road form Clinton Keith Road to Baxter Road Project	Outside
08673	Jean A. Keller	2010	A Phase IV Cultural Resources Monitoring Report of CK-17, APN 392-290-038, Grading Permit Number 69235, +/- 2.5 Acres of Land Located at 28255 Clinton Keith Road, Murrieta, Riverside County, California	Inside (Overlapping)
08955	Stacie Wilson, Jill Gibson, and Theodore G. Cooley	2015	Cultural Resources Survey Report for the Proposed Southern California Edison Valley South 115 kV Sub transmission Project, Riverside County, California	Outside
09024	John J. Eddy	2013	Phase I Cultural Resources Assessment for the Clinton Keith Road Extension Project, Riverside County, California	Outside
09342	Dennis McDougall and Joan George	2015	Cultural Resource Monitoring Report for the Pacific Landing Project: Assessor's Parcel Number 900-040-021, City of Murrieta, Riverside County, California	Outside
09473	Jennifer M. Sanka, Barbara Loren-Webb, and Leslie Nay Irish	2015	Preliminary Identification of Historic Properties for a Portion of Golden City Specific Plan, Tracts 28532-4 and 28532-5, +/-109 Acres in the City of Murrieta, Riverside County, California	Outside

Table 4.4-1. Previously Conducted Cultural Resource Studies within the Record Search Area

EIC Report Number (RI-)	Authors	Year	Title	Proximity To Project Site
09477	Bai "Tom" Tang, Jesse Yorck, Ben Kerridge, and Nina Gallardo	2016	Historical/Archaeological Resources Survey Report: Assessor's Parcel Number 392-310-018, HealthSouth Rehabilitation Hospital Project, City of Murrieta, Riverside County, California	Outside
09610	—	2014	Archaeological Survey Report of the United Church of the Valley Project, AT&T Mobility Site Number RS0276, 35921 Green Road, Murrieta, Riverside County, California 92589	Outside
09716	Joan George	2015	Cultural Resource Constraints Analysis for the Fireman's Circle Project, in the City of Murrieta, Riverside County, California	Outside
09898	Bai "Tom" Tang, Deirdre Encarnacion, Daniel Ballester, and Nina Gallardo	2016	Historical/ Archaeological Resources Survey Report: Murrieta Skilled Nursing Facility Project, Assessor's Parcel Number 392-310-002, City of Murrieta, Riverside County, California	Outside
09965	Brian F. Smith, M.A. and Tracey A. Stropes, M.A.	2017	A Cultural Resources Monitoring Report for the Golden City Project	Outside

Notes: — = no data; APN = Assessor's Parcel Number; EIC = Eastern Information Center; I = Interstate; kV = kilovolt; NW = northwestern; S = southern; SE = southeastern; TPM: Tentative Parcel Map; USGS = U.S. Geological Survey.

RI-00627

Archaeological Resource Institute was contracted by Cape Aire Company to conduct an archaeological resource assessment in support of the proposed development of residential subdivisions on 91.47 acres of land in the City of Murrieta (City). The assessment included a records search, a survey, and the preparation of a technical report. No archaeological or historic cultural remains were identified during the survey and the project was determined to have no potential adverse impacts to cultural resources.

RI-00638

LGS & Associates was contracted by Action Surveys to conduct an archaeological resource assessment in support of the proposed development of residential subdivisions on 60 acres of land in the City. The assessment included a record search, a survey, and the preparation of a technical report. No cultural resources were identified during the survey. The project was determined to have no potential adverse impacts to cultural resources.

RI-07049

Jones & Stokes was contracted by the California Department of Transportation to prepare an archaeological survey report in support of the proposed Clinton Keith Road/Interstate 215 Interchange Improvement Project. An archaeological survey of the area did not identify any archaeological resources and the potential for undiscovered archaeological resources was determined to be low. The project was determined to have no potential adverse impacts to cultural resources.

RI-08673

Jean A. Keller was contracted by CK-17 LP to provide cultural resource services in support of the proposed commercial development on approximately 2.5 acres of land in the City. The proposed development would require grading activities, removal of material, and Clinton Keith Road and Interstate (I) 215 interchange work. Services included archaeological monitoring and the preparation of a Phase IV Monitoring Report. No cultural resources were observed within the boundaries of the subject property during construction activities, and no further mitigation or research was recommended at the culmination of the project.

Previously Recorded Cultural Resources

The EIC records indicate that 57 previously recorded cultural resources have been recorded within 1.0 mile (1,608 meters) of the project site, none of which intersect or overlap with the project site. Of the 57 resources within the surrounding records search area, nine are historical and include five historic refuse scatter, two historic built resources, one historic homestead site, and one historical isolate. The remaining 48 resources are prehistoric in age and include 14 prehistoric isolates and 34 prehistoric lithic scatters or bedrock milling features. Table 4.4-2 summarizes all 57 cultural resources identified.

Table 4.4-2. Previously Recorded Cultural Resources within the Record Search Area

Primary Number (P-33-)	Trinomial (CA-RIV-)	Period	National Register of Historic Places Eligibility	Record By and Year	Descriptions	Proximity To Project Site
000629	000629	Prehistoric	Not evaluated	J. Humbert, S. Hammond (1973)	Lithic scatter with associated bedrock mortars	Outside
000637	000637	Prehistoric	Not evaluated	J. Humbert, S. Hammond (1973)	Lithic scatter with associated bedrock mortars	Outside
000638	000638	Prehistoric	Not evaluated	J. Humbert, S. Hammond (1973)	Processing site; dense lithic scatter and 15 bedrock mortars; possible habitation site	Outside
001364	001364	Prehistoric	Not evaluated	Hildebrand, Morin, and Waldron, ARU (1976); Jean A. Salpas, ARU (1981)	Milling station with three milling surfaces	Outside
001375	001375	Prehistoric	Not evaluated	Morin, Waldron, Pettus, Hildebrand, ARU (1976); Jean A. Salpas, ARU (1981)	Milling station with two milling surfaces	Outside

Table 4.4-2. Previously Recorded Cultural Resources within the Record Search Area

Primary Number (P-33-)	Trinomial (CA-RIV-)	Period	National Register of Historic Places Eligibility	Record By and Year	Descriptions	Proximity To Project Site
001376	001376	Prehistoric	Not evaluated	Morin, Waldron, Pettus, and Hildebrand, ARU (1976); Jean A. Salpas, ARU (1981)	Milling station with two milling surfaces	Outside
001377	001377	Prehistoric	Not evaluated	Morin, Waldron, Pettus, and Hildebrand, ARU (1976); Jean A. Salpas, ARU (1981); Koji Tsunoda, Jones, and Stokes (2007)	Milling station; was not relocated in most recent site visit	Outside
002190	002190	Prehistoric	Not evaluated	T. Banks, Scientific Resource Surveys Inc., Santa Ana, CA (1981); David C. Hanna, Jr., SWCA Environmental Consultants, Mission Viejo, CA (2001)	Temporary habitation site consisting of dense lithic scatter and food processing stations	Outside
003056	003056	Prehistoric	Found ineligible through survey process	Victor C. de Munk, Archaeological Research Unit, University of California, Riverside, CA (1987); Ron Bissell and Ken Becker, RMW Paleo Associates Inc., Mission Viejo, CA (1992); Robbins-Wade, Affinis, El Cajon, CA (1999)	Food processing station with milling surfaces, ground stone, and lithic scatter	Outside
003684	003684	Prehistoric	Not evaluated	C.E. Drover and Andy Jackson (1989)	Lithic scatter	Outside
004104	004104	Prehistoric	Not evaluated	C.E. Drover and D.M. Smith(1990)	Lithic scatter with groundstone	Outside
004905	004905	Historic	Ineligible	Robbins-Wade, Gross, Van Wormer, Affinis (1999)	Historic refuse scatter dating to the 1920s	Outside

Table 4.4-2. Previously Recorded Cultural Resources within the Record Search Area

Primary Number (P-33-)	Trinomial (CA-RIV-)	Period	National Register of Historic Places Eligibility	Record By and Year	Descriptions	Proximity To Project Site
009703	006469	Prehistoric	Not evaluated	Jean A. Keller, Cultural Resources Consultant (2000)	Bedrock milling feature consisting of two mortars and one milling slick on a single granitic bedrock outcrop	Outside
009704	006470	Prehistoric	Not evaluated	Jean A. Keller, Cultural Resources Consultant (2000)	Bedrock milling feature consisting of one milling slick on a granitic bedrock outcrop	Outside
009705	006471	Prehistoric	Not evaluated	Jean Keller (2000)	Bedrock milling feature consisting of two milling slick on adjacent granitic bedrock outcrops	Outside
011238	—	Prehistoric	Not evaluated	CW Bouscaren, MG Espinoza, and KA Hintzman, LSA Associates Inc. (2001)	Bedrock milling feature consisting of three milling slicks on a cluster of bedrock outcrops	Outside
011239	—	Prehistoric	Not evaluated	—	Sparse lithic scatter	Outside
011240	—	Historic	Not evaluated	C.W. Bouscaren, M.G. Espinoza, and K.A. Hintzman, LSA Associates Inc. (2001)	Fallen wooden structure with a concrete foundation and an associated can scatter	Outside
011241	—	Prehistoric	Not evaluated	C.W. Bouscaren, M.G. Espinoza, and K.A. Hintzman, LSA Associates Inc. (2001)	Lithic Scatter	Outside
012772	—	Prehistoric	Isolate: Ineligible	C.E. Drover (1980)	Isolated quartzite chopper	Outside

Table 4.4-2. Previously Recorded Cultural Resources within the Record Search Area

Primary Number (P-33-)	Trinomial (CA-RIV-)	Period	National Register of Historic Places Eligibility	Record By and Year	Descriptions	Proximity To Project Site
013304	007405	Prehistoric	Not evaluated	Sal Boites (2005)	Two bedrock milling features with associated lithic and groundstone	Outside
013332	007424	Prehistoric	Not evaluated	Robert Porter, CRM TECH (2004); John J. Eddy (2004)	Bedrock milling slick	Outside
013334	007426	Prehistoric	Not evaluated	Robert Porter, CRM TECH (2004); John J. Eddy (2004)	Two bedrock milling features	Outside
013335	007427	Prehistoric	Not evaluated	Michael Lozano, CRM TECH (2004)	One bedrock milling feature consisting of two milling slicks; the site was not relocated during its most recent update	Outside
013363	—	Prehistoric	Isolate: Ineligible	Robert Porter, CRM TECH (2004)	Two bedrock milling features, each containing one milling slick	Outside
013397	—	Prehistoric	Isolate: Ineligible	Claire Fritz and Patricia Tuck, LSA Associates (2013)	Isolated quartz mano fragment	Outside
013398	—	Prehistoric	Isolate: Ineligible	Claire Fritz and Patricia Tuck, LSA Associates (2004)	Isolated quartz mano	Outside
013976	—	Prehistoric	Isolate: Ineligible	Daniel Ballester (2005)	Isolated milky quartz biface blade	Outside
014358	—	Prehistoric	Isolate: Ineligible	John J. Eddy, CRM Tech (2004)	Isolated metate fragment	Outside
015146	008055	Prehistoric	Not evaluated	William R. Gillean, Author (2006)	Two bedrock mortars	Outside
015315	008084	Historic	Not evaluated	J.E. Jones, M. Knypstra, and J. Meliska, Statistical Research Inc. (2006)	Historic period refuse scatter	Outside
015330	—	Historic	Determined ineligible through Section 106 process	Josh Smallwood, CRM Tech (2006)	Wood-framed residence at 35530 Antelope Road	Outside

Table 4.4-2. Previously Recorded Cultural Resources within the Record Search Area

Primary Number (P-33-)	Trinomial (CA-RIV-)	Period	National Register of Historic Places Eligibility	Record By and Year	Descriptions	Proximity To Project Site
015331	—	Historic	Isolate: Ineligible	Josh Smallwood, CRM Tech (2006)	Wood-framed residence at 35500 Antelope Road	Outside
016709	008749	Prehistoric	Not evaluated	M. Gonzalez, C. Powell, PCR Services Corporation (2007); Stacie Wilson and Jill Gibson, AECOM (2012)	Bedrock Milling features and associated lithic scatter	Outside
017366	009024	Prehistoric	Not evaluated	Michael Dice, Michael Brandman Associates (2008)	Lithic scatter	Outside
019791	010075	Prehistoric	Not evaluated	R. Porter, CRM TECH 2011)	Three granite boulders each with a single milling slick, associated lithic scatter, and three groundstone artifacts	Outside
019849	010098	Prehistoric	Not evaluated	R. Porter, CRM TECH 2011)	Four quartz flakes and one piece of quartz shatter; site has been destroyed since recordation	Outside
021025	010890H	Historic	Ineligible for NR	AECOM (2012); B. Lichtenstein and K. Moslak, Applied Earthworks Inc. (2013)	Historic refuse scatter	Outside
021027	010892	Prehistoric	Not evaluated	AECOM (2012)	Sparse lithic scatter	Outside
021031	—	Historic	Isolate: Ineligible	AECOM (2012); B. Lichtenstein and K. Moslak, Applied Earthworks Inc. (2013)	Rectangular metal gas can	Outside
023904	011739	Prehistoric	Not evaluated	K. Moslak, C. Yearyean, Applied EarthWorks Inc. (2014)	Lithic Scatter with one groundstone metate fragment	Outside

Table 4.4-2. Previously Recorded Cultural Resources within the Record Search Area

Primary Number (P-33-)	Trinomial (CA-RIV-)	Period	National Register of Historic Places Eligibility	Record By and Year	Descriptions	Proximity To Project Site
023971	011777	Historic	Not evaluated	Andrew R. Pigniolo, Laguna Mountain Environmental Inc. (2014)	Historic refuse scatter	Outside
023972	011778	Prehistoric	Not evaluated	Andrew R. Pigniolo, Laguna Mountain Environmental Inc. (2014)	Sparse lithic scatter	Outside
023973	—	Prehistoric	Isolate: Ineligible	Andrew R. Pigniolo, Laguna Mountain Environmental Inc. (2014)	Isolated scraper	Outside
024132	011871	Historic	Not evaluated	Riordan Goodwin, LSA Associates Inc. (2015)	Historic refuse scatter	Outside
024619	—	Prehistoric	Isolate: Ineligible	Max Jewett, Atkins (2014)	Isolated quartz chopper	Outside
024620	—	Prehistoric	Isolate: Ineligible	Max Jewett, Atkins (2014)	Isolated milling slick	Outside
024622	—	Prehistoric	Isolate: Ineligible	Max Jewett, Atkins (2014)	Isolated quartz chopper	Outside
024624	—	Prehistoric	Isolate: Ineligible	Max Jewett, Atkins (2014)	Isolated quartz projectile point tip	Outside
024632	—	Prehistoric	Isolate: Ineligible	Max Jewett, Atkins (2014)	Isolated quartz flake	Outside
024634	—	Prehistoric	Isolate: Ineligible	Max Jewett, Atkins (2014)	Isolated quartz utilized flake	Outside
024638	—	Prehistoric	Isolate: Ineligible	Max Jewett, Atkins (2014)	Isolated quartz pressure flake	Outside
024646	012195	Prehistoric	Not evaluated	Max Jewett, Atkins, Plute/BP Murrieta Hills, LLC (2014)	Bedrock milling slicks with associated lithic and groundstone fragments	Outside
024647	012196	Prehistoric	Not evaluated	Max Jewett, Atkins, Plute/BP Murrieta Hills, LLC (2014)	Lithic scatter	Outside
024648	012197	Prehistoric	Not evaluated	Max Jewett, Atkins, Plute/BP Murrieta Hills, LLC (2014)	Lithic scatter	Outside
024649	012198	Prehistoric	Not evaluated	Max Jewett, Atkins, Plute/BP Murrieta Hills, LLC (2014)	Lithic scatter	Outside
026601	012509	Prehistoric	Not evaluated	AECOM (2015)	Bedrock milling features	Outside

Notes: — = no data

Native American Heritage Commission and Tribal Correspondence

Dudek contacted the Native American Heritage Commission (NAHC) on June 5, 2018, and requested a review of the Sacred Lands File. The NAHC replied via email on June 6, 2018, stating that the Sacred Lands File search was completed with positive results and indicated that sites have been located in the 1.0-mile record search area. The NAHC suggested contacting 37 Native American individuals and/or tribal organizations who may have direct knowledge of cultural resources in or near the proposed project (Table 3 in Appendix D). Dudek contacted all groups and/or individuals identified by the NAHC. To date, five responses have been received. This outreach was conducted for informational purposes only and does not constitute formal government-to-government consultation as specified by Assembly Bill 52. Further details related to Native American consultation and an analysis of potential impacts to tribal cultural resources are provided in Section 4.14, Tribal Cultural Resources.

4.4.2 Relevant Plans, Policies, and Ordinances

Federal

There are no federal plans or policies related to cultural or historical resources that are applicable to the project.

State

The California Register of Historical Resources

In California, the term "historical resource" includes, but is not limited to, "any object, building, structure, site, area, place, record, or manuscript which is historically or archaeologically significant, or is significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California" (PRC Section 5020.1[j]). In 1992, the California legislature established the California Register of Historical Resources (CRHR) "to be used by state and local agencies, private groups, and citizens to identify the state's historical resources and to indicate what properties are to be protected, to the extent prudent and feasible, from substantial adverse change" (PRC Section 5024.1[a]). The criteria for listing resources on the CRHR were expressly developed to be in accordance with previously established criteria developed for listing in the National Register of Historic Places, enumerated below. A resource is considered historically significant if it (i) retains "substantial integrity," and (ii) meets at least one of the following criteria (PRC Section 5024.1[c][1–4]):

(1) Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage.

(2) Is associated with the lives of persons important in our past.

(3) Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values.

(4) Has yielded, or may be likely to yield, information important in prehistory or history.

In order to understand the historic importance of a resource, sufficient time must have passed to obtain a scholarly perspective on the events or individuals associated with the resource. A resource less than 50 years old may be considered for listing in the CRHR if it can be demonstrated that sufficient time has passed to understand its historical importance (see 14 CCR 4852[d][2]).

The CRHR protects cultural resources by requiring evaluations of the significance of prehistoric and historic resources. Prehistoric resources are those that pre-date written records, while historic resources reflect written

records or recorded events of the past. The criteria for the CRHR are nearly identical to those for the National Register of Historic Places, and properties listed or formally designated as eligible for listing in the National Register of Historic Places are automatically listed in the CRHR, as are the state landmarks and points of interest. The CRHR also includes properties designated under local ordinances or identified through local historical resource surveys.

California Health and Safety Code Section 7050.5

California law protects human remains, Native American burials, and associated grave goods, regardless of their antiquity, and provides for the sensitive treatment and disposition of those remains. California Health and Safety Code Section 7050.5 requires that if human remains are discovered in any place other than a dedicated cemetery, no further disturbance or excavation of the site or nearby area reasonably suspected to contain human remains shall occur until the county coroner has examined the remains and determined that the remains are not subject to the provisions of Section 27491 of the California Government Code or any other related provisions of law concerning investigation of the circumstances, manner, and cause of any death, and the recommendations concerning the treatment and disposition of the human remains have been made to the person responsible for the excavation, or to his or her authorized representative, in the manner provided in Section 5097.98 of the California Public Resources Code (Section 7050.5[b]). If the coroner determines or has reason to believe the remains are those of a Native American, the coroner must contact NAHC within 24 hours (Section 7050.5[c]). NAHC will notify the "most likely descendant." With the permission of the landowner, the most likely descendant may inspect the site of discovery. The inspection must be completed within 48 hours of notification of the most likely descendant by NAHC. The most likely descendant may recommend means of treating or disposing of, with appropriate dignity, the human remains and items associated with Native Americans.

Local

County of Riverside General Plan

The County of Riverside (County) General Plan (2013) Land Use Element specifies preservation of cultural resources. The policies laid out in this element that pertain to cultural resources include:

Policy LU 9.1 [Development should] Provide for permanent preservation of open space lands that contain important natural resources, cultural resources, hazards, water features, watercourses including arroyos and canyons, and scenic and recreational values.

Policy LU 9.4 Allow development clustering and/or density transfers in order to preserve open space, natural resources, cultural resources, and biologically sensitive resources.

County of Riverside Cultural Resource Review Process

If deemed necessary by the County's Planning Department, a Phase I Cultural Resource Review is required to be conducted for proposed private development projects within unincorporated Riverside County. These reports should be submitted directly to the office of the County Archaeologist.

City of Murrieta General Plan

The City's 2035 General Plan (City of Murrieta 2011) Conservation Element specifies preservation of historical and cultural resources. The goals and policies laid out in this element that pertain to historical and cultural resources include the following:

Policy CSV-9.1 Identify and protect native trees, trees of historic or cultural significance, and mature trees, consistent with the Tree Preservation Ordinance.

Goal CSV-11 Murrieta protects, enhances, and celebrates archaeological, cultural, and historic resources as a way to foster community identity.

Policy CSV-11.1 Promote the protection and preservation of archaeological, cultural, historical, and architecturally significant sites, structures, districts, Native American resources, and natural features throughout the community, consistent with the Cultural Resource Preservation Ordinance. Preferred methods of protection include avoidance of impacts, placing resources in designated open space and allocation of local resources and/or tax credits as feasible.

Policy CSV-11.2 Encourage appropriate adaptive reuse of historic structures and sites.

Policy CSV-11.3 Promote the designation of eligible resources to the City Register of Cultural Resources, the County Landmarks Program, or other regional, state, or federal programs.

Policy CSV-11.4 Encourage the development of programs to educate the community about Murrieta's historic resources and involve the community in historic preservation.

Policy CSV-11.5 Comply with state and federal law regarding the identification and protection of archaeological and Native American resources, and consult early with the appropriate tribal governments.

Policy CSV-11.6 Investigate the feasibility of establishing a museum or other repository to archive and display Murrieta's archaeological resources.

Policy CSV-11.7 Maintain the position of archivist/historian at the Murrieta Public Library, and promote the Library's Heritage Room as a repository for historical information about the Murrieta area.

Policy CSV-11.8 Promote the use of historic elements in City parks and public places.

Policy CSV-11.9 Exercise sensitivity and respect for all human remains, including cremations, and comply with all applicable state and federal laws regulating human remains.

City of Murrieta Historic Preservation Advisory Commission

The City's Historic Preservation Advisory Commission acts in an advisory capacity to the City Council with regard to the preservation of cultural and archaeological resources within the City's boundaries. Through the City Planner or Community Development Director, the Historic Preservation Advisory Commission makes recommendations to the

City Council regarding the designation of cultural resources. Such resources may include individual properties, archaeological districts, or Historic Murrieta Specific Plan within the City. In addition, the Historic Preservation Advisory Commission is responsible for maintaining the register of designated cultural resources within the City; reviewing land use, redevelopment, municipal improvement and other planning matters and programs undertaken by the City with regard to cultural resources; providing recommendations to the City Council on the use of available federal, state, local, and private funding sources for protection of the City's cultural resources; and, reviewing applications for certificates of appropriateness related to demolition permits and development plan approval, in compliance with the City's Development Code for designated cultural resources (City of Murrieta 2011).

City of Murrieta Development Code

The City's Municipal Code Chapter 16 (Development Code) includes Subchapter 16.26.050, which defines the City's designation criteria for cultural resources as follows:

16.26.050. Designation Criteria for Cultural Resources Archaeological Districts and Historic Districts

For the purposes of the ordinance codified in this section, an improvement or natural feature may be designated a cultural resource by the city council and any area within the city may be designated as an archaeological district or historic preservation district by the city council if it meets any of the following criteria:

A. Individual Resource Designation.
   1. It exemplifies or reflects special elements of the city's cultural, architectural, aesthetic, social, economic, political, artistic and/or engineering heritage;
   2. It is identified with persons, a business use or events significant in local, state or national history;
   3. It embodies distinctive characteristics of style. type, period or method of construction or is a valuable example of the use of indigenous materials or craftsmanship;
   4. It is representative of the notable work of a builder, designer or architect; or
   5. Its unique location or singular physical characteristic represents an established and familiar visual feature of a neighborhood, community or the city:

B. Local District Designation.

A geographic area may be designated as a local archaeological district or historic preservation district if the city council, after hearing(s) finds that all of the requirements set forth below are met. Concurrent with the designation of a historic preservation district, design guidelines shall be developed and shall apply to all properties within the historic preservation district.

1. Archaeological District.
   a. The area is a geographically definable area:
   b. The area possesses either:
      1. A significant concentration or continuity of archaeological resources; or
      2. The area is associated with the prehistory of Murrieta.
   c. The designation of the geographic area as an archaeological district is reasonable, appropriate, and necessary to protect, promote and further the goals and purposes of the ordinance codified in this chapter and is not inconsistent with other goals and policies of the city.
2. Historic Preservation District.
   a. The area is a geographically definable area:

b. The area possesses either:
   1. A significant concentration or continuity of buildings unified by past events or aesthetically by plan or physical development; or
   2. The area is associated with an event, person, or period significant or important to Murrieta history.
c. The designation of the geographic area as a historic preservation district is reasonable, appropriate, and necessary to protect, promote and further the goals and purposes of the ordinance codified in this chapter and is not inconsistent with other goals and policies of the city.
d. Determining Factors. In determining whether to designate a historic preservation district, the following factors shall be considered:
   1. District should have integrity of design, setting, materials, workmanship, and association.
   2. The collective value of the buildings and structures in a district taken together may be greater than the value of each individual building or structure.

3. Contributing Resources.

   Contributing resources may be included in a historic preservation district if the city council finds, after a hearing(s) that all of the following requirements are satisfied:
   a. The nominated resource is within a historic preservation district;
   b. The nominated resource either embodies the significant features and characteristics of the district or adds to the historical associations, architectural qualities or archaeological values identified for the district;
   c. The nominated resource was present during the period of historical significance of the district and relates to the documented historical significance of the district;
   d. The nominated resource possesses historic integrity or is capable of yielding important information about the period of historical significance or the district; and
   e. The nominated resource has important historic or architectural worth, and its designation as a contributing resource is reasonable, appropriate and necessary to protect, promote and further the goals and purposes of the ordinance codified in this chapter.

4.4.3 Thresholds of Significance

The significance criteria used to evaluate the project impacts to cultural resources are based on Appendix G of the CEQA Guidelines. According to Appendix G of the CEQA Guidelines, a significant impact related to cultural resources would occur if the project would:

1. Cause a substantial adverse change in the significance of a historical resource as defined in CEQA Guidelines Section 15064.5.
2. Cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines Section 15064.5.
3. Disturb any human remains, including those interred outside of dedicated cemeteries.

As determined in the Initial Study, the project would not cause a substantial adverse change in the significance of a historical resource as defined in CEQA Guidelines Section 15064.5. Thus, the project would have no impact on Threshold 1. Thresholds 2 and 3 are addressed in this EIR.

4.4.4 Impacts Analysis

Methodology

Field Survey

A qualified Dudek archaeologist conducted a survey of the project site on June 13, 2018. The survey was conducted to identify and record any unknown cultural resources within the project site. The survey was conducted using standard archaeological procedures and techniques that meet the Secretary of Interior's standards and guidelines for cultural resources inventory. Survey transects were spaced no more than 15 meters wide and oriented south–north across accessible areas of the project site. Where transects were not feasible, a mixed approach (opportunistic survey) was utilized, selectively examining open ground surface where possible. The archaeologist examined the ground surface for the presence of prehistoric artifacts (e.g., flaked stone tools, tool-making debris, stone milling tools), historical artifacts (e.g., metal, glass, ceramics), sediment discolorations that might indicate the presence of a cultural midden, and depressions and other features that might indicate the former presence of structures or buildings.

Historic Aerial Review

Historic maps and aerial photographs were consulted to understand development of the project site and surrounding properties. Topographic maps are available for the years 1943, 1955, 1962, 1971, 1975, 1979, 1986, 2012, and 2015 (NETR 2018a). Historic aerials are available for the years 1938, 1967, 1978, 1996, 2002, 2005, 2009, 2010, 2012, 2014, and 2016 (NETR 2018b).

The topographic map of the project site from 1943 shows that there was a road where I-215 now runs, just west of the project site. By 1955, I-215 had been built; however, no significant development within the area is apparent based on this map. Topographic maps from 1962 to present show an increase in roads throughout the area though general development history is difficult to gauge from these maps.

Aerial images depicting the project site show that in 1938 the only development within the area was a north–south running road, which became I-215 sometime in the 1950s. Aerial images from 1967 show no development within the project site. There are a few roads to the east of I-215 at this time and some possible residential development to the north; however, overall the project site and general vicinity is completely undeveloped. The aerial images from 1978 show the apparent construction of the Clinton Keith Road on ramp and off ramp. By 1996, there are several small developments to the north and east of the project site; however, there is no development within the project site. Clinton Keith Road, which runs south of the project site, appears to be a dirt road at this time; though it appears to be paved west of the freeway. Between 2002 and 2005, a large amount of development took place directly to the east of the project site, where a large residential subdivision and a high school were built. There were also several residential subdivisions built to the southwest and northwest of the project site and a minor increase in residential development to the east and south of the project site since 2005. Presently, the project site remains undeveloped and the only changes appear to be a significant amount of grading within the site.

Would the project cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines Section 15064.5?

Less than Significant with Mitigation Incorporated. As part of the cultural resources inventory prepared for the project (Appendix D), a California Historical Resources Information System records search was conducted at the EIC

on June 4, 2018. The records search indicated that 57 previously recorded cultural resources have been recorded within 1.0-mile of the proposed project site, however, none of these intersect or overlap with the project site. A qualified archaeologist conducted an intensive-level pedestrian survey of the project site on June 13, 2018. The survey concluded that the project site is within an area that has been extensively impacted by grading activities. Aside from the grading operation, evidence of disturbances throughout the project site include equipment tracks, human-made berms, and makeshift roads. No archaeological resources were identified within the project site or immediate vicinity as a result of the pedestrian survey or the California Historical Resources Information System records search.

Any archaeological resources that may have been located within the project site have likely been disturbed, displaced, and/or destroyed by the grading activities that have occurred on site. Although several prehistoric archaeological sites have been recorded within the record search area (an area comprised of the project site and a 1-mile buffer), neither the records search nor the pedestrian survey identified any cultural resources within the project site.

Considering these factors, the likelihood of the unanticipated discovery of prehistoric or historical archaeological deposits within the proposed project site is considered to be low. In addition, through Assembly Bill 52 consultation with local tribes, additional mitigation measures addressing the potential to discover tribal cultural resources are also included (**Mitigation Measure [MM] TCR-1** through **MM-TCR-5**). With implementation of **MM-TCR-1** through **MM-TCR-5**, the proposed project would have a **less-than-significant** impact on archaeological resources.

Would the project disturb any human remains, including those interred outside of dedicated cemeteries?

Less Than Significant with Mitigation Incorporated. As previously discussed, the project site has been extensively disturbed over time and has been subject to a mass grading operation. The project would be required to comply with Section 7050.5 of the California Health and Safety Code, which states that if human remains are found within the project site, the county coroner shall be immediately notified of the discovery. No further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent remains shall occur until the county coroner has determined, within 2 working days of notification of the discovery, the appropriate treatment and disposition of the human remains. If the county coroner determines that the remains are, or are believed to be, Native American, he or she shall notify the NAHC in Sacramento within 24 hours. In accordance with California Public Resources Code, Section 5097.98, the NAHC must immediately notify those persons it believes to be the most likely descendant of the deceased Native American. The most likely descendant shall complete his/her inspection within 48 hours of being granted access to the site. The designated Native American representative would then determine, in consultation with the property owner, the disposition of the human remains. In the event that unanticipated human remains are discovered, adherence to **MM-TCR-5** would ensure that impacts associated with human remains would be **less than significant**.

4.4.5 Mitigation Measures

The project would be required to comply with the following mitigation measures:

MM-TCR-1 The project permittee/owner shall retain a Riverside County-certified archaeological monitor to monitor all ground-disturbing activities in an effort to identify any unknown cultural resources. Prior to grading, the project permittee/owner shall provide to the City of Murrieta verification that a certified archaeological monitor has been retained. Any newly discovered cultural resource deposits shall be subject to a cultural resources evaluation.

MM-TCR-2 ***Archaeological Monitoring:*** At least 30 days prior to grading permit issuance and before any grading, excavation, and/or ground-disturbing activities on the site take place, the project permittee/owner shall retain a Riverside County-certified archaeological monitor to monitor all ground-disturbing activities in an effort to identify any unknown archaeological resources.

The Project Archaeologist, in consultation with consulting tribes, the permittee/owner, and the City of Murrieta, shall develop an Archaeological Monitoring Plan to address the details, timing, and responsibility of all archaeological and cultural monitoring activities that will occur on the project site during construction. Details in the plan shall include:

a. Project grading and development scheduling;
b. The development of a schedule in coordination with the permittee/owner and the Project Archaeologist for designated Native American Tribal Monitors from the consulting tribes during grading, excavation and ground-disturbing activities on the site: including the scheduling, safety requirements, duties, scope of work, and Native American Tribal Monitors' authority to stop and redirect grading activities in coordination with all project archaeologists; and,
c. The protocols and stipulations that the permittee/owner, City of Murrieta, tribes, and Project Archaeologist will follow in the event of inadvertent cultural resources discoveries, including any newly discovered cultural resource deposits that shall be subject to a cultural resources evaluation.

A final report documenting the monitoring activity and disposition of any recovered cultural resources shall be submitted to the City of Murrieta, Eastern Information Center and the consulting tribe within 60 days of completion of monitoring.

MM-TCR-3 ***Native American Monitoring:*** Native American Tribal monitors shall also participate in monitoring of ground-disturbing activity. At least 30 days prior to issuance of grading permits, agreement(s) between the permittee/owner and the consulting tribe(s) shall be developed regarding tribal monitoring requirements and treatment of tribal cultural resources so as to meet the requirements of the California Environmental Quality Act. The monitoring agreement shall address the treatment of known tribal cultural resources; the designation, responsibilities, and participation of designated Tribal monitors during grading, excavation, and ground-disturbing activities; project grading and development scheduling.

MM-TCR-4 ***Disposition of Cultural Resources:*** In the event that tribal cultural resources are discovered during the course of grading for this project, one or more of the following treatments, in order of preference, shall be employed with the tribes. Evidence of such shall be submitted to the City of Murrieta Planning Department:

1) Preservation in place means avoiding the resources, leaving them in the place where they were found with no development affecting the integrity of the resource.
2) On-site reburial of the discovered items as detailed in the Monitoring Plan required pursuant to MM-TCR-2. This shall include measures and provisions to protect the future reburial area from any future impacts in perpetuity. Reburial shall not occur until all legally required cataloging and basic recordation have been completed. No recordation of sacred items is permitted without the written consent of all Consulting Native American Tribal Governments.

3) The permittee/owner shall relinquish ownership of all cultural resources, including sacred items, burial goods, and all archaeological artifacts and non-human remains as part of the required mitigation for impacts to cultural resources, and adhere to the following:

   a. A curation agreement with an appropriate qualified repository within Riverside County that meets federal standards per Title 36 Code of Federal Regulations 800 Part 79 and therefore would be curated and made available to other archaeologists/researchers for further study. The collections and associated records shall be transferred, including title, to an appropriate curation facility within Riverside County, to be accompanied by payment of the fees necessary for permanent curation.

   b. At the completion of grading, excavation, and ground-disturbing activities on site, a Phase IV Monitoring Report shall be submitted to the City of Murrieta documenting monitoring activities conducted by the Project Archaeologist and Native American Tribal Monitors within 60 days of completion of grading. This report shall document the impacts to the known resources on the property; describe how each mitigation measure was fulfilled; document the type of cultural resources recovered and the disposition of such resources; provide evidence of the required cultural sensitivity training for the construction staff held during the required pre-grade meeting; and, in a confidential appendix, include the daily/weekly monitoring notes from the archaeologist. All reports produced will be submitted to the City of Murrieta, Eastern Information Center, and Consulting Tribes.

MM-TCR-5 ***Human remains:*** If human remains are encountered, California Health and Safety Code Section 7050.5 states that no further disturbance shall occur until the Riverside County Coroner has made the necessary findings as to origin. Further, pursuant to California Public Resources Code, Section 5097.98(b), remains shall be left in place and free from disturbance until a final decision as to the treatment and disposition has been made. If the Riverside County Coroner determines the remains to be Native American, the Native American Heritage Commission must be contacted within 24 hours. The Native American Heritage Commission must then immediately identify the "most likely descendants(s)" for purposes of receiving notification of discovery. The most likely descendant(s) shall then make recommendations within 48 hours and engage in consultation concerning the treatment of the remains as provided in California Public Resources Code, Section 5097.98.

4.4.6 Level of Significance After Mitigation

MM-TCR-1 through **MM-TCR-5** listed in Section 4.4.5, Mitigation Measures, would reduce potential impacts to cultural resources to a **less-than-significant** level.

4.4.7 Cumulative Impacts

Cumulative impacts on cultural resources evaluate whether impacts of the project and related projects, when taken as a whole, substantially diminish the number of historical or archaeological resources within the same or similar context or property type. As discussed throughout this section, the project could have potentially significant impacts to unknown archaeological resources, and mitigation would be required to reduce adverse impacts to less than significant. It is anticipated that cultural resources that are potentially affected by related projects would be subject to the same requirements of CEQA as the project, and that the project applicants would mitigate for their impacts, if applicable. These determinations would be made on a case-by-case basis,

and the effects of cumulative development on cultural resources would be mitigated to the extent feasible in accordance with CEQA and other applicable legal requirements. Therefore, the proposed project would not contribute to a cumulatively considerable impact associated with cultural resources and cumulative impacts would be **less than significant**.

4.4.8 References Cited

City of Murrieta. 2011. *Murrieta General Plan 2035*. Accessed August 2018. https://www.murrietaca.gov/departments/planning/general.asp.

NETR (Nationwide Environmental Title Research LLC). 2018a. Historic Topographical Maps of Los Angeles. Accessed June 2018. https://www.historicaerials.com/viewer.

NETR. 2018b. Historic Aerial Photographs of Los Angeles. Accessed June 2018. https://www.historicaerials.com/viewer.

4.5 Geology and Soils

This section describes the existing geological setting of the proposed Costco/Vineyard II Retail Development Project (project) site, identifies associated regulatory requirements, evaluates potential impacts, and identifies mitigation measures related to implementation of the proposed project. This analysis was completed, in part, based on the Murrieta General Plan 2035 Environmental Impact Report (EIR) (City of Murrieta 2011a), the Murrieta General Plan 2035 (City of Murrieta 2011b), and the following technical reports, which are included as appendices to this EIR:

- Geotechnical Review Proposed Costco Wholesale Warehouse Northeast of Interstate 215 and Clinton Keith Road Murrieta, California CW# 17-0237, prepared by Kleinfelder Inc. in October 2017, updated February 4, 2020 (Appendix E-1)
- Preliminary Geotechnical Investigation Proposed Vineyard/Val Vista Center NEC Clinton Keith Road and 215 Freeway Murrieta, California, prepared by Geotechnical Professionals Inc. in September 2017 (Appendix E-2)
- Project Specific Water Quality Management Plan Costco Wholesale, Murrieta CA, prepared by Fuscoe Engineering Inc. in October 2019 (Appendix G-3)
- Project Specific Water Quality Management Plan Candee, prepared by Excel Engineering Inc. in September 2018 (Appendix G-4)

4.5.1 Existing Conditions

Site Description

The project site is approximately 26.3 acres within an undeveloped parcel located northeast of the intersection of vacated Antelope Road and Clinton Keith Road in the northern part of the City of Murrieta (City), California. As discussed in Chapter 3, Project Description, of this EIR, a substantial portion of the project site's ground surface has now been disturbed by mass grading that took place over an 18.7-acre portion of the project site upon which the Costco is proposed to be located (Antelope and Cape Aire Mass Grading Plan, EA 2005-1763). As a result, the existing conditions of the project site consist of graded expanses of bare soil and stockpiles of rock, gravel, and soil. Erosional control fencing appears to be present around the perimeter of the site. Some portions of the project site have not been graded and contain areas of disturbed vegetation. In order to construct the project, additional excavation, fill, and precise grading will be required.

Soil and Geologic Conditions

The project site is located within the northern portion of the Peninsular Ranges Geomorphic province, which is characterized by steep, elongated valleys and ranges that generally trend northwestward from the tip of Baja California to the Los Angeles Basin, subparallel to faults branching off the San Andreas Fault. The geology is characterized as granitic rock intruding older metamorphic rock. The Murrieta quadrangle is diagonally crossed by the Elsinore Fault zone, which separates the Santa Ana Mountain block to the west and the Perris block to the east. The project site is within the Perris block, which consists of the south half of the Paloma Valley ring complex (part of the Peninsular Ranges batholith). The project site is underlain by Cretaceous-age gabbro, known as San Marcos gabbro (Appendices E-1 and E-2).

While the exact composition of the on-site soils varies by location, the near-surface soil materials generally consist of silty sands, sands, and sandy silts interspersed with varying amounts of gravel. The soils exhibit varying densities ranging from very loose to very dense (Appendix E-2).

Geologic Hazards

Geologic hazards are those that may pose serious problems to development and include unstable slopes, slide-prone areas, and liquefiable soils. The most common geologic hazards that may be encountered within the City are expansive soils, collapsed soils, loading settlement, subsidence, and hazardous minerals/radon. There have been reported cases of expansive clay layers within the Pauba formation and Alluvial-Valley deposits (City of Murrieta 2011a).

The project site, like the rest of Southern California, is located within a seismically active region. Based on published data, the most significant known active fault zones that are capable of seismic ground shaking and can impact the site are the Elsinore Fault zone to the southwest and the San Jacinto Fault zone to the east. The Wildomar Fault splay of the Elsinore Fault zone is closest to the site at approximately 3.5 miles to the southwest (CDMG 1988; CGS 2018). The Elsinore Fault zone has a probable moment magnitude of 6.5 to 7.5 (SCEDC 2019). No faults are known to exist on the project site, and no known faults are mapped trending toward the site (Kennedy et al. 2003; CGS 2018).

The site is expected to experience strong ground shaking within the life of the project. The project site is not within areas mapped as susceptible to subsidence, landslides, or liquefaction, and is not in an earthquake fault zone, as depicted in Exhibit 5.8-2, Subsidence Susceptibility Map; Exhibit 5.8-3, Alquist-Priolo Earthquake Fault Zone Map; Exhibit 5.8-4, Riverside County Fault Hazard Map; and Exhibit 5.8-5, Liquefaction Susceptibility Map, of the Murrieta General Plan 2035 Final EIR (City of Murrieta 2011a). Groundwater was not encountered in geotechnical borings drilled on site, to a maximum depth of 38 feet. Historical high groundwater data is not available in the vicinity of the site (Appendix E-1). Groundwater is reportedly not present on site, as the underlying San Marcos gabbro is composed of interlocking minerals with little to no permeability (Appendix E-1).

4.5.2 Relevant Plans, Policies, and Ordinances

Federal

Occupational Safety and Health Administration Regulations

Excavation and trenching are among the most hazardous construction activities. The Occupational Safety and Health Administration's (OSHA) Excavation and Trenching standard, Title 29 of the Code of Federal Regulations, Part 1926.650, covers requirements for excavation and trenching operations. OSHA requires that all excavations where employees could potentially be exposed to cave-ins be protected by sloping or benching the sides of the excavation, supporting the sides of the excavation, or placing a shield between the side of the excavation and the work area.

State

Seismic Hazards Mapping Act of 1990

The Seismic Hazards Mapping Act of 1990 (SHMA) (California Public Resources Code, Section 2690 et seq.) directs the California Department of Conservation, California Geological Survey, to identify and map areas prone to liquefaction, earthquake-induced landslides, and amplified ground shaking. The purpose of the SHMA is to minimize loss of life and property through the identification, evaluation, and mitigation of seismic hazards.

The SHMA provides a statewide seismic hazard mapping and technical advisory program to assist cities and counties in fulfilling their responsibilities for protecting public health and safety from the effects of strong ground shaking, liquefaction, landslides, other ground failure, and other seismic hazards caused by earthquakes. Mapping and other information generated pursuant to the SHMA is made available to local governments for planning and development purposes. The state requires local governments to incorporate site-specific geotechnical hazard investigations and associated hazard mitigation as part of the local construction permit approval process, and requires the agent for a property seller, or the seller if acting without an agent, to disclose to any prospective buyer if the property is located within a seismic hazard zone. The state geologist is responsible for compiling seismic hazard zone maps. The SHMA specifies that the lead agency for a project may withhold development permits until geologic or soils investigations are conducted for specific sites and mitigation measures are incorporated into plans to reduce hazards associated with seismicity and unstable soils.

California Building Code

State regulations protecting structures from geo-seismic hazards are contained in the California Code of Regulations, Title 24, Part 2 (the California Building Code (CBC)). The purpose of the CBC is to establish minimum standards to safeguard the public health, safety, and general welfare through structural strength, means of egress facilities, and general stability by regulating and controlling the design, construction, quality of materials, use and occupancy, location, and maintenance of all building and structures within its jurisdiction. The CBC is based on the International Building Code published by the International Code Conference. The CBC contains California amendments based on the American Society of Civil Engineers (ASCE) Minimum Design Standards 7-05. ASCE 7-05 provides requirements for general structural design and includes means for determining earthquake loads and other loads (such as wind loads) for inclusion into building codes. The provisions of the CBC apply to the construction, alteration, movement, replacement, and demolition of every building or structure or any appurtenances connected or attached to such buildings or structures throughout California.

State Earthquake Protection Law

The State Earthquake Protection Law (California Health and Safety Code 19100 et seq.) requires that structures be designed to resist stresses produced by lateral forces caused by wind and earthquakes. Specific minimum seismic safety and structural design requirements are set forth in the CBC. The CBC requires a site-specific geotechnical study to address seismic issues and identify seismic factors that must be considered in structural design. Because the project site is not located within an Alquist–Priolo Earthquake Fault Zone (Exhibit 5.8-3, Alquist-Priolo Earthquake Fault Zone Map, in City of Murrieta 2011a), no special provisions would be required for project development related to fault rupture.

Construction General Permit

The State Water Resources Control Board (SWRCB) permits all regulated construction activities under Order No. 2009-009-DWQ, as amended by 2010-0014-DWQ and 2012-0006-DWQ. The order requires that, prior to beginning any construction activity, the permit applicant obtain coverage under the Construction General Permit by preparing and submitting to the SWRCB a Permit Registration Document that includes a Notice of Intent and appropriate fee. The SWRCB may issue a Construction General Permit or an Individual Construction Permit that would contain more specific permit provisions. Individual Construction Permits replace Construction General Permit regulations and provisions, if issued. Additionally, coverage would not occur until an adequate stormwater pollution prevention plan (SWPPP) has been prepared. A separate Notice of Intent is submitted to the SWRCB for each construction site. See Section 4.8, Hydrology and Water Quality, for additional details.

Local

Murrieta General Plan 2035

The Murrieta General Plan 2035 provides the framework for development within the City. The Safety Element of the General Plan describes hazards that exist in Murrieta and policies and goals for addressing them. This includes geologic and soils conditions and the associated potential hazards. The following policies may be applicable to the proposed project (City of Murrieta 2011b):

Policy SAF-1.1 Encourage that areas be dedicated as open space when necessary and appropriate to protect property, public health, and safety from hazards such as earthquake fault zones or flood plains.

Policy SAF-2.1 Prior to site development, projects located in areas where liquefaction, subsidence, landslide and fissuring are considered hazards shall be required to prepare geologic reports addressing site conditions, potential risk, and mitigation, to the satisfaction of the City Engineer.

Policy SAF-2.2 Require that all new development comply with the Alquist-Priolo Earthquake Fault Zoning Act.

Policy SAF-2.3 Seek to maintain emergency access in the event of an earthquake by engineering roadways to reduce damage to them.

4.5.3 Thresholds of Significance

The significance criteria used to evaluate project impacts related to geology and soils are based on Appendix G of the California Environmental Quality Act (CEQA) Guidelines. According to Appendix G of the CEQA Guidelines, a significant impact related to geology and soils would occur if the project would:

1. Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:
    a. 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 based on other substantial evidence of as known fault. Refer to Division of Mines and Geology Special Publication 42.
    b. Strong seismic ground shaking.
    c. Seismic-related ground failure, including liquefaction.
    d. Landslides.
2. Result in substantial soil erosion or the loss of topsoil.
3. Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse.
4. Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating direct or indirect substantial risks to life or property.

5. Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water.
6. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.

In 2015, the California Supreme Court, in *California Building Industry Association v. Bay Area Air Quality Management District* (2015) 62 Cal.4th 369 (CBIA v. BAAQMD), held that CEQA generally does not require a lead agency to consider the impacts of the existing environment on the future residents or users of the project. The above thresholds need to take into account this decision. Specifically, the decision held that an impact from the existing environment to the project, including future users and/or residents, is not an impact for purposes of CEQA. However, if the project, including future users and residents, exacerbates conditions that already exist, that impact must be assessed, including how it might affect future users and/or residents of the project. Thus, in accordance with Appendix G of the State CEQA Guidelines and the CBIA v. BAAQMD decision, the project would have a significant impact related to geology and soils if it would exacerbate the thresholds set forth in Thresholds 1, 3, or 4.

As determined in the Initial Study (Appendix A of this EIR), the project would result in less-than-significant impacts associated with Threshold 1 (a–d), and no impacts associated with Threshold 3, 4, or 5. Therefore, Thresholds 1 (a–d), 3, 4, and 5 will not be further discussed in this section, and this EIR only analyzes impacts associated with Threshold 2 and Threshold 6 related to soil erosion, the loss of topsoil, and paleontological resources.

4.5.4 Impacts Analysis

Would the project result in substantial soil erosion or the loss of topsoil?

Less-than-Significant Impact. The project would involve construction of a commercial retail center on previously undeveloped land. Prior grading activities have disturbed 18.7 acres of the project site's ground surface (comprising most of the Costco portion of the project) (see Chapter 3 for additional detail); these disturbed acres consist of loose dirt, gravel, and rocks. Existing slopes on site are highly variable due to these prior activities. Existing drainage patterns carry stormwater runoff toward three locations (further discussed in Section 4.8 of this EIR). Under current conditions, substantial soil erosion and loss of topsoil is highly likely due to the disturbed, undeveloped ground surface. Project construction and operation are analyzed below for potential impacts associated with soil erosion.

Construction

The project site currently has exposed soil/bedrock and very limited vegetation. Project construction would involve the use of heavy machinery on site, including bulldozers, front loaders, track hoes, trenchers, semi-trucks, and various other large equipment, which would be used for site preparation and construction activities. The project would require the removal of excess substrate off site. Excavation and ground-disturbing activities during construction of the proposed project could potentially leave loose soil exposed to the erosive forces of rainfall and high winds, which would increase the potential for soil erosion and loss of topsoil.

Because the project would involve construction within an area that is larger than 1 acre, the project applicant would be required to apply for and receive coverage under the current General Construction Permit. Coverage under the General Construction Permit would require adherence to a variety of conditions designed to protect receiving water quality from degradation that could otherwise result from construction activities, as specified in a project-specific SWPPP. Conditions would include adherence to sediment and stormwater pollutant control best management practices (BMPs), effluent monitoring and compliance, post-construction-period requirements, worker training, and various other measures designed to minimize potential for soil erosion and loss of top soil.

In addition to requirements of the General Construction Permit, the project would be required to adhere to relevant construction practices required under the City Municipal Code, including the Jurisdictional Runoff Management Program and Erosion/Sediment Control requirements. Stormwater BMPs would include those recommended by the California Stormwater Quality Association (further discussed in Section 4.8 of this EIR). With adherence to these regulations and implementation of the SWPPP and BMPs, project construction would have a less-than-significant impact associated with soil erosion and loss of top soil.

Operation

Upon project implementation, the site would be graded and paved, greatly reducing the possibility for soil erosion or loss of topsoil compared to current conditions. Project specific-water quality management plans (Appendices G-3 and G-4) have been prepared for the project to ensure that soil erosion and the loss of top-soil are minimized. See Section 4.8 of this EIR with respect to water quality impacts not related to geology and soils. As discussed in Section 4.8 of this EIR, project operation would have a less-than-significant impact associated with soil erosion and loss of top soil.

Would the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

Less-Than-Significant Impact. The project site is located within the northernmost Peninsular Ranges geomorphic province (CGS 2002; Norris and Webb 1990). This geomorphic province is characterized by northwest-trending mountain ranges and valleys that extend more than 900 miles from the tip of the Baja Peninsula to the Transverse Ranges (i.e., the San Bernardino and San Gabriel Mountains in Southern California). Regionally, the Peninsular Ranges are bounded to the east by the Colorado Desert and the west by the continental shelf and offshore islands (i.e., Santa Catalina, Santa Barbara, San Nicholas, and San Clemente) (CGS 2002; Norris and Webb 1990). Regional mountain ranges in the Peninsular Ranges geomorphic province include the Santa Ana, San Jacinto, and Santa Rosa Mountains. Geologically, these mountains are dominated by Mesozoic, plutonic igneous, and metamorphic rocks that are part of the Peninsular Ranges batholith (Southern California batholith) (Jahns 1954).

More specifically, the project site is located within the Perris Structural Block, along the Elsinore fault zone (Kennedy 1977). The Elsinore fault zone is part of the greater San Andreas Fault system, which is characterized by numerous strike-slip faults (Biehler et al. 1964). The Elsinore fault zone extends from the City of Corona in Riverside County, southeast approximately 124 miles to just beyond the international border with Mexico (Kennedy 1977). According to surficial geological mapping by Kennedy et al. (2003) at a scale of 1:24,000, the project site is underlain by Cretaceous (approximately 145 million years ago to 66 million years ago) plutonic igneous rocks that include gabbro (map unit Kgb) and monzogranites to granodiorites (map unit Kpvg).

A qualified Dudek crossed-trained archaeologist/paleontologist conducted a paleontological survey of the project site on June 13, 2018, using standard paleontological procedures and techniques. The survey methods consisted of a pedestrian survey conducted in 15-meter-wide transects across the project site. Where transects were not feasible, they were not used. Instead, a mixed approach (opportunistic survey) was used, selectively examining open ground surface where possible. The project site is within an area that has been extensively impacted by grading activities; there are several spoils piles throughout the site, and large areas that have been graded.

In addition to the field survey of the project site, a paleontological records search request was sent to the Natural History Museum of Los Angeles County on September 17, 2018 (McLeod 2018), and the results were received on October 1, 2018. According to the records search, no paleontological localities are documented within a 1-mile radius of the proposed project boundaries (McLeod 2018), and the project site is underlain by Mesozoic (approximately 252 million years ago to 66 million years ago), intrusive igneous rocks that have no paleontological sensitivity. Therefore, the Natural History Museum of Los Angeles County did not recommend a paleontological mitigation program (McLeod 2018).

Several classification schemes exist to determine the paleontological sensitivity of geological units. According to the Society of Vertebrate Paleontology's guidelines for assessment of paleontological resources (SVP 2010), plutonic igneous rocks have no paleontological potential to yield significant paleontological resources. A review of the Riverside County Land Information System database indicates that the project site is underlain by geological units of low paleontological potential (County of Riverside 2018). Note that the Riverside County Land Information System database is a coarse-scale planning-level tool used by Riverside County that is based on geological data available at the time of its creation.

No paleontological resources were identified within the project site as a result of the field survey, institutional records search, and desktop geological and paleontological review, and the project site is not anticipated to be underlain by unique geologic features. The project site is mapped as being underlain by Cretaceous plutonic igneous rocks that have no potential to yield significant paleontological resources. As such, no mitigation for paleontological resources is necessary, and impacts would be less than significant.

4.5.5 Mitigation Measures

The project would not result in significant impacts, and no mitigation measures are necessary.

4.5.6 Level of Significance After Mitigation

The project would not result in significant impacts, and no mitigation measures are necessary.

4.5.7 Cumulative Impacts

Potential cumulative impacts on geology and soils result from projects that combine to create geologic hazards, including unstable geologic conditions, or substantially contribute to erosion. Most geology and soil hazards associated with development would be site-specific and can be mitigated on a project-by-project basis. Such hazards include exposure of people or structures to rupture of an earthquake fault, liquefaction, landslides, unstable geologic units, and expansive soils. Individual project mitigation for these hazards would ensure that there are no residual cumulative impacts. Proper engineering design, use of standard construction practices, adherence to erosion control standards, implementation of BMPs required by the SWPPP, and implementation of the recommendations found in their respective geotechnical reports would ensure that the potential for cumulatively considerable geological impacts would be less than significant. Since geologic hazards are site-specific and not necessarily cumulative, the proposed project would not have a cumulatively considerable impact. Also, as noted above, in 2015, the California Supreme Court held that CEQA generally does not require a lead agency to consider the impacts of the existing environment on the future residents or users of the project unless such projects exacerbate existing conditions, further limiting the likelihood that environmental impacts on related projects would occur.

Excavation and ground-disturbing activities during construction of the proposed project and cumulative projects could potentially leave loose soil exposed to the erosive forces of rainfall and high winds, which would increase the potential for soil erosion and loss of topsoil. Earth-disturbing activities associated with construction on the proposed project site and cumulative project sites would be temporary, and with compliance with the General Construction Permit and BMPs outlined in the SWPPP, cumulative impacts related to soil erosion and the loss of topsoil would be less than significant.

The project could have a cumulative impact with respect to paleontological resources if the project, in conjunction with other cumulative and related projects, were to result in impacts to paleontological resources. Because the project site, as well as related projects, is located in an area known to have little to no potential to yield fossils due to the characteristics of the underlying geologic formations, the project does not have the potential to combine with other projects to result in cumulatively considerable impacts to paleontological resources. Therefore, cumulative impacts with respect to paleontological resources would be less than significant.

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4.6 Greenhouse Gas Emissions

This section describes the existing setting of the project site related to greenhouse gas (GHG) emissions and climate change, identifies associated regulatory requirements, evaluates potential impacts, and identifies mitigation measures related to implementation of the proposed Costco/Vineyard II Retail Development Project (project). The GHG emissions analysis is based on the Air Quality and Greenhouse Gas Emissions Analysis Technical Report prepared for the proposed project (Appendix B).

4.6.1 Existing Conditions

Climate Change Overview

Climate change refers to any significant change in measures of climate, such as temperature, precipitation, or wind patterns, lasting for an extended period of time (decades or longer). The Earth's temperature depends on the balance between energy entering and leaving the planet's system. Many factors, both natural and human, can cause changes in Earth's energy balance, including variations in the sun's energy reaching Earth, changes in the reflectivity of Earth's atmosphere and surface, and changes in the greenhouse effect, which affects the amount of heat retained by Earth's atmosphere (EPA 2017a).

The greenhouse effect is the trapping and build-up of heat in the atmosphere (troposphere) near the Earth's surface. The greenhouse effect traps heat in the troposphere through a threefold process as follows: Short-wave radiation emitted by the Sun is absorbed by the Earth, the Earth emits a portion of this energy in the form of long-wave radiation, and GHGs in the upper atmosphere absorb this long-wave radiation and emit it into space and toward the Earth. The greenhouse effect is a natural process that contributes to regulating the Earth's temperature and creates a pleasant, livable environment on the Earth. Human activities that emit additional GHGs to the atmosphere increase the amount of infrared radiation that gets absorbed before escaping into space, thus enhancing the greenhouse effect and causing the Earth's surface temperature to rise.

The scientific record of the Earth's climate shows that the climate system varies naturally over a wide range of time scales and that, in general, climate changes prior to the Industrial Revolution in the 1700s can be explained by natural causes, such as changes in solar energy, volcanic eruptions, and natural changes in GHG concentrations. Recent climate changes, in particular the warming observed over the past century, however, cannot be explained by natural causes alone. Rather, it is extremely likely that human activities have been the dominant cause of that warming since the mid-twentieth century and is the most significant driver of observed climate change (EPA 2017a; IPCC 2013). Human influence on the climate system is evident from the increasing GHG concentrations in the atmosphere, positive radiative forcing, observed warming, and improved understanding of the climate system (IPCC 2013). The atmospheric concentrations of GHGs have increased to levels unprecedented in the last 800,000 years, primarily from fossil fuel emissions and secondarily from emissions associated with land use changes (IPCC 2013).

Greenhouse Gases

A GHG is any gas that absorbs infrared radiation in the atmosphere; in other words, GHGs trap heat in the atmosphere. As defined in California Health and Safety Code Section 38505(g), for purposes of administering many of the state's primary GHG emissions reduction programs, GHGs include carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulfur hexafluoride (SF_6), and

nitrogen trifluoride (NF_3). (See also California Environmental Quality Act (CEQA) Guidelines Section 15364.5.)[1] Some GHGs, such as CO_2, CH_4, and N_2O, occur naturally and are emitted into the atmosphere through natural processes and human activities. Of these gases, CO_2 and CH_4 are emitted in the greatest quantities from human activities. Manufactured GHGs, which have a much greater heat-absorption potential than CO_2, include fluorinated gases, such as HFCs, PFCs, and SF_6, which are associated with certain industrial products and processes. The following paragraphs provide a summary of the most common GHGs and their sources.[2]

Carbon Dioxide. CO_2 is a naturally occurring gas and a by-product of human activities and is the principal anthropogenic GHG that affects the Earth's radiative balance. Natural sources of CO_2 include respiration of bacteria, plants, animals, and fungus; evaporation from oceans; volcanic out-gassing; and decomposition of dead organic matter. Human activities that generate CO_2 are from the combustion of fuels such as coal, oil, natural gas, and wood and changes in land use.

Methane. CH_4 is produced through both natural and human activities. CH_4 is a flammable gas and is the main component of natural gas. Methane is produced through anaerobic (without oxygen) decomposition of waste in landfills, flooded rice fields, animal digestion, decomposition of animal wastes, production and distribution of natural gas and petroleum, coal production, and incomplete fossil fuel combustion.

Nitrous Oxide. N_2O is produced through natural and human activities, mainly through agricultural activities and natural biological processes, although fuel burning and other processes also create N_2O. Sources of N_2O include soil cultivation practices (microbial processes in soil and water), especially the use of commercial and organic fertilizers, manure management, industrial processes (such as in nitric acid production, nylon production, and fossil-fuel-fired power plants), vehicle emissions, and using N_2O as a propellant (e.g., rockets, racecars, and aerosol sprays).

Fluorinated Gases. Fluorinated gases (also referred to as F-gases) are synthetic powerful GHGs emitted from many industrial processes. Fluorinated gases are commonly used as substitutes for stratospheric ozone-depleting substances (e.g., chlorofluorocarbons (CFCs), hydrochlorofluorocarbons (HCFCs), and halons). The most prevalent fluorinated gases include the following:

- **Hydrofluorocarbons:** HFCs are compounds containing only hydrogen, fluorine, and carbon atoms. HFCs are synthetic chemicals used as alternatives to ozone-depleting substances in serving many industrial, commercial, and personal needs. HFCs are emitted as by-products of industrial processes and are used in manufacturing.
- **Perfluorocarbons:** PFCs are a group of human-made chemicals composed of carbon and fluorine only. These chemicals were introduced as alternatives, with HFCs, to the ozone depleting substances. The two main sources of PFCs are primary aluminum production and semiconductor manufacturing. Since PFCs have stable molecular structures and do not break down through the chemical processes in the lower atmosphere, these chemicals have long lifetimes, ranging between 10,000 and 50,000 years.

[1] Climate-forcing substances include GHGs and other substances such as black carbon and aerosols. This discussion focuses on the seven GHGs identified in California Health and Safety Code Section 38505 as impacts associated with other climate-forcing substances are not evaluated herein.

[2] The descriptions of GHGs are summarized from the Intergovernmental Panel on Climate Change's (IPCC) Second Assessment Report (1995), IPCC's Fourth Assessment Report (2007), CARB's "Glossary of Climate Change Terms" (2016), and EPA's "Glossary of Climate Change Terms" (2016).

- **Sulfur Hexafluoride:** SF_6 is a colorless gas soluble in alcohol and ether and slightly soluble in water. SF_6 is used for insulation in electric power transmission and distribution equipment, semiconductor manufacturing, the magnesium industry, and as a tracer gas for leak detection.
- **Nitrogen Trifluoride:** NF_3 is used in the manufacture of a variety of electronics, including semiconductors and flat panel displays.

Chlorofluorocarbons. CFCs are synthetic chemicals that have been used as cleaning solvents, refrigerants, and aerosol propellants. CFCs are chemically unreactive in the lower atmosphere (troposphere), and the production of CFCs was prohibited in 1987 due to the chemical destruction of stratospheric O_3.

Hydrochlorofluorocarbons. HCFCs are a large group of compounds whose structure is very close to that of CFCs—containing hydrogen, fluorine, chlorine, and carbon atoms—but including one or more hydrogen atoms. Like HFCs, HCFCs are used in refrigerants and propellants. HCFCs were also used in place of CFCs for some applications; however, their use in general is being phased out.

Black Carbon. Black carbon is a component of fine particulate matter, which has been identified as a leading environmental risk factor for premature death. It is produced from the incomplete combustion of fossil fuels and biomass burning, particularly from older diesel engines and forest fires. Black carbon warms the atmosphere by absorbing solar radiation, influences cloud formation, and darkens the surface of snow and ice, which accelerates heat absorption and melting. Black carbon is a short-lived species that varies spatially, which makes it difficult to quantify the global warming potential. DPM emissions are a major source of black carbon and are TACs that have been regulated and controlled in California for several decades to protect public health. In relation to declining diesel particulate matter from the CARB's regulations pertaining to diesel engines, diesel fuels, and burning activities, CARB estimates that annual black carbon emissions in California have reduced by 70% between 1990 and 2010, with 95% control expected by 2020 (CARB 2014).

Water Vapor. The primary source of water vapor is evaporation from the ocean, with additional vapor generated by sublimation (change from solid to gas) from ice and snow, evaporation from other water bodies, and transpiration from plant leaves. Water vapor is the most important, abundant, and variable GHG in the atmosphere and maintains a climate necessary for life.

Ozone. Tropospheric O_3, which is created by photochemical reactions involving gases from both natural sources and human activities, acts as a GHG. Stratospheric O_3, which is created by the interaction between solar ultraviolet radiation and molecular oxygen (O_2), plays a decisive role in the stratospheric radiative balance. Depletion of stratospheric O_3, due to chemical reactions that may be enhanced by climate change, results in an increased ground-level flux of ultraviolet-B radiation.

Aerosols. Aerosols are suspensions of particulate matter in a gas emitted into the air through burning biomass (plant material) and fossil fuels. Aerosols can warm the atmosphere by absorbing and emitting heat and can cool the atmosphere by reflecting light.

Global Warming Potential

Gases in the atmosphere can contribute to climate change both directly and indirectly. Direct effects occur when the gas itself absorbs radiation. Indirect radiative forcing occurs when chemical transformations of the substance produce other GHGs, when a gas influences the atmospheric lifetimes of other gases, and/or when a gas affects atmospheric processes that alter the radiative balance of the Earth (e.g., affect cloud formation or albedo) (EPA

2016). The Intergovernmental Panel on Climate Change developed the global warming potential (GWP) concept to compare the ability of each GHG to trap heat in the atmosphere relative to another gas. The GWP of a GHG is defined as the ratio of the time-integrated radiative forcing from the instantaneous release of 1 kilogram of a trace substance relative to that of 1 kilogram of a reference gas (IPCC 2014). The reference gas used is CO_2; therefore, GWP-weighted emissions are measured in metric tons (MT) of CO_2 equivalent (CO_2e).

The current version of the California Emissions Estimator Model (CalEEMod) (Version 2016.3.2) assumes that the GWP for CH_4 is 25 (so emissions of 1 MT of CH_4 are equivalent to emissions of 25 MT of CO_2), and the GWP for N_2O is 298, based on the Intergovernmental Panel on Climate Change's Fourth Assessment Report (IPCC 2007). The GWP values identified in CalEEMod were applied to the proposed project.

Sources of Greenhouse Gas Emissions

Anthropogenic GHG emissions worldwide in 2017 (the most recent year for which data is available) totaled approximately 50,860 million metric tons (MMT) of CO_2e, excluding land use change and forestry (PBL 2018). Six countries—China, the United States, the Russian Federation, India, Japan, and Brazil—and the European community accounted for approximately 65% of the total global emissions, or approximately 33,290 MMT CO_2e (PBL 2018).

Per the U.S. Environmental Protection Agency's (EPA) Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990–2016 (EPA 2018), total United States GHG emissions were approximately 6,511.3 MMT CO_2e in 2016. The primary GHG emitted by human activities in the United States was CO_2, which represented approximately 81.6% of total GHG emissions (5,310.9 MMT CO_2e). The largest source of CO_2, and of overall GHG emissions, was fossil-fuel combustion, which accounted for approximately 93.5% of CO_2 emissions in 2016 (4,966.0 MMT CO_2e). Relative to 1990, gross United States GHG emissions in 2016 are higher by 2.4%; down from a high of 15.7% above 1990 levels in 2007. GHG emissions decreased from 2015 to 2016 by 1.9% (126.8 MMT CO_2e) and overall, net emissions in 2016 were 11.1% below 2005 levels (EPA 2018).

According to California's 2000–2016 GHG emissions inventory (2018 edition), California emitted 429.4 MMT CO_2e in 2016, including emissions resulting from out-of-state electrical generation (CARB 2018). The sources of GHG emissions in California include transportation, industrial uses, electric power production from both in-state and out-of-state sources, commercial and residential uses, agriculture, high GWP substances, and recycling and waste. The California GHG emission source categories (as defined in California Air Resources Board's (CARB) 2018 GHG emissions inventory) and their relative contributions in 2016 are presented in Table 4.6-1.

Table 4.6-1. Greenhouse Gas Emissions Sources in California

Source Category	Annual GHG Emissions (MMT CO_2e)	Percent of Total[a]
Transportation	169.38	39%
Industrial	89.61	21%
Electricity generation[b]	68.58	16%
Residential and commercial uses	39.36	9%
Agriculture	33.84	8%
High GWP substances	19.78	5%
Recycling and waste	8.81	2%
Totals	**429.40**	**100%**

Source: CARB 2018.

Notes: GHG = greenhouse gas; MMT CO_2e = million metric tons of carbon dioxide equivalent; GWP = global warming potential. Emissions reflect 2016 California GHG inventory.

[a] Percentage of total has been rounded and total may not sum due to rounding.

[b] Includes emissions associated with imported electricity, which account for 26.28 MMT CO_2e.

Between 2000 and 2016, per-capita GHG emissions in California have dropped from a peak of 14.0 MT per person in 2001 to 10.8 MT per person in 2016, representing a 23% decrease. In addition, total GHG emissions in 2016 were approximately 12 MMT CO_2e less than 2015 emissions. The declining trend in GHG emissions, coupled with programs that will continue to provide additional GHG reductions going forward, demonstrates that California will continue to reduce emissions below the 2020 target of 431 MT CO_2e (CARB 2018).

The City of Murrieta (City) community-wide GHG emissions inventory is summarized in Table 4.6-2. Transportation-related activities account for the majority of the City's GHG emissions (48%). Approximately 24% of the City's community-wide GHG emissions are attributed to residential uses. Commercial uses account for approximately 15%. Office, business park, civic/institutional, industrial, and waste disposal uses account for the remaining 13% of community-wide GHG emissions.

Table 4.6-2. Greenhouse Gas Emissions Sources in City of Murrieta

Source Category	Annual GHG Emissions (MT CO_2e)[a]	Percent of Total[a]
Residential	91,492	23.5%
Commercial	60,153	15.4%
Office	12,711	3.3%
Business Park	8,332	2.1%
Civic/Institutional	9,333	2.4%
Industrial	3,463	0.9%
Transportation	188,138	48.3%
Waste	14,795	3.8%
Total	**389,717**	**100.0%**

Source: City of Murrieta 2011b.

Notes: GHG = greenhouse gas; MT CO_2e = metric tons of carbon dioxide equivalent. Emissions reflect the 2009 City of Murrieta GHG inventory.

[a] Total may not sum due to rounding.

Potential Effects of Climate Change

Globally, climate change has the potential to affect numerous environmental resources through uncertain impacts related to future air temperatures and precipitation patterns. The 2014 Intergovernmental Panel on Climate Change Synthesis Report (IPCC 2014) indicated that warming of the climate system is unequivocal, and since the 1950s, many of the observed changes are unprecedented over decades to millennia. Signs that global climate change has occurred include warming of the atmosphere and ocean, diminished amounts of snow and ice, and rising sea levels (IPCC 2014).

In California, climate change impacts have the potential to affect sea-level rise, agriculture, snowpack and water supply, forestry, wildfire risk, public health, and electricity demand and supply. The primary effect of global climate change has been a rise in average global tropospheric temperature. Reflecting the long-term warming trend since pre-industrial times, observed mean surface temperature for the decade 2006–2015 was 0.87°C (likely between 0.75°C and 0.99°C) higher than the average over the 1850–1900 period (IPCC 2018). Scientific modeling predicts that continued emissions of GHGs at or above current rates would induce more extreme climate changes

during the twenty-first century than were observed during the twentieth century. Human activities are estimated to have caused approximately 1.0°C (1.8°F) of global warming above pre-industrial levels, with a likely range of 0.8°C to 1.2°C (1.4°F to 2.2°F) (IPCC 2018). Global warming is likely to reach 1.5°C (2.7°F) between 2030 and 2052 if it continues to increase at the current rate (IPCC 2018).

Although climate change is driven by global atmospheric conditions, climate change impacts are felt locally. A scientific consensus confirms that climate change is already affecting California. The Office of Environmental Health Hazard Assessment identified various indicators of climate change in California, which are scientifically based measurements that track trends in various aspects of climate change. Many indicators reveal discernible evidence that climate change is occurring in California and is having significant, measurable impacts in the state. Changes in the state's climate have been observed, including an increase in annual average air temperature with record warmth from 2012 to 2016, more frequent extreme heat events, more extreme drought, a decline in winter chill, an increase in cooling degree days and a decrease in heating degree days, and an increase in variability of statewide precipitation (OEHHA 2018).

Warming temperatures and changing precipitation patterns have altered California's physical systems—the ocean, lakes, rivers and snowpack—upon which the state depends. Winter snowpack and spring snowmelt runoff from the Sierra Nevada and southern Cascade Mountains provide approximately one-third of the state's annual water supply. Impacts of climate on physical systems have been observed, such as high variability of snow-water content (i.e., amount of water stored in snowpack), decrease in snowmelt runoff, glacier change (loss in area), rise in sea levels, increase in average lake water temperature and coastal ocean temperature, and a decrease in dissolved oxygen in coastal waters (OEHHA 2018).

Impacts of climate change on biological systems, including humans, wildlife, and vegetation, have also been observed, including climate change impacts on terrestrial, marine, and freshwater ecosystems. As with global observations, species responses include those consistent with warming: elevational or latitudinal shifts in range, changes in the timing of key plant and animal life cycle events, and changes in the abundance of species and in community composition. Humans are better able to adapt to a changing climate than plants and animals in natural ecosystems. Nevertheless, climate change poses a threat to public health, as warming temperatures and changes in precipitation can affect vector-borne pathogen transmission and disease patterns in California as well as the variability of heat-related deaths and illnesses. In addition, since 1950, the area burned by wildfires each year has been increasing.

The California Natural Resources Agency (CNRA) has released four California Climate Change Assessments (2006, 2009, 2012, and 2018), which have addressed the following: acceleration of warming across the state, more intense and frequent heat waves, greater riverine flows, accelerating sea level rise, more intense and frequent drought, more severe and frequent wildfires, more severe storms and extreme weather events, shrinking snowpack and less overall precipitation, and ocean acidification, hypoxia, and warming. To address local and regional governments need for information to support action in their communities, the Fourth Assessment (CNRA 2018a) includes reports for nine regions of the state, including the Inland Deserts Region, where the project is located. Key projected climate changes for the Inland Deserts Region include the following (CNRA 2018a):

- Extremely high maximum temperatures are expected to occur in the Inland Deserts.
- The fate of the Salton Sea is a critical determinant of future environmental quality.
- Renewable energy development will have big impacts on the economy and infrastructure.

- Continuing current land use/development patterns (i.e., housing development in the region to compensate for lack of development on the coast) will require increased energy for cooling to compensate for a rise in extreme high temperatures.
- Higher temperatures will exacerbate water stress in an already very water-limited region.
- Changing water availability is a key determinant of the future for ecological and agricultural systems.
- Population in the Inland Deserts is highly vulnerable to the effects of climate change.
- Tourism is a major economic driver that is likely to be threatened by a changing climate.

Agriculture. Some of the specific challenges faced by the agricultural sector and farmers include more drastic and unpredictable precipitation and weather patterns; extreme weather events that range from severe flooding to extreme drought, to destructive storm events; significant shifts in water availably and water quality; changes in pollinator lifecycles; temperature fluctuations, including extreme heat stress and decreased chill hours; increased risks from invasive species and weeds, agricultural pests and plant diseases; and disruptions to the transportation and energy infrastructure supporting agricultural production.

Biodiversity and Habitat. Specific climate change challenges to biodiversity and habitat include species migration in response to climatic changes, range shift and novel combinations of species; pathogens, parasites and disease; invasive species; extinction risks; changes in the timing of seasonal life-cycle events; food web disruptions; threshold effects (i.e., a change in the ecosystem that results in a "tipping point" beyond which irreversible damage or loss has occurred).

Energy. Specific climate change challenges for the energy sector include temperature, fluctuating precipitation patterns, increasing extreme weather events, and sea-level rise.

Forestry. The most significant climate change related risk to forests is accelerated risk of wildfire and more frequent and severe droughts. Droughts have resulted in more large-scale mortalities and combined with increasing temperatures have led to an overall increase in wildfire risks. Increased wildfire intensity subsequently increases public safety risks, property damage, fire suppression and emergency response costs, watershed and water quality impacts, and vegetation conversions.

Ocean and Coastal Ecosystems and Resources. Sea-level rise, changing ocean conditions, and other climate change stressors are likely to exacerbate long-standing challenges related to ocean and coastal ecosystems in addition to threatening people and infrastructure located along the California coastline and in coastal communities. Sea-level rise, in addition to more frequent and severe coastal storms and erosion, are threatening vital infrastructure such as roads, bridges, power plants, ports and airports, gasoline pipes, and emergency facilities, as well as negatively impacting the coastal recreational assets such as beaches and tidal wetlands.

Public Health. Climate change can impact public health through various environmental changes and is the largest threat to human health in the twenty-first century. Changes in precipitation patterns affect public health primarily through potential for altered water supplies, and extreme events such as heat, floods, droughts, and wildfires. Increased frequency, intensity, and duration of extreme heat and heat waves are likely to increase the risk of mortality due to heat-related illness, as well as exacerbate existing chronic health conditions. Other extreme weather events are likely to negatively impact air quality and increase or intensify respiratory illness, such as asthma and allergies.

Transportation. Although the transportation industry is a source of GHG emissions, it is also vulnerable to climate change risks. Increasing temperatures and extended periods of extreme heat threaten the integrity of the roadways and rail lines. High temperatures cause the road surfaces to expand, which leads to increased pressure and pavement buckling. High temperatures can also cause rail breakages, which could lead to train derailment. Other forms of extreme weather events, such as extreme storm events, can negatively impact infrastructure, which can impair movement of peoples and goods, or potentially block evacuation routes and emergency access roads. Increased wildfires, flooding, erosion risks, landslides, mudslides, and rockslides can all profoundly impact the transportation system and pose a serious risk to public safety.

Water. Climate change could seriously impact the timing, form, amount of precipitation, runoff patterns, and frequency and severity of precipitation events. Higher temperatures reduce the amount of snowpack and lead to earlier snowmelt, which can impact water supply availability, natural ecosystems, and winter recreation. Water supply availability during the intense dry summer months is heavily dependent on the snowpack accumulated during the winter time. Increased risk of flooding has a variety of public health concerns, including water quality, public safety, property damage, displacement, and post-disaster mental health problems. Prolonged and intensified droughts can also negatively groundwater reserves and result in increased overdraft and subsidence. The higher risk of wildfires can lead to increased erosion, which can negatively impact watersheds and result in poor water quality.

4.6.2 Relevant Plans, Policies, and Ordinances

Federal

Massachusetts v. EPA. In *Massachusetts v. EPA* (April 2007), the U.S. Supreme Court directed the EPA administrator to determine whether GHG emissions from new motor vehicles cause or contribute to air pollution that may reasonably be anticipated to endanger public health or welfare, or whether the science is too uncertain to make a reasoned decision. In December 2009, the administrator signed a final rule with the following two distinct findings regarding GHGs under Section 202(a) of the federal Clean Air Act:

- The Administrator found that elevated concentrations of GHGs—CO_2, CH_4, N_2O, HFCs, PFCs, and SF_6—in the atmosphere threaten the public health and welfare of current and future generations. This is the "endangerment finding."
- The Administrator further found the combined emissions of GHGs—CO_2, CH_4, N_2O, and HFCs—from new motor vehicles and new motor vehicle engines contribute to the GHG air pollution that endangers public health and welfare. This is the "cause or contribute finding."

These two findings were necessary to establish the foundation for regulation of GHGs from new motor vehicles as air pollutants under the Clean Air Act.

Energy Independence and Security Act of 2007. The Energy Independence and Security Act of 2007 (December 2007), among other key measures, would do the following, which would aid in the reduction of national GHG emissions (EPA 2007):

- Increase the supply of alternative fuel sources by setting a mandatory Renewable Fuel Standard requiring fuel producers to use at least 36 billion gallons of biofuel in 2022.

- Set a target of 35 miles per gallon for the combined fleet of cars and light trucks by model year 2020, and directs National Highway Traffic Safety Administration (NHTSA) to establish a fuel economy program for medium- and heavy-duty trucks and create a separate fuel economy standard for work trucks.
- Prescribe or revise standards affecting regional efficiency for heating and cooling products and procedures for new or amended standards, energy conservation, energy-efficiency labeling for consumer electronic products, residential boiler efficiency, electric motor efficiency, and home appliances.

Federal Vehicle Standards. In response to the U.S. Supreme Court ruling previously discussed, the Bush Administration issued Executive Order (EO) 13432 in 2007 directing the EPA, the Department of Transportation, and the Department of Energy to establish regulations that reduce GHG emissions from motor vehicles, non-road vehicles, and non-road engines by 2008. In 2009, the NHTSA issued a final rule regulating fuel efficiency and GHG emissions from cars and light-duty trucks for model year 2011, and in 2010, the EPA and NHTSA issued a final rule regulating cars and light-duty trucks for model years 2012–2016 (75 FR 25324–25728).

In 2010, President Barack Obama issued a memorandum directing the Department of Transportation, Department of Energy, EPA, and NHTSA to establish additional standards regarding fuel efficiency and GHG reduction, clean fuels, and advanced vehicle infrastructure. In response to this directive, EPA and NHTSA proposed stringent, coordinated federal GHG and fuel economy standards for model years 2017–2025 light-duty vehicles. The proposed standards projected to achieve 163 grams per mile of CO_2 in model year 2025, on an average industry fleet-wide basis, which is equivalent to 54.5 miles per gallon if this level were achieved solely through fuel efficiency. The final rule was adopted in 2012 for model years 2017–2021 (77 FR 62624–63200). On January 12, 2017, the EPA finalized its decision to maintain the current GHG emissions standards for model years 2022–2025 cars and light trucks (EPA 2017b).

In addition to the regulations applicable to cars and light-duty trucks described above, in 2011, the EPA and NHTSA announced fuel economy and GHG standards for medium- and heavy-duty trucks for model years 2014–2018 (76 FR 57106–57513). The standards for CO_2 emissions and fuel consumption are tailored to three main vehicle categories: combination tractors, heavy-duty pickup trucks and vans, and vocational vehicles. According to the EPA, this regulatory program will reduce GHG emissions and fuel consumption for the affected vehicles by 6%–23% over the 2010 baselines.

On September 27, 2019, EPA and NHTSA published the Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule Part One: One National Program (84 FR 51310), which became effective November 26, 2019. The Part One Rule revokes California's authority to set its own GHG emissions standards and set zero-emission vehicle mandates in California. The Part One Rule impacts some of the underlying assumptions in the CARB EMFAC2014 and EMFAC2017 models for criteria air pollutant emissions from gasoline light-duty vehicles, which CARB released off-model adjustment factors for on November 20, 2019, primarily for use in federal Clean Air Act conformity demonstration analyses. EPA and NHTSA delayed promulgating final federal GHG and fuel economy standards (SAFE Rule Part Two) for the "near future." Because CARB does not know the full impacts of these rules until Part Two is released, no off-model adjustments factors are available for GHG emissions at this time. In addition, the EMFAC off-model adjustments have not yet been incorporated into CalEEMod. This issue is evolving as California and 22 other states, as well as the District of Columbia and two cities, filed suit against the EPA over the vehicle waiver revocation on November 15, 2019, and a petition for reconsideration of the rule was filed on November 26, 2019, by California and 22 other states, the District of Columbia, and four cities

Clean Power Plan and New Source Performance Standards for Electric Generating Units. On October 23, 2015, the EPA published a final rule (effective December 22, 2015) establishing the Carbon Pollution Emission

Guidelines for Existing Stationary Sources: Electric Utility Generating Units (80 FR 64510–64660), also known as the Clean Power Plan. These guidelines prescribe how states must develop plans to reduce GHG emissions from existing fossil-fuel-fired electric generating units. The guidelines establish CO_2 emission performance rates representing the best system of emission reduction for two subcategories of existing fossil-fuel-fired electric generating units: (1) fossil-fuel-fired electric utility steam-generating units, and (2) stationary combustion turbines. Concurrently, the EPA published a final rule (effective October 23, 2015) establishing Standards of Performance for Greenhouse Gas Emissions from New, Modified, and Reconstructed Stationary Sources: Electric Utility Generating Units (80 FR 64661–65120). The rule prescribes CO_2 emission standards for newly constructed, modified, and reconstructed affected fossil-fuel-fired electric utility generating units. The U.S. Supreme Court stayed implementation of the Clean Power Plan pending resolution of several lawsuits.

State

The statewide GHG emissions regulatory framework is summarized below by category: state climate change targets, building energy, renewable energy and energy procurement, mobile sources, solid waste, water, and other state regulations and goals. The following text describes EOs, legislation, regulations, and other plans and policies that would directly or indirectly reduce GHG emissions and/or address climate change issues.

State Climate Change Targets

The state has taken a number of actions to address climate change. These include EOs, legislation, and CARB plans and requirements. These are summarized below.

EO S-3-05. EO S-3-05 (June 2005) established California's GHG emissions reduction targets and laid out responsibilities among the state agencies for implementing the EO and for reporting on progress toward the targets. This EO established the following targets:

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

EO S-3-05 also directed the California Environmental Protection Agency to report biannually on progress made toward meeting the GHG targets and the impacts to California due to global warming, including impacts to water supply, public health, agriculture, the coastline, and forestry. The Climate Action Team was formed, which subsequently issued reports from 2006 to 2010 (CAT 2016).

Assembly Bill 32. In furtherance of the goals established in EO S-3-05, the Legislature enacted Assembly Bill (AB) 32 (Núñez and Pavley). The bill is referred to as the California Global Warming Solutions Act of 2006 (September 27, 2006). AB 32 provided initial direction on creating a comprehensive multiyear program to limit California's GHG emissions at 1990 levels by 2020 and initiate the transformations required to achieve the state's long-range climate objectives.

Senate Bill 32 and AB 197. Senate Bill (SB) 32 and AB 197 (enacted in 2016) are companion bills. SB 32 codified the 2030 emissions reduction goal of EO B-30-15 by requiring CARB to ensure that statewide GHG emissions are reduced to 40% below 1990 levels by 2030. AB 197 established the Joint Legislative Committee on Climate Change Policies, consisting of at least three members of the Senate and three members of the Assembly, to provide ongoing oversight over implementation of the state's climate policies. AB 197 also added two members of the Legislature to CARB as nonvoting members; requires CARB to make available and update (at

least annually via its website) emissions data for GHGs, criteria air pollutants, and TACs from reporting facilities; and requires CARB to identify specific information for GHG emissions reduction measures when updating the Scoping Plan.

CARB's 2007 Statewide Limit. In 2007, in accordance with California Health and Safety Code Section 38550, CARB approved a statewide limit on the GHG emissions level for 2020, consistent with the determined 1990 baseline (427 MMT CO_2e).

CARB's Climate Change Scoping Plan. One specific requirement of AB 32 is for CARB to prepare a "scoping plan" for achieving the maximum technologically feasible and cost-effective GHG emission reductions by 2020 (Health and Safety Code Section 38561(a)), and to update the plan at least once every 5 years. In 2008, CARB approved the first Scoping Plan. The Climate Change Scoping Plan: A Framework for Change (Scoping Plan) included a mix of recommended strategies that combined direct regulations, market-based approaches, voluntary measures, policies, and other emission reduction programs calculated to meet the 2020 statewide GHG emission limit and initiate the transformations needed to achieve the state's long-range climate objectives. The key elements of the Scoping Plan include the following (CARB 2008):

1. Expanding and strengthening existing energy efficiency programs as well as building and appliance standards
2. Achieving a statewide renewable energy mix of 33%
3. Developing a California cap-and-trade program that links with other Western Climate Initiative partner programs to create a regional market system and caps sources contributing 85% of California's GHG emissions
4. Establishing targets for transportation-related GHG emissions for regions throughout California, and pursuing policies and incentives to achieve those targets
5. Adopting and implementing measures pursuant to existing state laws and policies, including California's clean car standards, goods movement measures, and the Low Carbon Fuel Standard (LCFS) (17 CCR, Section 95480 et seq.)
6. Creating targeted fees, including a public goods charge on water use, fees on high GWP gases, and a fee to fund the administrative costs of the State of California's long-term commitment to AB 32 implementation

The Scoping Plan also identified local governments as essential partners in achieving California's goals to reduce GHG emissions because they have broad influence and, in some cases, exclusive authority over activities that contribute to significant direct and indirect GHG emissions through their planning and permitting processes, local ordinances, outreach and education efforts, and municipal operations. Specifically, the Scoping Plan encouraged local governments to adopt a reduction goal for municipal operations and for community emissions to reduce GHGs by approximately 15% from then levels (2008) by 2020. Many local governments developed community-scale local GHG reduction plans based on this Scoping Plan recommendation.

In 2014, CARB approved the first update to the Scoping Plan. The First Update to the Climate Change Scoping Plan: Building on the Framework (First Update) defined the state's GHG emission reduction priorities for the next 5 years and laid the groundwork to start the transition to the post-2020 goals set forth in EOs S-3-05 and B-16-2012. The First Update concluded that California is on track to meet the 2020 target, but recommended a 2030 mid-term GHG reduction target be established to ensure a continuum of action to reduce emissions. The First Update recommended a mix of technologies in key economic sectors to reduce emissions through 2050, including energy demand reduction through efficiency and activity changes; large-scale electrification of on-road vehicles, buildings, and industrial machinery; decarbonizing electricity and fuel supplies; and the rapid market

penetration of efficient and clean energy technologies. As part of the First Update, CARB recalculated the state's 1990 emissions level using more recent GWPs identified by the Intergovernmental Panel on Climate Change, from 427 MMT CO_2e to 431 MMT CO_2e (CARB 2014).

In 2015, as directed by EO B-30-15, CARB began working on an update to the Scoping Plan to incorporate the 2030 target of 40% below 1990 levels by 2030 to keep California on its trajectory toward meeting or exceeding the long-term goal of reducing GHG emissions to 80% below 1990 levels by 2050 as set forth in S-3-05. The Governor called on California to pursue a new and ambitious set of strategies, in line with the five climate change pillars from his inaugural address, to reduce GHG emissions and prepare for the unavoidable impacts of climate change. In the summer of 2016, the Legislature affirmed the importance of addressing climate change through passage of SB 32 (Pavley, Chapter 249, Statutes of 2016).

In January 2017, CARB released the 2017 Climate Change Scoping Plan Update (2030 Scoping Plan) for public review and comment (CARB 2017). The 2030 Scoping Plan builds on the successful framework established in the initial Scoping Plan and First Update while identifying new, technologically feasible and cost-effective strategies that will serve as the framework to achieve the 2030 GHG target and define the state's climate change priorities to 2030 and beyond. The strategies' "known commitments" include implementing renewable energy and energy efficiency (including the mandates of SB 350), increased stringency of the LCFS, measures identified in the Mobile Source and Freight Strategies, measures identified in the proposed Short-Lived Climate Pollutant Plan, and increased stringency of SB 375 targets. To fill the gap in additional reductions needed to achieve the 2030 target, it recommends continuing the Cap-and-Trade Program and a measure to reduce GHGs from refineries by 20%.

For local governments, the 2030 Scoping Plan replaced the initial Scoping Plan's 15% reduction goal with a recommendation to aim for a community-wide goal of no more than 6 MT CO_2e per capita by 2030 and no more than 2 MT CO_2e per capita by 2050, which are consistent with the state's long-term goals. These goals are also consistent with the Global Climate Leadership Memorandum of Understanding (Under 2 MOU) (Under 2 2016) and the Paris Agreement, which were developed around the scientifically based levels necessary to limit global warming below 2°C. The 2030 Scoping Plan recognized the benefits of local government GHG planning (e.g., through Climate Action Plans (CAPs)) and provide more information regarding tools CARB is working on to support those efforts. It also recognizes the CEQA streamlining provisions for project-level review where there is a legally adequate CAP.[3] The Second Update was approved by CARB's Governing Board on December 14, 2017.

The Scoping Plan recommends strategies for implementation at the statewide level to meet the goals of AB 32, SB 32, and the EOs, and establishes an overall framework for the measures that will be adopted to reduce California's GHG emissions. A project is considered consistent with the statutes and EOs if it meets the general policies in reducing GHG emissions to facilitate the achievement of the state's goals and does not impede attainment of those goals. As discussed in several cases, a given project need not be in perfect conformity with each and every planning policy or goals to be consistent. A project would be consistent if it will further the objectives and not obstruct their attainment.

CARB's Regulations for the Mandatory Reporting of Greenhouse Gas Emissions. CARB's Regulation for the Mandatory Reporting of Greenhouse Gas Emissions (17 CCR 95100–95157) incorporated by reference certain requirements that the EPA promulgated in its Final Rule on Mandatory Reporting of Greenhouse Gases (Title 40,

[3] *Sierra Club v. County of Napa* (2004) 121 Cal.App.4th 1490; *San Francisco Tomorrow et al. v. City and County of San Francisco* (2015) 229 Cal.App.4th 498; *San Franciscans Upholding the Downtown Specific Plan v. City and County of San Francisco* (2002) 102 Cal.App.4th 656; *Sequoyah Hills Homeowners Assn. V. City of Oakland* (1993) 23 Cal.App.4th 704, 719.

CFR, Part 98). Specifically, Section 95100(c) of the Mandatory Reporting Regulation incorporated those requirements that the EPA promulgated in the Federal Register on October 30, 2009; July 12, 2010; September 22, 2010; October 28, 2010; November 30, 2010; December 17, 2010; and April 25, 2011. In general, entities subject to the Mandatory Reporting Regulation that emit more than 10,000 MT CO_2e per year are required to report annual GHGs through the California Electronic GHG Reporting Tool. Certain sectors, such as refineries and cement plants, are required to report regardless of emission levels. Entities that emit more than the 25,000 MT CO_2e per year threshold are required to have their GHG emissions report verified by a CARB-accredited third party.

EO B-18-12. EO B-18-12 (April 2012) directed state agencies, departments, and other entities under the governor's executive authority to take action to reduce entity-wide GHG emissions by at least 10% by 2015 and 20% by 2020, as measured against a 2010 baseline. EO B-18-12 also established goals for existing state buildings for reducing grid-based energy purchases and water use.

EO B-30-15. EO B-30-15 (April 2015) identified an interim GHG reduction target in support of targets previously identified under S-3-05 and AB 32. EO B-30-15 set an interim target goal of reducing GHG emissions to 40% below 1990 levels by 2030 to keep California on its trajectory toward meeting or exceeding the long-term goal of reducing GHG emissions to 80% below 1990 levels by 2050 as set forth in S-3-05. To facilitate achieving this goal, EO B-30-15 called for CARB to update the Scoping Plan to express the 2030 target in terms of MMT CO_2e. The EO also called for state agencies to continue to develop and implement GHG emission reduction programs in support of the reduction targets.

SB 605 and SB 1383. SB 605 (2014) requires CARB to complete a comprehensive strategy to reduce emissions of short-lived climate pollutants in the state, and SB 1383 (2016) requires CARB to approve and implement that strategy by January 1, 2018. SB 1383 also establishes specific targets for the reduction of short-lived climate pollutants (40% below 2013 levels by 2030 for methane and HFCs, and 50% below 2013 levels by 2030 for anthropogenic black carbon), and provides direction for reductions from dairy and livestock operations and landfills. Accordingly, and as mentioned above, CARB adopted its Short-Lived Climate Pollutant Reduction Strategy in March 2017. The Short-Lived Climate Pollutant Reduction Strategy establishes a framework for the statewide reduction of emissions of black carbon, methane, and fluorinated gases.

EO B-55-18. EO B-55-18 (September 2018) establishes a statewide policy for the state to achieve carbon neutrality no later than 2045, and achieve and maintain net negative emissions thereafter. The goal is an addition to the existing statewide targets of reducing the state's GHG emissions. CARB will work with relevant state agencies to ensure that future Scoping Plans identify and recommend measures to achieve the carbon neutrality goal.

Building Energy

Title 24, Part 6. Title 24 of the California Code of Regulations was established in 1978 and serves to enhance and regulate California's building standards. Although not initially promulgated to reduce GHG emissions, Part 6 of Title 24 specifically established Building Energy Efficiency Standards that are designed to ensure new and existing buildings in California achieve energy efficiency and preserve outdoor and indoor environmental quality. These energy efficiency standards are reviewed every few years by the Building Standards Commission and the California Energy Commission (CEC) (and revised if necessary) (California Public Resources Code (PRC) Section 25402(b)(1)). The regulations receive input from members of industry and the public, with the goal of "reducing of wasteful, uneconomic, inefficient, or unnecessary consumption of energy" (PRC Section 25402). These regulations are scrutinized and analyzed for technological and economic feasibility (PRC Section 25402(d)) and

cost effectiveness (PRC Sections 25402(b)(2) and (b)(3)). As a result, these standards save energy, increase electricity supply reliability, increase indoor comfort, avoid the need to construct new power plants, and help preserve the environment.

The 2016 Title 24 building energy efficiency standards became effective January 1, 2017. The 2019 Title 24 Building Energy Efficiency Standards became effective January 1, 2020, which will further reduce energy used and associated GHG emissions compared to the 2016 Title 24 building energy standards. Nonresidential buildings built to the 2019 standards are anticipated to use an estimated 30% less energy than those built to the 2016 standards (CEC 2018).

Title 24, Part 11. In addition to the CEC's efforts, in 2008, the California Building Standards Commission adopted the nation's first green building standards. The California Green Building Standards Code (Part 11 of Title 24) is commonly referred to as California's Green Building Standards (CALGreen), and establishes minimum mandatory standards and voluntary standards pertaining to the planning and design of sustainable site development, energy efficiency (in excess of the California Energy Code requirements), water conservation, material conservation, and interior air quality. The CALGreen standards took effect in January 2011 and instituted mandatory minimum environmental performance standards for all ground-up, new construction of commercial, low-rise residential and state-owned buildings and schools and hospitals.

The 2019 Title 24 Building Energy Efficiency Standards, which became effective January 1, 2020, will further reduce energy used and associated GHG emissions compared to current standards. Nonresidential buildings built to the 2019 standards are anticipated to use an estimated 30% less energy than those built to the 2016 standards (CEC 2018).

The 2019 Title 24 standards focus on building energy efficiency and ensuring solar electricity generated on site is used on site. "Looking beyond the 2019 standards, the most important energy characteristic for a building will be that it produces and consumes energy at times that are appropriate and responds to the needs of the grid, which reduces the building's emissions" (CEC 2018).

The California Public Utilities Commission, CEC, and CARB also have a shared, established goal of achieving zero net energy performance for new construction in California. The key policy timelines are all new residential construction in California will be zero net energy by 2020, and all new commercial construction in California will be zero net energy by 2030.[4]

Title 20. Title 20 of the California Code of Regulations requires manufacturers of appliances to meet state and federal standards for energy and water efficiency. The CEC certifies an appliance based on a manufacturer's demonstration that the appliance meets the standards. New appliances regulated under Title 20 include refrigerators, refrigerator-freezers, and freezers; room air conditioners and room air-conditioning heat pumps; central air conditioners; spot air conditioners; vented gas space heaters; gas pool heaters; plumbing fittings and plumbing fixtures; fluorescent lamp ballasts; lamps; emergency lighting; traffic signal modules; dishwaters; clothes washers and dryers; cooking products; electric motors; low-voltage dry-type distribution transformers; power supplies; televisions and consumer audio and video equipment; and battery charger systems. Title 20 presents protocols for testing each type of appliance covered under the regulations and appliances must meet the standards for energy performance, energy design, water performance and water design. Title 20 contains

[4] See for example, California Public Utilities Commission's California's Zero Net Energy Policies and Initiatives, September 18, 2013; http://annualmeeting.naseo.org/Data/Sites/2/presentations/Fogel-Getting-to-ZNE-CA-Experience.pdf. It is expected that achievement of the zero net energy goal will occur via revisions to the Title 24 standards.

three types of standards for appliances: federal and state standards for federally regulated appliances, state standards for federally regulated appliances, and state standards for non-federally regulated appliances.

Senate Bill 1. SB 1 (Murray) (August 2006) established a $3 billion rebate program to support the goal of the state to install rooftop solar energy systems with a generation capacity of 3,000 megawatts through 2016. SB 1 added sections to the Public Resources Code, including Chapter 8.8 (California Solar Initiative), that require building projects applying for ratepayer-funded incentives for photovoltaic systems to meet minimum energy efficiency levels and performance requirements. Section 25780 established that it is a goal of the state to establish a self-sufficient solar industry. The goals included establishing solar energy systems as a viable mainstream option for homes and businesses within 10 years of adoption, and placing solar energy systems on 50% of new homes within 13 years of adoption. SB 1, also termed "Go Solar California," was previously titled "Million Solar Roofs."

California AB 1470 (Solar Water Heating). This bill established the Solar Water Heating and Efficiency Act of 2007. The bill makes findings and declarations of the Legislature relating to the promotion of solar water heating systems and other technologies that reduce natural gas demand. AB 1470 defines several terms for purposes of the act. The bill required implementing a program of incentives for the installation of 200,000 solar water heating systems in homes and businesses throughout the state by 2017.

Renewable Energy and Energy Procurement

SB 1078. SB 1078 (Sher) (September 2002) established the Renewable Portfolio Standard (RPS) program, which required an annual increase in renewable generation by the utilities equivalent to at least 1% of sales, with an aggregate goal of 20% by 2017. This goal was subsequently accelerated, requiring utilities to obtain 20% of their power from renewable sources by 2010 (see SB 107, EO S-14-08, and S-21-09).

SB 1368. SB 1368 (September 2006), required the CEC to develop and adopt regulations for GHG emission performance standards for the long-term procurement of electricity by local publicly owned utilities. These standards must be consistent with the standards adopted by the California Public Utilities Commission.

AB 1109. Enacted in 2007, AB 1109 required the CEC to adopt minimum energy efficiency standards for general-purpose lighting, to reduce electricity consumption by 50% for indoor residential lighting and 25% for indoor commercial lighting.

EO S-14-08. EO S-14-08 (November 2008) focused on the contribution of renewable energy sources to meet the electrical needs of California while reducing the GHG emissions from the electrical sector. This EO required that all retail suppliers of electricity in California serve 33% of their load with renewable energy by 2020. Furthermore, the EO directed state agencies to take appropriate actions to facilitate reaching this target. The CNRA, through collaboration with the CEC and California Department of Fish and Wildlife, was directed to lead this effort.

EO S-21-09 and SB X1-2. EO S-21-09 (September 2009) directed CARB to adopt a regulation consistent with the goal of EO S-14-08 by July 31, 2010. CARB was further directed to work with the California Public Utilities Commission and CEC to ensure that the regulation builds on the Renewable Portfolio Standard program and was applicable to investor-owned utilities, publicly owned utilities, direct access providers, and community choice providers. Under this order, CARB was to give the highest priority to those renewable resources that provide the greatest environmental benefits with the least environmental costs and impacts on public health, and can be developed the most quickly in support of reliable, efficient, cost-effective electricity system operations. On September 23, 2010, CARB initially approved

regulations to implement a Renewable Electricity Standard. However, this regulation was not finalized because of subsequent legislation (SB X1-2, Simitian, statutes of 2011) signed by Governor Brown in April 2011.

SB X1 2 expanded the Renewables Portfolio Standard by establishing a renewable energy target of 20% of the total electricity sold to retail customers in California per year by December 31, 2013, and 33% by December 31, 2020, and in subsequent years. Under the bill, a renewable electrical generation facility is one that uses biomass, solar thermal, photovoltaic, wind, geothermal, fuel cells using renewable fuels, small hydroelectric generation (30 megawatts or less), digester gas, municipal solid waste conversion, landfill gas, ocean wave, ocean thermal, or tidal current, and that meets other specified requirements with respect to its location.

SB X1-2 applies to all electricity retailers in the state, including publicly owned utilities, investor-owned utilities, electricity service providers, and community choice aggregators. All of these entities must meet the renewable energy goals previously listed.

SB 350. SB 350 (October 2015) further expanded the Renewable Portfolio Standard by establishing a goal of 50% of the total electricity sold to retail customers in California per year by December 31, 2030. In addition, SB 350 included the goal to double the energy efficiency savings in electricity and natural gas final end uses (e.g., heating, cooling, lighting, or class of energy uses on which an energy-efficiency program is focused) of retail customers through energy conservation and efficiency. The bill also requires the California Public Utilities Commission, in consultation with the CEC, to establish efficiency targets for electrical and gas corporations consistent with this goal.

SB 100. SB 100 (2018) increased the standards set forth in SB 350 establishing that 44% of the total electricity sold to retail customers in California per year by December 31, 2024, 52% by December 31, 2027, and 60% by December 31, 2030, be secured from qualifying renewable energy sources. SB 100 states that it is the policy of the state that eligible renewable energy resources and zero-carbon resources supply 100% of the retail sales of electricity to California. This bill requires that the achievement of 100% zero-carbon electricity resources do not increase the carbon emissions elsewhere in the western grid, and that the achievement not be achieved through resource shuffling.

Mobile Sources

AB 1493. AB 1493 (Pavley) (July 2002) was enacted in a response to the transportation sector accounting for more than half of California's CO_2 emissions. AB 1493 required CARB to set GHG emission standards for passenger vehicles, light-duty trucks, and other vehicles determined by the state board to be vehicles that are primarily used for noncommercial personal transportation in the state. The bill required that CARB set GHG emission standards for motor vehicles manufactured in 2009 and all subsequent model years. CARB adopted the standards in September 2004. The near-term (2009–2012) standards resulted in a reduction of approximately 22% in GHG emissions compared to the emissions from the 2002 fleet, and the mid-term (2013–2016) standards resulted in a reduction of approximately 30%.

Heavy Duty Diesel. CARB adopted the final Heavy Duty Truck and Bus Regulation, Title 13, Division 3, Chapter 1, Section 2025, on December 31, 2014, to reduce particulate matter and nitrogen oxides emissions from heavy-duty diesel vehicles. The rule requires particulate matter filters be applied to newer heavier trucks and buses by January 1, 2012, with older vehicles required to comply by January 1, 2015. The rule will require nearly all diesel trucks and buses to be compliant with the 2010 model year engine requirement by January 1, 2023. CARB also adopted an Airborne Toxic Control Measure to limit idling of diesel-fueled commercial vehicles on December 12,

2013. This rule requires diesel-fueled vehicles with gross vehicle weights greater than 10,000 pounds to idle no more than 5 minutes at any location (13 CCR 2485).

EO S-1-07. EO S-1-07 (January 2007, implementing regulation adopted in April 2009) sets a declining LCFS for GHG emissions measured in CO_2e grams per unit of fuel energy sold in California. The target of the LCFS is to reduce the carbon intensity of California passenger vehicle fuels by at least 10% by 2020 (17 CCR 95480 et seq.). The carbon intensity measures the amount of GHG emissions in the lifecycle of a fuel, including extraction/feedstock production, processing, transportation, and final consumption, per unit of energy delivered.

SB 375. SB 375 (Steinberg) (September 2008) addresses GHG emissions associated with the transportation sector through regional transportation and sustainability plans. SB 375 requires CARB to adopt regional GHG reduction targets for the automobile and light-truck sector for 2020 and 2035 and to update those targets every 8 years. SB 375 requires the state's 18 regional metropolitan planning organizations to prepare a Sustainable Communities Strategy (SCS) as part of their Regional Transportation Plan (RTP) that will achieve the GHG reduction targets set by CARB. If a metropolitan planning organization is unable to devise an SCS to achieve the GHG reduction target, the metropolitan planning organization must prepare an Alternative Planning Strategy demonstrating how the GHG reduction target would be achieved through alternative development patterns, infrastructure, or additional transportation measures or policies.

Pursuant to Government Code, Section 65080(b)(2)(K), an SCS does not (i) regulate the use of land; (ii) supersede the land use authority of cities and counties; or (iii) require that a city's or county's land use policies and regulations, including those in a general plan, be consistent with it. Nonetheless, SB 375 makes regional and local planning agencies responsible for developing those strategies as part of the federally required metropolitan transportation planning process and the state-mandated housing element process.

In September 2010, CARB adopted the first SB 375 targets for the regional metropolitan planning organizations. The targets for the Southern California Association of Governments (SCAG) are an 8% reduction in emissions per capita by 2020 and a 13% reduction by 2035. Achieving these goals through adoption of an SCS is the responsibility of the metropolitan planning organizations. SCAG adopted its first RTP/SCS in April 2012. The plan quantified a 9% reduction by 2020 and a 16% reduction by 2035 (SCAG 2012). In June 2012, CARB accepted SCAG's quantification of GHG reductions and its determination the SCS, if implemented, would achieve SCAG targets. On April 4, 2016, the SCAG Regional Council adopted the 2016 RTP/SCS, which builds on the progress made in the 2012 RTP/SCS. The 2016 RTP/SCS quantified an 8% reduction by 2020 and an 18% reduction by 2030 (SCAG 2016). In June 2016, CARB accepted SCAG's quantification of GHG reductions and its determination that the SCS would achieve SCAG targets.

Advanced Clean Cars Program and Zero-Emissions Vehicle Program. The Advanced Clean Cars program (January 2012) is a new emissions-control program for model years 2015 through 2025. The program combines the control of smog- and soot-causing pollutants and GHG emissions into a single coordinated package. The package includes elements to reduce smog-forming pollution, reduce GHG emissions, promote clean cars, and provide the fuels for clean cars (CARB 2012). To improve air quality, CARB implemented new emission standards to reduce smog-forming emissions beginning with 2015 model year vehicles. It is estimated that, by 2025, cars will emit 75% less smog-forming pollution than the average new car sold today. To reduce GHG emissions, CARB, in conjunction with the EPA and the NHTSA, adopted new GHG standards for model year 2017 to 2025 vehicles; the new standards are estimated to reduce GHG emissions by 34% in 2025. The zero-emission vehicle program will act as the focused technology of the Advanced Clean Cars program by requiring manufacturers to produce increasing numbers of zero-emission vehicles and plug-in hybrid electric vehicles in the 2018 to 2025 model years.

EO B-16-12. EO B-16-12 (March 2012) required that state entities under the governor's direction and control support and facilitate the rapid commercialization of zero-emission vehicles. It ordered CARB, CEC, the California Public Utilities Commission, and other relevant agencies to work with the Plug-in Electric Vehicle Collaborative and the California Fuel Cell Partnership to establish benchmarks to help achieve benchmark goals by 2015, 2020, and 2025. On a statewide basis, EO B-16-12 established a target reduction of GHG emissions from the transportation sector equaling 80% less than 1990 levels by 2050. This directive did not apply to vehicles that have special performance requirements necessary for the protection of the public safety and welfare.

AB 1236. AB 1236 (October 2015) (Chiu) required a city, county, or city and county to approve an application for the installation of electric vehicle charging stations, as defined, through the issuance of specified permits unless the city or county makes specified written findings based upon substantial evidence in the record that the proposed installation would have a specific, adverse impact upon the public health or safety, and there is no feasible method to satisfactorily mitigate or avoid the specific, adverse impact. The bill provided for appeal of that decision to the planning commission, as specified. The bill provided that the implementation of consistent statewide standards to achieve the timely and cost-effective installation of electric vehicle charging stations is a matter of statewide concern. The bill required electric vehicle charging stations to meet specified standards. The bill required a city, county, or city and county with a population of 200,000 or more residents to adopt an ordinance, by September 30, 2016, that created an expedited and streamlined permitting process for electric vehicle charging stations, as specified. The bill also required a city, county, or city and county with a population of less than 200,000 residents to adopt this ordinance by September 30, 2017.

Water

EO B-29-15. In response to the ongoing drought in California, EO B-29-15 (April 2015) set a goal of achieving a statewide reduction in potable urban water usage of 25% relative to water use in 2013. The term of the EO extended through February 28, 2016, although many of the directives have become permanent water-efficiency standards and requirements. The EO includes specific directives that set strict limits on water usage in the state. In response to EO B-29-15, the California Department of Water Resources modified and adopted a revised version of the Model Water Efficient Landscape Ordinance that, among other changes, significantly increases the requirements for landscape water use efficiency and broadens its applicability to include new development projects with smaller landscape areas.

Solid Waste

AB 939 and AB 341. In 1989, AB 939, known as the Integrated Waste Management Act (PRC Sections 40000 et seq.), was passed because of the increase in waste stream and the decrease in landfill capacity. The statute established the California Integrated Waste Management Board, which oversees a disposal reporting system. AB 939 mandated a reduction of waste being disposed where jurisdictions were required to meet diversion goals of all solid waste through source reduction, recycling, and composting activities of 25% by 1995 and 50% by 2000.

AB 341 (Chapter 476, Statutes of 2011 (Chesbro)) amended the California Integrated Waste Management Act of 1989 to include a provision declaring that it is the policy goal of the state that not less than 75% of solid waste generated be source-reduced, recycled, or composted by 2020, and annually thereafter. In addition, AB 341 required the California Department of Resources Recycling and Recovery (CalRecycle) to develop strategies to achieve the state's policy goal. CalRecycle conducted several general stakeholder workshops and several focused workshops, and in August 2015 published a discussion document titled AB 341 Report to the Legislature, which

identifies five priority strategies that CalRecycle believes would assist the state in reaching the 75% goal by 2020, legislative and regulatory recommendations, and an evaluation of program effectiveness (CalRecycle 2012).

Other State Actions

Senate Bill 97. SB 97 (Dutton) (August 2007) directed the Governor's Office of Planning and Research to develop guidelines under CEQA for the mitigation of GHG emissions. In 2008, the Governor's Office of Planning and Research issued a technical advisory as interim guidance regarding the analysis of GHG emissions in CEQA documents. The advisory indicated that the lead agency should identify and estimate a project's GHG emissions, including those associated with vehicular traffic, energy consumption, water usage, and construction activities (OPR 2008). The advisory further recommended that the lead agency determine significance of the impacts and impose all mitigation measures necessary to reduce GHG emissions to a level that is less than significant. The CNRA adopted the CEQA Guidelines amendments in December 2009, which became effective in March 2010.

Under the amended CEQA Guidelines, a lead agency has the discretion to determine whether to use a quantitative or qualitative analysis or apply performance standards to determine the significance of GHG emissions resulting from a particular project (14 CCR 15064.4(a)). The CEQA Guidelines require a lead agency to consider the extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions (14 CCR 15064.4(b)). The CEQA Guidelines also allow a lead agency to consider feasible means of mitigating the significant effects of GHG emissions, including reductions in emissions through the implementation of project features or off-site measures. The adopted amendments do not establish a GHG emission threshold, instead allowing a lead agency to develop, adopt, and apply its own thresholds of significance or those developed by other agencies or experts. The CNRA also acknowledges that a lead agency may consider compliance with regulations or requirements implementing AB 32 in determining the significance of a project's GHG emissions (CNRA 2009).

With respect to GHG emissions, the CEQA Guidelines state in Section 15064.4(a) that lead agencies should "make a good faith effort, to the extent possible on scientific and factual data, to describe, calculate or estimate" GHG emissions. The CEQA Guidelines note that an agency may identify emissions by either selecting a "model or methodology" to quantify the emissions or by relying on "qualitative analysis or other performance based standards" (14 CCR 15064.4(a)). Section 15064.4(b) states that the lead agency should consider the following when assessing the significance of impacts from GHG emissions on the environment: (1) the extent a project may increase or reduce GHG emissions as compared to the existing environmental setting; (2) whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project; and (3) the extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions (14 CCR 15064.4(b)).

EO S-13-08. EO S-13-08 (November 2008) is intended to hasten California's response to the impacts of global climate change, particularly sea-level rise. Therefore, the EO directs state agencies to take specified actions to assess and plan for such impacts. The final 2009 California Climate Adaptation Strategy report was issued in December 2009, and an update, Safeguarding California: Reducing Climate Risk, followed in July 2014 (CNRA 2014). To assess the state's vulnerability, the report summarizes key climate change impacts to the state for the following areas: agriculture, biodiversity and habitat, emergency management, energy, forestry, ocean and coastal ecosystems and resources, public health, transportation, and water. Issuance of the Safeguarding California: Implementation Action Plans followed in March 2016 (CNRA 2016). In January 2018, the CNRA released the Safeguarding California Plan: 2018 Update, which communicates current and needed actions that state government should take to build climate change resiliency (CNRA 2018b).

2015 State of the State Address. In January 2015, Governor Brown in his inaugural address and annual report to the Legislature established supplementary goals, which would further reduce GHG emissions over the next 15 years. These goals include an increase in California's renewable energy portfolio from 33% to 50%, a reduction in vehicle petroleum use for cars and trucks by up to 50%, measures to double the efficiency of existing buildings, and decreasing emissions associated with heating fuels.

2016 State of the State Address. In his January 2016 address, Governor Brown established a statewide goal to bring per-capita GHG emission down to 2 tons per person, which reflects the goal of the Under 2 MOU to limit global warming to less than 2°C by 2050. The Under 2 MOU agreement pursues emission reductions of 80% to 95% below 1990 levels by 2050 and/or reaching a per-capita annual emissions goal of less than 2 MT by 2050. A total of 135 jurisdictions representing 32 countries and 6 continents, including California, have signed or endorsed the Under 2 MOU (Under 2 2016).

Local

South Coast Air Quality Management District. Air districts typically act in an advisory capacity to local governments in establishing the framework for environmental review of air pollution impacts under CEQA. This may include recommendations regarding significance thresholds, analytical tools to estimate emissions and assess impacts, and mitigation for potentially significant impacts. Although air districts will also address some of these issues on a project-specific basis as responsible agencies, they may provide general guidance to local governments on these issues (SCAQMD 2008). As discussed in Section 4.6.3, Thresholds of Significance, the South Coast Air Quality Management District (SCAQMD) has recommended numeric CEQA significance thresholds for GHG emissions for lead agencies to use in assessing GHG impacts of residential and commercial development projects; however, these thresholds were not adopted.

City of Murrieta General Plan 2035. The Air Quality Element of the Murrieta General Plan includes the goals and policies that result in co-benefits with reducing GHG emissions (see Section 4.2, Air Quality, of this Environmental Impact Report). The Conservation Element includes goals and policies that would result in co-benefits of reducing GHG emissions. These applicable goals and policies are as follows (City of Murrieta 2011a):

GOAL CSV-2 Murrieta promotes compliance with requirements from the State and appropriate agencies regarding comprehensive water conservation measures in buildings and landscaping.

- **Policy CSV-2.1** Ensure that all developments comply with water efficiency requirements, as mandated by the applicable Building Code.

GOAL CSV-12 Energy conservation and the generation of energy from renewable sources is prioritized as part of an overall strategy to reduce GHG emissions.

- **Policy CSV-12.1** Ensure that all developments comply with energy efficiency requirements as mandated by the applicable Building Code.
- **Policy CSV-12.3** Support the on-site installation and use of renewable energy generation systems for residential, commercial, institutional, and industrial uses.

GOAL CSV-13 Solid waste is diverted from landfills through waste reduction, re-use, and recycling.

Policy CSV-13.1 Continue to comply with the landfill diversion requirements of the Integrated Waste Management Program.

Policy CSV-13.2 Ensure that non-residential and multi-family developments provide readily accessible areas for recycling (at a minimum) paper, corrugated cardboard, glass, plastics and metals, as required by California law.

GOAL CSV-14 A community that encourages and incentivizes the sustainable development of buildings and neighborhoods, particularly with respect to durability, energy and water use, and transportation impacts.

Policy CSV-14.1 Ensure all applicable construction projects comply with the California State Green Building Standards Code.

Policy CSV-14.2 Encourage the integration of other principles of green building into development standards and guidelines, looking for opportunities to realize other benefits such as improved health and increased bicycle transportation.

City of Murrieta Climate Action Plan. Adopted as part of the Murrieta General Plan in July 2011, the City's CAP (City of Murrieta 2011b), which was prepared following CEQA Guidelines Section 15183.5, provides a framework for reducing GHG emissions and managing resources to best prepare for a changing climate. With respect to evaluation of projects under CEQA, the CAP states, "Projects that demonstrate consistency with the strategies, actions, and emission reduction targets contained in the CAP would have a less than significant impacts on climate change" (City of Murrieta 2011b). The City's CAP also suggests best practices for implementation, and makes recommendations for measuring progress.

The City's CAP is intended to address the main sources of the emissions that cause climate change, which include emissions from the energy consumed in buildings and for transportation, as well as the solid waste sent to landfills. The purpose of the City's CAP is to guide the development, enhancement, and implementation of actions that would reduce the City's GHG emissions by 15% below existing (2009) levels by 2020.

4.6.3 Thresholds of Significance

The significance criteria used to evaluate the project's GHG emissions impacts is based on the recommendations provided in Appendix G of the CEQA Guidelines. For the purposes of this GHG emissions analysis, the project would have a significant environmental impact if it would (14 CCR 15000 et seq.):

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

Global climate change is a cumulative impact; a project participates in this potential impact through its incremental contribution combined with the cumulative increase of all other sources of GHGs. There are currently no established thresholds for assessing whether the GHG emissions of a project, such as the proposed project, would be considered a cumulatively considerable contribution to global climate change; however, all reasonable efforts should be made to minimize a project's contribution to global climate change. In addition, although GHG impacts are recognized exclusively as cumulative impacts (CAPCOA 2008), GHG emissions impacts must also be evaluated on a project level under CEQA.

The CEQA Guidelines do not prescribe specific methodologies for performing an assessment, do not establish specific thresholds of significance, and do not mandate specific mitigation measures. Rather, the CEQA Guidelines emphasize the lead agency's discretion to determine the appropriate methodologies and thresholds of significance consistent with the manner in which other impact areas are handled in CEQA (CNRA 2009). California has not adopted emission-based thresholds for GHG emissions under CEQA. The Governor's Office of Planning and Research's Technical Advisory, titled "Discussion Draft CEQA and Climate Change Advisory," states the following (OPR 2018):

> neither the CEQA statute nor the CEQA Guidelines prescribe thresholds of significance or particular methodologies for performing an impact analysis. This is left to lead agency judgment and discretion, based upon factual data and guidance from regulatory agencies and other sources where available and applicable. Even in the absence of clearly defined thresholds for GHG emissions, such emissions must be disclosed and mitigated to the extent feasible whenever the lead agency determines that the project contributes to a significant, cumulative climate change impact.

Furthermore, the advisory document indicates that "in the absence of regulatory standards for GHG emissions or other scientific data to clearly define what constitutes a 'significant impact,' individual lead agencies may undertake a project-by-project analysis, consistent with available guidance and current CEQA practice" (OPR 2018). Section 15064.7(c) of the CEQA Guidelines specifies that "when adopting thresholds of significance, a lead agency may consider thresholds of significance previously adopted or recommended by other public agencies, or recommended by experts, provided the decision of the lead agency to adopt such thresholds is supported by substantial evidence."

In October 2008, the SCAQMD proposed recommended numeric CEQA significance thresholds for GHG emissions for lead agencies to use in assessing GHG impacts of residential and commercial development projects, as presented in its Draft Guidance Document – Interim CEQA Greenhouse Gas (GHG) Significance Threshold (SCAQMD 2008). This guidance document, which builds on the previous guidance prepared by the California Air Pollution Control Officers Association, explored various approaches for establishing a significance threshold for GHG emissions. The draft interim CEQA thresholds guidance document was not adopted or approved by the Governing Board. However, in December 2008, the SCAQMD adopted an interim 10,000 MT CO_2e per-year screening level threshold for stationary source/industrial projects for which the SCAQMD is the lead agency (see SCAQMD Resolution No. 08-35, December 5, 2008). However, SCAQMD has not adopted a GHG significance threshold for land use development projects such as commercial projects; the proposed commercial/residential thresholds were never formally adopted. Thus, the SCAQMD interim GHG significance threshold is not applicable to the project as the project is a commercial project.

In absence of any applicable numeric threshold, this analysis assesses compliance with applicable plans, policies, regulations, and requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions. As a land use development project, the most directly applicable adopted regulatory plan to reduce GHG emissions is the 2016 RTP/SCS, which is designed to achieve regional GHG reductions from the land use and transportation sectors as required by SB 375 and the state's long-term climate goals. This analysis also considers consistency with regulations and requirements adopted pursuant to the Scoping Plan and the City's CAP.

The City's CAP, which was prepared following CEQA Guidelines Section 15183.5, provides a framework for reducing GHG emissions and managing resources to best prepare for a changing climate. With respect to evaluation of projects under CEQA, the CAP states, "Projects that demonstrate consistency with the strategies, actions, and emission reduction targets contained in the CAP would have a less than significant impacts on climate change" (City of Murrieta 2011b). The purpose of the City's CAP is to guide the development,

enhancement, and implementation of actions that would reduce the City's GHG emissions by 15% below existing (2009) levels by 2020. However, the proposed project's buildout would be post-2020; thus, consistency with the City's CAP is included for informational purposes.

4.6.4 Impacts Analysis

Project Design Feature

To reduce construction and operational emissions to the extent feasible, Costco would incorporate the following project design features (PDFs) into the new facility (**PDF-AQ/GHG-1**):

a. New and renewable building materials shall be extracted and manufactured within the region whenever possible, reducing transportation emissions.
b. The project shall use pre-manufactured building components, including structural framing and metal panels, to help minimize waste during construction.
c. The main building structure shall be constructed with a pre-engineered system that uses 100% recycled steel materials and is designed to minimize the amount of material utilized.
d. Roof material shall be 100% recycled standing seam metal panel, designed to maximum efficiency for spanning the structure.
e. Exterior skin metal shall be 100% recycled.
f. Construction waste shall be recycled whenever possible.
g. Floor sealant contains no volatile organic compounds (VOCs) and represents over 80% of the floor area.
h. LED lamps shall be installed in the parking lots.
i. Parking lot and exterior lights are controlled by the building's automated energy management system.
j. Pre-manufactured metal wall panels with insulation carry a higher Resistance Value (more commonly known as R-Value), and greater solar reflectivity shall be installed to help conserve energy. Building heat absorption is further reduced by a decrease in the thermal mass of the metal wall when compared to a typical masonry block wall.
k. Costco would design the roofing structure to accommodate the additional structural load of the solar panels to allow for the flexibility for possible future installation.
l. The project shall plant native, drought-tolerant vegetation that would use less water than other common species.
m. The project shall install an irrigation system that uses deep-root watering bubblers for parking lot trees to minimize usage and ensure that water goes directly to the intended planting areas.
n. High-efficiency restroom fixtures shall be installed
o. Building envelopes shall be insulated to meet or exceed current energy code requirements.
p. Heating, ventilation, and air conditioning (HVAC) comfort systems shall be controlled by a computerized building management system to maximize efficiency.
q. HVAC units shall be high-efficiency, direct-ducted units.
r. HVAC units shall not use hydrochlorofluorocarbons.
s. Interior lighting shall be controlled by the overall project energy management system.

t. Gas water heaters shall be direct vent and high efficiency.

u. Extensive recycling/reuse program shall be implemented for warehouse and office space including tires, cardboard, grease, plastics, and electronic waste.

v. All Costco trucks shall be equipped with an engine idle shut off timer.

w. Three electric vehicle (EV) charging stations shall be installed in the parking lot.

x. Within 2 years of opening the Costco Warehouse, a 708-kilowatt photovoltaic system shall be installed, which would generate a system output of 1,128,400 kilowatt-hours per year.

y. Stalls designated as Clean Air Vehicle/Van Pool would encourage use of such vehicles by employees and customers.

Vineyard II Retail Development would incorporate the following PDFs into the new facilities (**PDF-AQ/GHG-2**):

a. Design the roofing structure to accommodate the additional structural load of the solar panels to allow for the flexibility for possible future installation.

b. LED lamps shall be installed in the parking lots and outdoor lighting fixtures.

c. Parking lot and exterior lights shall be controlled by a time clock and photo cell device to turn lights off at dawn.

d. Fourteen EV [electric vehicle] charging stations shall be installed in the parking lot, four of which shall be tied to a solar source from the roofs of two buildings at the time of opening.

e. Electrical outlets on site shall allow recharging of battery-operated landscape maintenance equipment by landscape maintenance staff.

f. Each trash enclosure in the retail center shall have a recycling bin slot for each tenant.

g. Non-potable irrigation lines shall be installed in preparation for future recycled water.

Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

Would the project conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

Less-than-Significant Impact. Analysis of the project's GHG emissions impact is presented below.

Construction Emissions

Construction of the proposed project would result in GHG emissions, primarily associated with the use of off-road construction equipment, haul trucks, on-road vendor trucks, and worker vehicles. SCAQMD's Final Localized Significance Threshold Methodology (SCAQMD 2009) recommends that "construction emissions be amortized over a 30-year project lifetime, so that GHG reduction measures will address construction GHG emissions as part of the operational GHG reduction strategies." Thus, the total construction GHG emissions were calculated, amortized over 30 years, and added to the total operational emissions.

Construction of the project is anticipated to commence in September 2020 and reach completion in November 2021, lasting a total of 14 months. On-site sources of GHG emissions would include rock crushing; diesel-engine generators; rock popping; off-road equipment; and off-site sources, including haul trucks, vendor trucks, and worker vehicles. GHG emission reductions from PDF-AQ/GHG-1 related to construction were not quantified

because life-cycle GHG emissions from manufacturing of construction materials are not included in project emissions. Table 4.6-3 presents construction emissions for the project in 2019 and 2021 from on-site and off-site emission sources. Details of the construction GHG emission calculations are provided in Appendix B.

Table 4.6-3. Estimated Annual Construction Greenhouse Gas Emissions

Year	CO_2	CH_4	N_2O	CO_2e
	Metric Tons per Year			
Vineyard II				
2020	137.10	0.03	0.00	137.96
2021	1,247.26	0.18	0.00	1,251.79
Costco				
2020	411.72	0.07	0.00	413.54
2021	460.91	0.07	0.00	462.59
Costco Rock Crushing and Rock Popping				
2020	184.90	0.01	0.00	185.06
Warm Springs Parkway				
2020	157.08	0.04	0.00	157.98
Sub Total				
2020	*890.80*	*0.15*	*0.00*	*894.54*
2021	*1,708.18*	*0.25*	*0.00*	*1,714.38*
Total	**2,598.98**	**0.40**	**0.00**	**2,608.92**

Notes: CO_2 = carbon dioxide; CH_4 = methane; N_2O = nitrous oxide; CO_2e = carbon dioxide equivalent.
See Appendix B for complete results.
The values shown are the annual emissions reflect California Emissions Estimator Model "mitigated" output.
Totals may not add due to rounding.

As shown in Table 4.6-3, the estimated total GHG emissions during construction would be approximately 895 MT CO_2e in 2020 and 1,714 MT CO_2e in 2021, for a total of 2,609 MT CO_2e over the construction period. Estimated project-generated construction emissions amortized over 30 years would be approximately 87 MT CO_2e per year. As with project-generated construction criteria air pollutant emissions, GHG emissions generated during construction of the project would be short-term, lasting only for the duration of the construction period, and would not represent a long-term source of GHG emissions.

Operational Emissions

Operation of the project would generate GHG emissions through motor vehicle and delivery truck trips to and from the project site; fuel dispensing operations; landscape maintenance equipment operation; energy use (natural gas and generation of electricity consumed by the project); solid waste disposal; and generation of electricity associated with water supply, treatment, and distribution and wastewater treatment.

The estimated operational (year 2021) project-generated GHG emissions from area sources, energy usage, motor vehicles, off-road equipment (compressed natural gas forklifts), solid waste generation, and water usage and wastewater generation are shown in Table 4.6-4. The project would implement PDF-AQ/GHG-1, which includes the following strategies, which are quantified in Table 4.6-4: reductions from installing low-flow bathroom faucets and

toilets, installing water efficient irrigation systems, installing LED lamps in the parking lots, and installing EV charging stations. Details of the operational GHG emission calculations are provided in Appendix B.

Table 4.6-4. Estimated Annual Operational Greenhouse Gas Emissions (2021)

Emission Source	CO_2	CH_4	N_2O	CO_2e
	Metric Tons per Year			
Area	0.04	<0.01	0.00	0.04
Energy	810.92	0.03	0.01	814.21
Mobile	17,571.96	0.77	0.65	17,599.57
Solid waste	97.65	5.77	0.00	241.93
Water supply and wastewater	65.86	0.02	0.01	69.76
Off-Road	73.52	0.02	0.00	74.12
Amortized 30-Year Construction Emissions				*86.96*
Operation plus Amortized Construction Total				**18,812.47**

Notes: CO_2 = carbon dioxide; CH_4 = methane; N_2O = nitrous oxide; CO_2e = carbon dioxide equivalent; PDF = project design feature. See Appendix B for complete results.
The values shown reflect CalEEMod "mitigated" output and operational year 2021, which accounts for implementation of the project's PDF-AQ/GHG-1, including installing low-flow bathroom faucets and toilets, installing water-efficient irrigation systems, installing LED lamps in the parking lots, and installing EV charging stations.
Totals may not add due to rounding.

Estimated annual project-generated GHG emissions would be approximately 18,726 MT CO_2e per year as a result of project operations only. Estimated annual project-generated operational emissions in 2021 plus amortized project construction emissions would be approximately 18,812 MT CO_2e per year.

The estimated operational (year 2023) project-generated GHG emissions with the additional implementation of the 708-kilowatt solar photovoltaic system are shown in Table 4.6-5. Details of the operational GHG emissions calculations are provided in Appendix B.

Table 4.6-5. Estimated Annual Operational Greenhouse Gas Emissions (2023) With Solar

Emission Source	CO_2	CH_4	N_2O	CO_2e
	Metric Tons per Year			
Area	0.04	<0.01	0.00	0.04
Energy	506.81	0.02	0.01	512.04
Mobile	17,571.96	0.77	0.65	17,599.57
Solid waste	97.65	5.77	0.00	241.93
Water supply and wastewater	65.86	0.02	0.01	69.76
Off-Road	73.52	0.02	0.00	74.12
Amortized 30-Year Construction Emissions				*86.96*
Operation plus Amortized Construction Total				**18,510.30**

Notes: CO_2 = carbon dioxide; CH_4 = methane; N_2O = nitrous oxide; CO_2e = carbon dioxide equivalent; PDF = project design feature. See Appendix B for complete results.
The values shown reflect CalEEMod "mitigated" output and operational year 2021, which accounts for implementation of project's PDF-AQ/GHG-1 and PDF-AQ/GHG-2, including installing low flow bathroom faucets and toilets, installing water efficient irrigation systems, installing LED lamps in the parking lots, installing EV charging stations, and installing a 708-kilowatt solar photovoltaic system within 2 years of operation of the Costco Warehouse.
Totals may not add due to rounding.

Estimated annual project-generated GHG emissions would be approximately 18,423 MT CO_2e per year as a result of project operations with implementation of the 708-kilowatt solar photovoltaic system. Estimated annual project-generated operational emissions starting in 2023 plus amortized project construction emissions would be approximately 18,510 MT CO_2e per year.

The project's consistency with statewide GHG reduction strategies is summarized in detail in Table 4.6-6.

Table 4.6-6. Applicable Greenhouse Gas-Related Laws and Regulations

Project Component	Applicable Laws/ Regulations	GHG Reduction Measures Required for Project
Building Components/Facility Operations		
Roofs/Ceilings/Insulation	CALGreen Code (Title 24, Part 11) California Energy Code (Title 24, Part 6)	The project must comply with efficiency standards regarding roofing, ceilings, and insulation. For example: **Roofs/Ceilings:** New construction must reduce roof heat island effects per CALGreen Code Section 106.11.2, which requires use of roofing materials having a minimum aged solar reflectance, thermal emittance complying with Section A5.106.11.2.2 and A5.106.11.2.3 or a minimum aged Solar Reflectance Index as specified in Tables A5.106.11.2.2, or A5.106.11.2.3. Roofing materials must also meet solar reflectance and thermal emittance standards contained in Title 20 Standards. **Roof/Ceiling Insulation:** There are also requirements for the installation of roofing and ceiling insulation. (See Title 24, Part 6 Compliance Manual at Section 3.2.2.)
Flooring	CALGreen Code	The project must comply with efficiency standards regarding flooring materials. For example, for 80% of floor area receiving "resilient flooring," the flooring must meet applicable installation and material requirements contained in CALGreen Code Section 5.504.4.6.
Window and Doors (Fenestration)	California Energy Code	The project must comply with fenestration efficiency requirements. For example, the choice of windows, glazed doors, and any skylights for the project must conform to energy consumption requirements affecting size, orientation, and types of fenestration products used. (See Title 24, Part 6 Compliance Manual, Section 3.3.)

Table 4.6-6. Applicable Greenhouse Gas-Related Laws and Regulations

Project Component	Applicable Laws/ Regulations	GHG Reduction Measures Required for Project
Building Walls/Insulation	CALGreen Code California Energy Code	The project must comply with efficiency requirements for building walls and insulation. **Exterior Walls:** Must meet requirements in current edition of California Energy Code and comply with Sections A5.106.7.1 or A5.106.7.2 of CALGreen Code for wall surfaces, as well as Section 5.407.1, which required weather-resistant exterior wall and foundation envelope as required by California Building Code Section 1403.2. Construction must also meet requirements contained in Title 24, Part 6, which vary by material of the exterior walls. (See Title 24, Part 6 Compliance Manual, Part 3.2.3.) **Demising (Interior) Walls:** Mandatory insulation requirements for demising walls (which separate conditioned from non-conditions space) differ by the type of wall material used. (*Id*. at 3.2.4.) **Door Insulation:** There are mandatory requirements for air infiltration rates to improve insulation efficiency; they differ according to the type of door. (*Id*. at 3.2.5.) **Flooring Insulation:** There are mandatory requirements for insulation that depend on the material and location of the flooring. (*Id*. at 3.2.6.)
Finish Materials	CALGreen Code	The project must comply with pollutant control requirements for finish materials. For example, materials including adhesives, sealants, caulks, paints and coatings, carpet systems, and composite wood products must meet requirements in CALGreen Code to ensure pollutant control. (CALGreen Code Section 5.504.4.)
Wet Appliances (Toilets/Faucets/Urinals, Dishwasher/Clothes Washer, Spa and Pool/Water Heater)	CALGreen Code California Energy Code Appliance Efficiency Regulations (Title 20 Standards)	Wet appliances associated with the project must meet various efficiency requirements. For example: **Spa and Pool:** Use associated with the project is subject to appliance efficiency requirements for service water heating systems and equipment, spa and pool heating systems and equipment. (Title 24, Part 6, Sections 110.3, 110.4, 110.5; Title 20 Standards, Sections 1605.1(g), 1605.3(g); see also California Energy Code.) **Toilets/Faucets/Urinals:** Use associated with the project is subject to new maximum rates for toilets, urinals, and faucets effective January 1, 2016: • Showerheads maximum flow rate 2.5 gpm at 80 psi • Wash fountains 2.2 x (rim space in inches/20)

Table 4.6-6. Applicable Greenhouse Gas-Related Laws and Regulations

Project Component	Applicable Laws/ Regulations	GHG Reduction Measures Required for Project
		gpm at 60 psi • Metering faucets 0.25 gallons/cycle • Lavatory faucets and aerators 1.2 gpm at 60 psi • Kitchen faucets and aerators 1.8 gpm with optional temporary flow of 2.2 gpm at 60 psi • Public lavatory faucets 0.5 gpm at 60 psi • Trough-type urinals 16 inches length • Wall mounted urinals 0.125 gallons per flush • Other urinals 0.5 gallons per flush (Title 20 Standards, Sections 1605.1(h),(i) 1065.3(h),(i).) **Water Heaters:** Use associated with the project is subject to appliance efficiency requirements for water heaters. (Title 20 Standards, Sections 1605.1(f), 1605.3(f).) **Dishwasher/Clothes Washer:** Use associated with the project is subject to appliance efficiency requirements for dishwashers and clothes washers. (Title 20 Standards, Sections 1605.1(o),(p),(q), 1605.3(o),(p),(q).)
Dry Appliances (Refrigerator/Freezer, Heater/Air Conditioner, Clothes Dryer)	Title 20 Standards CALGreen Code	Dry appliances associated with the project must meet various efficiency requirements. For example: **Refrigerator/Freezer:** Use associated with the project is subject to appliance efficiency requirements for refrigerators and freezers. (Title 20 Standards, Sections 1605.1(a), 1605.3(a).) **Heater/Air Conditioner:** Use associated with the project is subject to appliance efficiency requirements for heaters and air conditioners. (Title 20 Standards, Sections 1605.1(b),(c),(d),(e), 1605.3(b),(c),(d),(e) as applicable.) **Clothes Dryer:** Use associated with the project is subject to appliance efficiency requirements for clothes dryers. (Title 20 Standards, Section 1605.1(q).)
	CALGreen Code	Installations of HVAC, refrigeration and fire suppression equipment must comply with CALGreen Code Sections 5.508.1.1 and 508.1.2, which prohibits CFCs, halons, and certain HCFCs and HFCs.

Table 4.6-6. Applicable Greenhouse Gas-Related Laws and Regulations

Project Component	Applicable Laws/ Regulations	GHG Reduction Measures Required for Project
Lighting	Title 20 Standards	Lighting associated with the project will be subject to energy efficiency requirements contained in Title 20 Standards. **General Lighting:** Indoor and outdoor lighting associated with the project must comply with applicable appliance efficiency regulations (Title 20 Standards, Sections 1605.1(j),(k),(n), 1605.3(j),(k),(n).) **Emergency lighting and self-contained lighting:** the project must also comply with applicable appliance efficiency regulations (Title 20 Standards, Sections 1605.1(l), 1605.3(l).) **Traffic Signal Lighting:** For any necessary project improvements involving traffic lighting, traffic signal modules and traffic signal lamps will need to comply with applicable appliance efficiency regulations (Title 20 Standards, Sections 1605.1(m), 1605.3(m).)
	California Energy Code	Lighting associated with the project will also be subject to energy efficiency requirements contained in Title 24, Part 6, which contains energy standards for non-residential indoor lighting and outdoor lighting. (See Title 24 Part 6 Compliance Manual, at Sections 5, 6.) Mandatory lighting controls for indoor lighting include, for example, regulations for automatic shut-off, automatic daytime controls, demand responsive controls, and certificates of installation. (Id. at Section 5.) Regulations for outdoor lighting include, for example, creation of lighting zones, lighting power requirements, a hardscape lighting power allowance, requirements for outdoor incandescent and luminaire lighting, and lighting control functionality. (Id. at Section 6.)
	AB 1109	Lighting associated with the project will be subject to energy efficiency requirements adopted pursuant to AB 1109. Enacted in 2007, AB 1109 required the CEC to adopt minimum energy efficiency standards for general purpose lighting, to reduce electricity consumption 50% for indoor residential lighting and 25% for indoor commercial lighting.
Bicycle and Vehicle Parking	CALGreen Code	The project will be required to provide compliant bicycle parking, fuel-efficient vehicle parking, and electric vehicle charging spaces (CALGreen Code Sections 5.106.4, 5.106.5.1, 5.106.5.3)

Table 4.6-6. Applicable Greenhouse Gas-Related Laws and Regulations

Project Component	Applicable Laws/ Regulations	GHG Reduction Measures Required for Project
	California Energy Code	The project is also subject to parking requirements contained in Title 24, Party 6. For example, parking capacity is to meet but not exceed minimum local zoning requirements, and the project should employ approved strategies to reduce parking capacity (Title 24, Part 6, section 106.6)
Landscaping	CALGreen Code	The CALGreen Code requires and has further voluntary provisions for: • A water budget for landscape irrigation use; • For new water service, separate meters or submeters must be installed for indoor and outdoor potable water use for landscaped areas of 1,000-5,000 square feet; • Provide water-efficient landscape design that reduces use of potable water beyond initial requirements for plant installation and establishment
	Model Water Efficient Landscaping Ordinance	The model ordinance promotes efficient landscaping in new developments and establishes an outdoor water budget for new and renovated landscaped areas that are 500 square feet or larger. (CCR, Title 23, Division 2, Chapter 2.7.)
	Cap-and-Trade Program	Transportation fuels used in landscape maintenance equipment (e.g., gasoline) would be subject to the Cap-and-Trade Program. (See "Energy Use," below.)
Refrigerants	CARB Management of High GWP Refrigerants for Stationary Sources	Any refrigerants associated with the project will be subject to CARB standards. CARB's Regulation for the Management of High GWP Refrigerants for Stationary Sources 1) reduces emissions of high-GWP refrigerants from leaky stationary, non-residential refrigeration equipment; 2) reduces emissions resulting from the installation and servicing of stationary refrigeration and air conditioning appliances using high-GWP refrigerants; and 3) requires verification GHG emission reductions. (CCR, Title 17, Division 3, Chapter 1, Subchapter 10, Article 4, Subarticle 5.1, Section 95380 et seq.)
Consumer Products	CARB High GWP GHGs in Consumer Products	All consumer products associated with the project will be subject to CARB standards. CARB's consumer products regulations set VOC limits for numerous categories of consumer products, and limits the reactivity of the ingredients used in numerous categories of aerosol coating products (CCR, Title 17, Division 3, Chapter 1, Subchapter 8.5.)

Table 4.6-6. Applicable Greenhouse Gas-Related Laws and Regulations

Project Component	Applicable Laws/ Regulations	GHG Reduction Measures Required for Project
Construction		
Use of Off-Road Diesel Engines, Vehicles, and Equipment	CARB In-Use Off-Road Diesel Vehicle Regulation	Any relevant vehicle or machine use associated with the project will be subject to CARB standards. The CARB In-Use-Off-Road Diesel Vehicle Regulation applies to certain off-road diesel engines, vehicles, or equipment greater than 25 horsepower. The regulation: 1) imposes limits on idling, requires a written idling policy, and requires a disclosure when selling vehicles; 2) requires all vehicles to be reported to CARB (using the Diesel Off-Road Online Reporting System) and labeled; 3) restricts the adding of older vehicles into fleets starting on January 1, 2014; and 4) requires fleets to reduce their emissions by retiring, replacing, or repowering older engines, or installing Verified Diesel Emission Control Strategies (i.e., exhaust retrofits). The requirements and compliance dates of the Off-Road regulation vary by fleet size, as defined by the regulation.
	Cap-and-Trade Program	Transportation fuels (e.g., gasoline) used in equipment operation would be subject to the Cap-and-Trade Program. (See "Energy Use," below.)
Greening New Construction	CALGreen Code	All new construction, including the project, must comply with CALGreen Code, as discussed in more detail throughout this table. Adoption of the mandatory CALGreen Code standards for construction has been essential for improving the overall environmental performance of new buildings; it also sets voluntary targets for builders to exceed the mandatory requirements.
Construction Waste	CALGreen Code	The project will be subject to CALGreen Code requirements for construction waste reduction, disposal, and recycling, such as a requirement to recycle and/or salvage for reuse a minimum of 50% of the non-hazardous construction waste in accordance with Section 5.408.1.1, 5.408.1.2, or 5.408.1.3; or meet a local construction and demolition waste management ordinance, whichever is more stringent.
Worker, vendor and truck vehicle trips (on-road vehicles)	Cap-and-Trade Program	Transportation fuels (e.g., gasoline) used in worker, vendor and truck vehicle trips would be subject to the Cap-and-Trade Program.

Table 4.6-6. Applicable Greenhouse Gas-Related Laws and Regulations

Project Component	Applicable Laws/ Regulations	GHG Reduction Measures Required for Project
Solid Waste		
Solid Waste Management	Landfill Methane Control Measure	Waste associated with the project will be disposed per state requirements for landfills, material recovery facilities, and transfer stations. Per the statewide GHG emissions inventory, the largest emissions from waste management sectors come from landfills, and are in the form of CH_4. In 2010, CARB adopted a regulation that reduces emissions from methane in landfills, primarily by requiring owners and operators of certain uncontrolled municipal solid waste landfills to install gas collection and control systems, and requires existing and newly installed gas and control systems to operate in an optimal manner. The regulation allows local air districts to voluntarily enter into a memorandum of understanding with CARB to implement and enforce the regulation and to assess fees to cover costs of implementation.
	Mandatory Commercial Recycling (AB 341)	AB 341 will require the project, if it generates four cubic yards or more of commercial solid waste per week, to arrange for recycling services, using one of the following: self-haul; subscribe to a hauler(s); arranging for pickup of recyclable materials; subscribing to a recycling service that may include mixed waste processing that yields diversion results comparable to source separation. The project will also be subject to local commercial solid waste recycling program required to be implemented by each jurisdiction under AB 341.
	CALGreen Code	The project will be subject to CALGreen Code requirement to provide areas that serve the entire building and are identified for the depositing, storage and collection of nonhazardous materials for recycling (CALGreen Code Section 5.410.1)
Energy Use		
Electricity/Natural Gas Generation	Cap-and-Trade Program	Electricity and natural gas usage associated with the project will be subject to the Cap-and-Trade Program. The rules came into effect on January 1, 2013, applying to large electric power plants and large industrial plants. In 2015, importers and distributors of fossil fuels were added to the Cap-and-Trade Program in the second phase. Specifically, on January 1, 2015, cap-and-trade compliance obligations were phased in for

Table 4.6-6. Applicable Greenhouse Gas-Related Laws and Regulations

Project Component	Applicable Laws/ Regulations	GHG Reduction Measures Required for Project
		suppliers of natural gas, reformulated gasoline blendstock for oxygenate blending (RBOB), distillate fuel oils, and liquefied petroleum gas that meet or exceed specified emissions thresholds. The threshold that triggers a cap-and-trade compliance obligation for a fuel supplier is 25,000 metric tons or more of CO_2e annually from the GHG emissions that would result from full combustion or oxidation of quantities of fuels (including natural gas, RBOB, distillate fuel oil, liquefied petroleum gas, and blended fuels that contain these fuels) imported and/or delivered to California.
Renewable Energy	California RPS (SB X1-2, SB 350, and SB 100)	Energy providers associated with the project will be required to comply with RPS set by SB X1 2, SB 350, and SB 100. SB X1 2 requires investor-owned utilities, publicly-owned utilities, and electric service providers to increase purchases of renewable energy such that at least 33% of retail sales are procured from renewable energy resources by December 31, 2020. In the interim, each entity was required to procure an average of 20% of renewable energy for the period of January 1, 2011 through December 31, 2013; and will be required to procure an average of 25% by December 31, 2016, and 33% by 2020. SB 350 requires retail sellers and publicly owned utilities to procure 50% of their electricity from eligible renewable energy resources by 2030. SB 100 increased the standards set forth in SB 350 establishing that 44% of the total electricity sold to retail customers in California per year by December 31, 2024, 52% by December 31, 2027, and 60% by December 31, 2030, be secured from qualifying renewable energy sources. SB 100 states that it is the policy of the state that eligible renewable energy resources and zero-carbon resources supply 100% of the retail sales of electricity to California by 2045.
	Million Solar Roofs Program (SB 1)	The project will participate in California's energy market, which is affected by implementation of the Million Solar Roofs Program. As part of Governor Schwarzenegger's Million Solar Roofs Program, California has set a goal to install 3,000 megawatts of new, solar capacity through 2016. The Million Solar Roofs Program is a ratepayer-financed incentive program aimed at

Table 4.6-6. Applicable Greenhouse Gas-Related Laws and Regulations

Project Component	Applicable Laws/ Regulations	GHG Reduction Measures Required for Project
		transforming the market for rooftop solar systems by driving down costs over time. The project will install rooftop solar on the Costco within 2 years of Costco opening.
	California Solar Initiative-Thermal Program	The project will participate in California's energy market, which is affected by implementation of the California Solar Initiative -Thermal Program. The program offers cash rebates of up to $4,366 on solar water heating systems for single-family residential customers. Multifamily and Commercial properties qualify for rebates of up to $800,000 on solar water heating systems and eligible solar pool heating systems qualify for rebates of up to $500,000. Funding for the California Solar Initiative-Thermal program comes from ratepayers of Pacific Gas & Electric, SCE, Southern California Gas Company, and San Diego Gas & Electric. The rebate program is overseen by the CPUC as part of the California Solar Initiative.
	Waste Heat and Carbon Emissions Reduction Act (AB 1613, AB 2791)	The project will participate in California's energy market, which is affected by implementation of the Waste Heat and Carbon Emissions Reduction Act. Originally enacted in 2007 and amended in 2008, this act directed the CEC, CPUC, and CARB to implement a program that would encourage the development of new combined heat and power systems in California with a generating capacity of not more than 20 megawatts, to increase combined heat and power use by 30,000 gigawatt-hour. The CPUC publicly owned electric utilities, and CEC duly established policies and procedures for the purchase of electricity from eligible combined heat and power systems. CEC guidelines require combined heat and power systems to be designed to reduce waste energy; have a minimum efficiency of 60%; have NO_x emissions of no more than 0.07 pounds per megawatt-hour; be sized to meet eligible customer generation thermal load; operate continuously in a manner that meets expected thermal load and optimizes efficient use of waste heat; and be cost effective, technologically feasible, and environmentally beneficial.
Vehicular/Mobile Sources		
General	SB 375 and SCAG RTP/SCS	As set forth below, the project complies with the applicable policies of, and is subject to, the SCAG adopted RTP/SCS, which CARB approved as meeting its regional GHG targets in 2016, and

Table 4.6-6. Applicable Greenhouse Gas-Related Laws and Regulations

Project Component	Applicable Laws/ Regulations	GHG Reduction Measures Required for Project
		which is designed to achieve regional GHG reductions from the land use and transportation sectors as required by SB 375 and the state's long-term climate goals.
Fuel	Low Carbon Fuel Standard (LCFS)/ EO S-01-07	Vehicle trips associated with the project will be subject to LCFS (EO S-01-07), which requires a 10% or greater reduction in the average fuel carbon intensity by 2020 with a 2010 baseline for transportation fuels in California regulated by CARB. The program establishes a strong framework to promote the low carbon fuel adoption necessary to achieve the Governor's 2030 and 2050 GHG goals.
	Cap-and-Trade Program	Use of gasoline associated with the project will be subject to the Cap-and-Trade Program. The rules came into effect on January 1, 2013, applying to large electric power plants and large industrial plants. In 2015, importers and distributors of fossil fuels were added to the Cap-and-Trade Program in the second phase. Specifically, on January 1, 2015, cap-and-trade compliance obligations were phased in for suppliers of natural gas, RBOB, distillate fuel oils, and liquefied petroleum gas that meet or exceed specified emissions thresholds. The threshold that triggers a cap-and-trade compliance obligation for a fuel supplier is 25,000 MT or more of CO2e annually from the GHG emissions that would result from full combustion or oxidation of quantities of fuels (including natural gas, RBOB, distillate fuel oil, liquefied petroleum gas, and blended fuels that contain these fuels) imported and/or delivered to California.
Automotive Refrigerants	CARB Regulation for Small Containers of Automotive Refrigerant	Vehicles associated with the project will be subject to CARB's Regulation for Small Containers of Automotive Refrigerant. (CCR, Title 17, Division 3, Chapter 1, Subchapter 10, Article 4, Subarticle 5, Section 95360 et seq.) The regulation applies to the sale, use, and disposal of small containers of automotive refrigerant with a GWP greater than 150. The regulation achieves emission reductions through implementation of four requirements: 1) use of a self-sealing valve on the container, 2) improved labeling instructions, 3) a deposit and recycling program for small containers, and 4) an education program that emphasizes best practices for vehicle recharging. This regulation went into effect on January 1, 2010 with a one-year sell-

Table 4.6-6. Applicable Greenhouse Gas-Related Laws and Regulations

Project Component	Applicable Laws/ Regulations	GHG Reduction Measures Required for Project
		through period for containers manufactured before January 1, 2010. The target recycle rate is initially set at 90%, and rises to 95% beginning January 1, 2012.
Light-Duty Vehicles	AB 1493 (or the Pavley Standard)	Cars that drive to and from the project will be subject to AB 1493, which directed CARB to adopt a regulation requiring the maximum feasible and cost effective reduction of GHG emissions from new passenger vehicles. Pursuant to AB 1493, CARB adopted regulations that establish a declining fleet average standard for CO_2, CH_4, N_2O, and HFCs (air conditioner refrigerants) in new passenger vehicles and light-duty trucks beginning with the 2009 model year and phased-in through the 2016 model year. These standards are divided into those applicable to lighter and those applicable to heavier portions of the passenger vehicle fleet. The regulations will reduce "upstream" smog-forming emissions from refining, marketing, and distribution of fuel.
	Advanced Clean Car and ZEV Programs	Cars that drive to and from the project will be subject to the Advanced Clean Car and ZEV Programs. In January 2012, CARB approved a new emissions-control program for model years 2017 through 2025. The program combines the control of smog, soot and global warming gases and requirements for greater numbers of zero-emission vehicles into a single package of standards called Advanced Clean Cars. By 2025, new automobiles will emit 34% fewer global warming gases and 75% fewer smog-forming emissions. The ZEV program will act as the focused technology of the Advanced Clean Cars program by requiring manufacturers to produce increasing numbers of ZEVs and plug-in hybrid electric vehicles in the 2018-2025 model years.
	Tire Inflation Regulation	Cars that drive to and from the project will be subject to the CARB Tire Inflation Regulation, which took effect on September 1, 2010, and applies to vehicles with a gross vehicle weight rating of 10,000 pounds or less. Under this regulation, automotive service providers must, inter alia, check and inflate each vehicle's tires to the recommended tire pressure rating, with

Table 4.6-6. Applicable Greenhouse Gas-Related Laws and Regulations

Project Component	Applicable Laws/ Regulations	GHG Reduction Measures Required for Project
		air or nitrogen, as appropriate, at the time of performing any automotive maintenance or repair service, and to keep a copy of the service invoice for a minimum of three years, and make the vehicle service invoice available to the CARB, or its authorized representative upon request.
	EPA and NHTSA GHG and CAFE standards.	Mobile sources that travel to and from the project would be subject to EPA and NHTSA GHG and CAFE standards for passenger cars, light-duty trucks, and medium-duty passenger vehicles. (75 FR 25324–25728 and 77 FR 62624–63200.)
Medium- and Heavy-Duty Vehicles	CARB In-Use On-Road Heavy-Duty Diesel Vehicles Regulation (Truck and Bus Regulation)	Any heavy-duty trucks associated with the project will be subject to CARB standards. The regulation requires diesel trucks and buses that operate in California to be upgraded to reduce emissions. Newer heavier trucks and buses must meet PM filter requirements. Lighter and older heavier trucks must be replaced starting January 1, 2015. By January 1, 2023, nearly all trucks and buses will need to have 2010 model year engines or equivalent. The regulation applies to nearly all privately and federally owned diesel fueled trucks and buses and to privately and publicly owned school buses with a gross vehicle weight rating greater than 14,000 pounds.
	CARB In-Use Off-Road Diesel Vehicle Regulation	Any relevant vehicle or machine use associated with the project will be subject to CARB standards. The CARB In-Use-Off-Road Diesel Vehicle Regulation applies to certain off-road diesel engines, vehicles, or equipment greater than 25 horsepower. The regulations: 1) imposes limits on idling, requires a written idling policy, and requires a disclosure when selling vehicles; 2) requires all vehicles to be reported to CARB (using the Diesel Off-Road Online Reporting System) and labeled; 3) restricts the adding of older vehicles into fleets starting on January 1, 2014; and 4) requires fleets to reduce their emissions by retiring, replacing, or repowering older engines, or installing Verified Diesel Emission Control Strategies (i.e., exhaust retrofits). The requirements and compliance dates of the Off-Road regulation vary by fleet size, as defined by the regulation.

Table 4.6-6. Applicable Greenhouse Gas-Related Laws and Regulations

Project Component	Applicable Laws/ Regulations	GHG Reduction Measures Required for Project
	Heavy-Duty Vehicle GHG Emission Reduction Regulation	Any relevant vehicle or machine use associated with the project will be subject to CARB standards. The CARB Heavy-Duty Vehicle GHG Emission Reduction Regulation applies to heavy-duty tractors that pull 53-foot or longer box-type trailers. (CCR, Title 17, Division 3, Chapter 1, Subchapter 10, Article 4, Subarticle 1, Section 95300 et seq.) Fuel efficiency is improved through improvements in tractor and trailer aerodynamics and the use of low rolling resistance tires.
	EPA and NHTSA GHG and CAFE standards.	Mobile sources that travel to and from the project would be subject to EPA and NHTSA GHG and CAFE standards for medium- and heavy-duty vehicles. (76 FR 57106–57513.)
Water Use		
Water Use Efficiency	Emergency State Water Board Regulations	Water use associated with the project will be subject to emergency regulations. On May 18, 2016, partially in response to EO B-27-16, the State Water Board adopted emergency water use regulations (CCR, title 23, Section 864.5 and amended and re-adopted Sections 863, 864, 865, and 866). The regulation directs the State Water Board, Department of Water Resources, and CPUC to implement rates and pricing structures to incentivize water conservation, and calls upon water suppliers, homeowners' associations, California businesses, landlords and tenants, and wholesale water agencies to take stronger conservation measures.
	EO B-37-16	Water use associated with the project will be subject to Emergency EO B-37-16, issued May 9, 2016, which directs the State Water Resources Control Board to adjust emergency water conservation regulations through the end of January 2017 to reflect differing water supply conditions across the state. The Water Board must also develop a proposal to achieve a mandatory reduction of potable urban water usage that builds off the mandatory 25% reduction called for in EO B-29-15. The Water Board and Department of Water Resources will develop new, permanent water use targets to which the project will be subject. The Water Board will permanently prohibit water-wasting practices such as hosing off sidewalks, driveways, and other hardscapes; washing automobiles with hoses not equipped with a shut-off

Table 4.6-6. Applicable Greenhouse Gas-Related Laws and Regulations

Project Component	Applicable Laws/ Regulations	GHG Reduction Measures Required for Project
		nozzle; using non-recirculated water in a fountain or other decorative water feature; watering lawns in a manner that causes runoff, or within 48 hours after measurable precipitation; and irrigating ornamental turf on public street medians.
	EO B-40-17	EO B-40-17 lifted the drought emergency in all California counties except Fresno, Kings, Tulare, and Tuolumne. It also rescinds EO B-29-15, but expressly states that EO B-37-16 remains in effect and directs the State Water Resources Control Board to continue development of permanent prohibitions on wasteful water use to which the project will be subject.
	SB X7-7	Water provided to the project will be affected by SB X7-7's requirements for water suppliers. SB X7-7, or the Water Conservation Act of 2009, requires all water suppliers to increase water use efficiency. It also requires, among other things, that the Department of Water Resources, in consultation with other state agencies, develop a single standardized water use reporting form, which would be used by both urban and agricultural water agencies.
	CALGreen Code	The project is subject to CALGreen Code's water efficiency standards, including a required 20% mandatory reduction in indoor water use. (CALGreen Code, Division 4.3.)
	California Water Code, Division 6, Part 2.10, Sections 10910–10915.	Development and approval of the project requires the development of a project-specific Water Supply Assessment.
	Cap-and-Trade Program	Electricity usage associated with water and wastewater supply, treatment and distribution would be subject to the Cap-and-Trade Program.
	California RPS (SB X1-2, SB 350, SB 100)	Electricity usage associated with water and wastewater supply, treatment and distribution associated with the project will be required to comply with RPS set by SB X1-2, SB 350, and SB 100.
Water Recycling	Water Reclamation Requirements for Recycled Water Use. State Water Resources Control Board Order WQ 2016-0068-DDW	These requirements replace 2014-0090-DWQ General Waste Discharge Requirements for Recycled Water Use, and establish standard conditions for recycled water use and conditionally delegates authority to an Administrator to manage a Water Recycling Program and issue Water Recycling Permits to recycled water users. Only treated municipal wastewater for non-potable uses can be permitted, such as landscape

Table 4.6-6. Applicable Greenhouse Gas-Related Laws and Regulations

Project Component	Applicable Laws/ Regulations	GHG Reduction Measures Required for Project
		irrigation, crop irrigation, dust control, industrial/commercial cooling, decorative fountains, etc. Potable reuse is not covered.
	Regulations for Groundwater Replenishment Using Recycled Water	This emergency rulemaking by the California Department of Public Health (California Title of Regulations, Title 22, Sections 60301.050 et seq.), effective June 18, 2014, applied to Groundwater Replenishment Reuse projects utilizing surface application, which received initial permits from the Regional Board. The regulations address permitting and plan approval, sampling requirements, operation requirements, and ongoing reporting requirements.
	Policy for Water Quality Control for Recycled Water. State Water Resources Control Board Resolution No. 2009-0011, as amended by Resolution No. 2013-0003	The project would be subject to the State Water Resources Control Board statewide mandate to increase recycled water usage by 0.2 million acre-feet per year by 2020. However, recycled water is not currently available at the project site.

Notes: AB = Assembly Bill; CARB = California Air Resources Board; CEC = California Energy Commission; CFC = chlorofluorocarbon; CH_4 = methane; CO_2 = carbon dioxide; CO_2e = carbon dioxide equivalent; CPUC = California Public Utilities Commission; EO = Executive Order; EPA = Environmental Protection Agency; GHG = greenhouse gas; GWP = global warming potential; HCFC = hydrochlorofluorocarbon; HFC = hydrofluorocarbon; gpm = gallons per minute; MT = metric tons; N_2O = nitrous oxide; NHTSA = National Highway Traffic Safety Administration; PM = particulate matter; RPS = Renewable Portfolio Standard; RTP/SCS = Regional Transportation Plan/Sustainable Communities Strategy; SB = Senate Bill; SCAG = Southern California Association of Governments; VOC = volatile organic compound; ZEV = zero emission vehicle

As shown, the project would be consistent with and would not conflict with the applicable GHG-reducing strategies of the state.

As part of the City's General Plan 2035, the City adopted a CAP in July 2011, which was prepared pursuant to CEQA Guidelines Section 15183.5. The City's CAP cannot be relied on for the analysis because the project buildout would be post-2020; thus, consistency with the City's CAP is included for informational purposes. Table 4.6-7 describes the project's consistency with those strategies, included for informational purposes.

Table 4.6-7. Consistency with City of Murrieta's Climate Action Plan Strategies

Climate Action Plan Strategies*	Project Consistency
Community Involvement Strategy. The community involvement strategy is intended to foster a sense of ownership of the ideas and actions to be carried out within the City. To create a successful plan that is supported by the community, who will ultimately make these changes.	*Not applicable.* This strategy does not apply to the project.

Table 4.6-7. Consistency with City of Murrieta's Climate Action Plan Strategies

Climate Action Plan Strategies*	Project Consistency
Land Use and Community Vision Strategy. The land use and community vision strategy encourages changes in the land use pattern to enable residents to reduce dependence on their cars to get around town.	*Consistent.* Bus Route 61 serviced by the Riverside Transit Agency would provide residents and employers/employees an alternate mode of transportation to the future commercial/retail center. Adjacent residents east of the project site would be able to walk to the project site. Residents in the City of Murrieta (City) and surrounding communities would also be provided a nearer commercial/retail center rather than driving to another location.
Transportation and Mobility Strategy. The transportation and mobility strategy identifies opportunities to improve mobility such as walking, bicycling, and transit use, and to decrease the need to drive.	*Consistent.* Bus Route 61 serviced by the Riverside Transit Agency would provide residents and employers/employees an alternate mode of transportation to the future commercial/retail center. Adjacent residents east of the project site would be able to walk to the project site. Residents in the City and surrounding communities would also be provided a nearer commercial/retail center rather than driving to another location. Bicycle racks would be provided at each building on the retail portion of the project site east of Warm Springs Parkway. Preferred van pool parking would be provided to encourage use of carpooling by employees and customers.
Energy Use and Conservation Strategy. The energy use and efficiency strategy recommends ways to increase energy efficiency in existing buildings, enhance energy performance for new construction, and increase use of renewable energy.	*Consistent.* The project would include PDF-AQ/GHG-1 and PDF-AQ/GHG-2, which would reduce energy use and increase energy efficiency, including the installation of LED lamps, using recycled and renewable building materials, installation of cool roofs and building materials, installation of high-efficiency HVAC systems, installation of high-efficiency water heaters, recycling of construction waste, installation of electric vehicle (EV) charging stations (four initially tied to solar source power at the time of opening), installation of a 708-kilowatt solar photovoltaic system on the Costco warehouse roof within 2 years of opening, and solar ready roofs for the other roofs.
Water Use and Efficiency Strategy. The intent of this strategy is to conserve water through efficient use and conservation.	*Consistent.* The project would include PDF-AQ/GHG-1, which would conserve water, including planting drought-tolerant vegetation, installing water-efficient irrigation system, and installing high-efficiency restroom fixtures.
Waste Reduction and Recycling Strategy. The strategy builds on past City successes by increasing waste diversion, reducing consumption of materials that otherwise end up in landfills, and increasing recycling.	*Consistent.* Implemented under PDF-AQ/GHG-1 and PDF-AQ/GHG-2, all non-hazardous solid waste generated from the project site once operational (e.g., plastic and glass bottles, jars, paper, newspaper, metal containers, and cardboard) would be recycled to the greatest extent possible. Extensive recycling/reuse program would be implemented for warehouse and office space, including tires, cardboard, grease, plastics, and electronic waste. Furthermore, the project would use renewable building materials whenever possible, exterior skin metal would be 100% recycled, roof material would be 100% recycled, main building structure would be 100% recycled, and construction waste would be recycled whenever possible.

Table 4.6-7. Consistency with City of Murrieta's Climate Action Plan Strategies

Climate Action Plan Strategies*	Project Consistency
	Each trash enclosure facility would provide a recycling bin slot with each landfill trash bin slot for each tenant on the retail east of Warm Springs Parkway.
Open Space Strategy. This strategy expands the utilization of open space areas for habitat, storm water management, soil retention, air filtration, and cooling, aesthetic and economic value, local food security, increased and improved parks, preservation, and to create new open spaces.	*Not applicable.* Per the City's General Plan, the project area was not zoned as an open space land use type (e.g., park), and the project area does not include elements (e.g., creek, designated trail) that would require open space designation. The project includes outdoor eating and seating areas for customers and employees.

* **Source:** City of Murrieta 2011b.
Note: HVAC = heating, ventilation, and air conditioning.

Each of the City's CAP strategies described above includes goals to identify ways to reduce GHG emissions. For informational purposes, the project is shown to be consistent with the applicable strategies in the CAP.

Table 4.6-8 describes the project's consistency with applicable goals, included for informational purposes.

Table 4.6-8. Consistency with City of Murrieta's Climate Action Plan Strategy Goals

Climate Action Plan Strategy Goals*	Project Consistency
Community Involvement Strategy	
Increase Public Education Goal CIR-6: Alternative travel modes and facilities are available to serve residents and employers/employees and reduce vehicle miles traveled.	*Consistent.* Bus Route 61 serviced by the Riverside Transit Agency would provide residents and employers/employees an alternate mode of transportation to the future commercial/retail center. Adjacent residents east of the project site would be able to walk to the project site. Residents in the City of Murrieta (City) and surrounding communities would also be provided a nearer commercial/retail center rather than driving to another location.
Green the City Operations Goal CSV-15. A community taking a leadership role in resource conservation and reduction of GHG by implementing programs to improve municipal operations.	*Not applicable.* This goal does not apply to the project.
Green the City Fleet Goal HC-1: Application of innovative and model best practices in the community health field.	*Not applicable.* This goal does not apply to the project.

Table 4.6-8. Consistency with City of Murrieta's Climate Action Plan Strategy Goals

Climate Action Plan Strategy Goals*	Project Consistency
Land Use and Community Vision Strategy	
Balance of Land Uses to Reduce Vehicles Miles Traveled Goal LU-1: A complementary balance of land uses throughout the community that meets the needs of existing residents and businesses as well as anticipated growth, and achieves the community's vision.	*Consistent.* The project site is designated Commercial in the General Plan and the zoning is Regional Commercial, so the proposed project is consistent with the General Plan land use and zoning designation for the site. By locating a regional retail center at the site, it would reduce vehicle miles traveled in the community and in the region, since residents currently travel greater distances to the Costco in Temecula or Lake Elsinore. The project would also provide additional employment opportunities in the City, which would reduce vehicle miles traveled for residents who may otherwise be traveling outside the City for these retail jobs. Furthermore, under **MM-AQ-2**, the project would offer transit subsidies for 100% of employees of the project for 3 to 6 months.
Improve Jobs/Housing Balance Goal LU-4: A housing stock that meets the diverse needs of Murrieta's existing and future residents.	*Consistent* .By providing additional employment opportunities within the City, this project would improve the jobs/housing imbalance.
Improve Jobs/Housing Balance Goal LU-5: Promotion of quality industrial development that provides local employment opportunities.	*Not applicable.* This goal does not apply to the project.
Improve Jobs/Housing Balance Goal LU-6: Land use policy that encourages job retention and attraction.	*Consistent.* The project would generate approximately 285 jobs for residents in the City and surrounding communities.
Transit Oriented Development Goal LU-7: Economically viable, vital, and attractive commercial centers throughout the City that serve the needs of the community.	*Consistent.* Bus Route 61 serviced by the Riverside Transit Agency would provide residents and employers/employees an alternate mode of transportation to the future commercial/retail center. Adjacent residents east of the project site would be able to walk to the project site. Residents in the City and surrounding communities would also be provided a nearer commercial/retail center rather than commuting elsewhere.
Transit Oriented Development Goal LU-8: A community that provides opportunities for mixed use and/or transit-oriented development.	*Not applicable.* This goal does not apply to the project.
Pedestrian-Friendly Environment Goal LU-9: Land use patterns and urban design that support healthy and sustainable lifestyles and businesses.	*Consistent.* The project would include PDF-AQ/GHG-1 and PDF-AQ/GHG-2, which would reduce energy use, increase energy efficiency, and conserve water, which would help reduce environmental impacts.
Pedestrian-Friendly Environment Goal LU-10: A community that provides pedestrian-friendly environments for residential, commercial, business, and recreation uses.	*Consistent.* The project site would be accessible for bicycles and pedestrians. A pedestrian pathway would be constructed to ensure connectivity throughout the site and easy access from adjacent streets and neighboring properties. Bicycle racks would be provided on site.

Table 4.6-8. Consistency with City of Murrieta's Climate Action Plan Strategy Goals

Climate Action Plan Strategy Goals*	Project Consistency
Sustainable Economy Goal ED-3: A sound, stable, and diversified economic base.	*Consistent.* The project would generate approximately 285 jobs for residents in the City and surrounding communities, consistent with the City's economic development strategy.
Sustainable Economy Goal ED-4: Positive balance between the supply of retail opportunities and demand for goods and services will reduce the need to travel outside the City.	*Consistent.* Residents in the City and surrounding communities would be provided a nearer commercial/retail center rather than driving to another location.
Improve Jobs/Housing Balance Goal ED-5: An improved jobs/housing balance.	*Consistent.* The project would generate approximately 285 jobs for residents in the City and surrounding communities.
Improve Jobs/Housing Balance Goal ED-6: An educated and highly-skilled labor force.	*Consistent.* The project would generate 285 jobs for residents in the City and surrounding communities. The project would provide highly skilled employment opportunities, including for managerial staff.
Improve Jobs/Housing Balance Goal ED-8: Strategic approach to economic growth.	*Consistent.* The project would generate 285 jobs for residents in the City and surrounding communities. The project would increase sales tax generated by the goods sold at the project site.
Sustainable Economy Goal ED-10: A revitalized and economically stable Historic Downtown Murrieta.	*Not applicable.* This goal does not apply to the project.
Green Economy Goal AQ-6: Stationary source pollution (point source and area source) are minimized through existing and future regulations and new technology.	*Consistent.* The gasoline dispensing facility is a stationary source that would be required to be permitted through SCAQMD and comply with all applicable rules and regulations to reduce emissions.
Transportation and Mobility Strategy	
Increase Trail Connectivity Goal LU-22: Natural and visual resources are valued resources to maintain the rural character of the Los Alamos Hills.	*Not applicable.* This goal does not apply to the project.
Reduce Driving Goal LU-24: Historic Murrieta as the City's cultural, civic, and community center.	*Not applicable.* This goal does not apply to the project.
Support High Speed Rail Goal LU-25: Collaboration with Federal, State, County, and other regional agencies and authorities to ensure compliance with existing and future legislation that affects the City of Murrieta.	*Not applicable.* This goal does not apply to the project.

Table 4.6-8. Consistency with City of Murrieta's Climate Action Plan Strategy Goals

Climate Action Plan Strategy Goals*	Project Consistency
Support Multi-Modal Transportation Goal CIR-1: A circulation system that serves the internal circulation needs of the City, while also addressing the inter-community or through travel needs.	*Consistent.* The project would include construction of an extension of Warm Springs Parkway, including a signalized intersection, from where it ends at the southern end of the project site. Bus Route 61 serviced by the Riverside Transit Agency would provide residents and employers/employees an alternate mode of transportation to the future commercial/retail center. Adjacent residents east of the project site could walk to the project site. Residents in the City and surrounding communities would also be provided a closer commercial/retail center rather than driving to another location. The project site would be accessible for bicycles and pedestrians. Bike racks would be provided at each building east of Warm Springs Parkway. A pedestrian pathway would be constructed to ensure connectivity throughout the site and easy access from adjacent streets and neighboring properties.
Promote Pedestrian Safety Goal CIR-2: A comprehensive circulation system that promotes safety.	*Consistent.* Proposed project driveways and internal circulation elements have been designed to reflect the specific opportunities and constraints within the project site with safety in mind. All intersections, circulation improvements, and access to the site would be designed consistent with City roadway standards and would not create a hazard for vehicles, bicycles, or pedestrians entering or exiting the site. A pedestrian pathway would be constructed to ensure connectivity throughout the site and easy access from adjacent streets and neighboring properties.
Improve Public Transportation Goal CIR-5: A supported regional transportation system that serves existing and future travel between Murrieta and other population and employment centers within southwest Riverside County and the larger region, and that accommodates the regional travel needs of developing areas outside the City.	*Consistent.* The project would include construction of an extension of Warm Springs Parkway, including a signalized intersection, from where it ends at the southern end of the project site. Bus Route 61 serviced by the Riverside Transit Agency would provide residents and employers/employees an alternate mode of transportation to the future commercial/retail center.
Reduce Driving Goal CIR-6: Alternative travel modes and facilities are available to serve residents and employers/employees and reduce vehicle miles traveled.	*Consistent.* Bus Route 61 serviced by the Riverside Transit Agency would provide residents and employers/employees an alternate mode of transportation to the future commercial/retail center. Adjacent residents east of the project site would be able to walk to the project site. Residents in the City and surrounding communities would also be provided a nearer commercial/retail center rather than driving to another location. Furthermore, under PDF-AQ/GHG-1 and PDF-AQ/GHG-2, the project would install electric vehicle (EV) charging stations, four of which would be tied to solar facilities on the roofs in the retail east of Warm Springs Parkway upon opening.

Table 4.6-8. Consistency with City of Murrieta's Climate Action Plan Strategy Goals

Climate Action Plan Strategy Goals*	Project Consistency
Increase Walking Goal CIR-7: Residential areas and activity centers are accessible to all pedestrians, including persons with disabilities or having special accessibility needs.	*Not applicable.* This goal does not apply to the project.
Increase Trail Connectivity Goal CIR-8: Development, expansion, and maintenance of a network of bicycle, pedestrian, and multi-use trails that allows residents to travel between parks, schools, neighborhoods, and other major destinations without driving.	*Not applicable.* This goal does not apply to the project.
Goal AQ-4: Mobile source emissions are reduced by providing a balance of jobs and housing that serve the needs of the community.	*Consistent.* Implementation of the project would generate approximately 285 jobs that could be available for residents of the City and surrounding communities. Residents in the City and surrounding communities would also be provided a nearer commercial/retail center rather than driving to another location.
Improve Air Quality by Reducing Driving Goal AQ-5: Air quality is improved through an efficient circulation system, reduced traffic congestion, and reduced vehicle miles traveled.	*Consistent.* Bus Route 61 serviced by the Riverside Transit Agency would provide residents and employers/employees an alternate mode of transportation to the future commercial/retail center. Adjacent residents east of the project site would be able to walk to the project site. Residents in the City and surrounding communities would also be provided a nearer commercial/retail center rather than driving to another location. The project site would be accessible for bicycles and pedestrians. A pedestrian pathway would be constructed to ensure connectivity throughout the site and easy access from adjacent streets and neighboring properties.
Energy Use and Conservation Strategy	
Renewable Energy and Efficiency Goal CSV-12: Energy conservation and the generation of energy from renewable sources is prioritized as part of an overall strategy to reduce greenhouse gas emissions.	*Consistent.* The project would include PDF-AQ/GHG-1 and PDF-AQ/GHG-2, which would reduce energy use and increase energy efficiency, including the installation of LED lamps, using recycled and renewable building materials, installation of cool roofs and building materials, installation of high-efficiency HVAC systems, installation of high-efficiency water heaters, recycling of construction waste, installation of a 708-kilowatt solar photovoltaic system on the roof of the Costco within 2 years of opening, and construction of solar-ready roofs on the remaining roof tops.
Green Building Goal CSV-14: A community that encourages and incentivizes the sustainable development of buildings and neighborhoods, particularly with respect to durability, energy and water use, and transportation impacts.	*Consistent.* The project would include PDF-AQ/GHG-1 and PDF-AQ/GHG-2, which would reduce energy use, increase energy efficiency, and conserve water that would help reduce environmental impacts.

Table 4.6-8. Consistency with City of Murrieta's Climate Action Plan Strategy Goals

Climate Action Plan Strategy Goals*	Project Consistency
Energy Efficient Design Goal 2: Conserve and enhance the quality of existing housing and residential neighborhoods in Murrieta.	*Not applicable.* This goal does not apply to the project.
Water Use and Efficiency Strategy	
Increase Use of Recycled Water Goal INF-2: Infrastructure for recycled water is expanded throughout Murrieta for irrigation and other non-potable uses.	*Not applicable*. Recycled water is not available to the site; however, under **PDF-AQ/GHG-2**, the project would install non-potable irrigation lines in preparation for recycled water becoming available in the future.
Increase Water Conservation Goal CSV-1: A community that conserves, protects, and manages water resources to meet long-term community needs, including surface waters, groundwater, imported water supplies, storm water, and waste water.	*Consistent.* The project would include **PDF-AQ/GHG-1**, which would conserve water, including planting drought-tolerant vegetation; installing water-efficient irrigation system; and installing high-efficiency restroom fixtures. The project has been designed to include landscape throughout the project site that would help with runoff and stormwater management. A system of bio-filtration planters at the perimeter of the parcel and within the parking area would provide an ecologically responsible method of on-site stormwater treatment.
Reduce Water for Landscaping Goal CSV-2: Murrieta promotes compliance with requirements from the State and appropriate agencies regarding comprehensive water conservation measures in buildings and landscaping.	*Consistent.* The project would include **PDF-AQ/GHG-1** and **PDF-AQ/GHG-2**, which would conserve water, including planting drought-tolerant vegetation and installing a water-efficient irrigation system. The project has been designed to include landscape throughout the project site that would help with runoff and stormwater management. A system of bio-filtration planters at the perimeter of the parcel and within the parking area would provide an ecologically responsible method of on-site stormwater treatment. Recycled water would be used for irrigation and landscape where feasible.
Waste Reduction and Recycling Strategy	
Reduce Waste through Education Goal INF-1: New development and redevelopment is coordinated with the provision of adequate infrastructure for water, sewer, storm water, and energy.	*Consistent.* Upon project approval, all infrastructure systems would be adequate to serve the project.

Table 4.6-8. Consistency with City of Murrieta's Climate Action Plan Strategy Goals

Climate Action Plan Strategy Goals*	Project Consistency
Increase Waste Diversion Goal CSV-13: Solid waste is diverted from landfills through waste reduction, re-use, and recycling.	*Consistent.* The project would incorporate recycling to divert waste from landfills. Under **PDF-AQ/GHG-1**, extensive recycling/reuse program would be implemented for warehouse and office space, including tires, cardboard, grease, plastics, and electronic waste. Furthermore, the project would use renewable building materials whenever possible, exterior skin metal would be 100% recycled, roof material would be 100% recycled, main building structure would be 100% recycled, and construction waste would be recycled whenever possible. Each trash enclosure in the retail east of Warm Springs Parkway would have a recycling bin slot for each landfill bin slot for each tenant.
Open Space Strategy	
Goal CSV-9: A community that promotes the growth of an urban forest and water-efficient landscaping, recognizing that plants provide natural services such as habitat, storm water management, soil retention, air filtration, and cooling, and also have aesthetic and economic value.	*Consistent.* The project has been designed to include landscape throughout the project site that will help with runoff and stormwater management. A system of bio-filtration planters at the perimeter of the parcel and within the parking area would provide an ecologically responsible method of on-site stormwater treatment.
Improve Local Food Security Goal CSV-10: Fresh food is grown locally and made available through multiple venues that maintain a link to the City's agricultural heritage and promote healthy eating.	*Not applicable.* This goal does not apply to the project.
Preserve Open Space Goal ROS-7: Open space areas are planned to protect, conserve, and utilize resources of unique character and value of the community.	*Not applicable.* Per the City's General Plan, the project area was not zoned as an open space land use type (e.g., park), and the project area does not include elements (e.g., creek, designated trail) that would require open space designation. The project also includes outdoor eating and seating areas for customers and employees.
Integrate New Development and Open Space Goal ROS-8: New development is part of a coordinated system of open space, parkland, recreation facilities, and trails.	*Not applicable.* Per the City's General Plan, the project area was not zoned as an open space land use type (e.g., park), and the project area does not include elements (e.g., creek, designated trail) that would require open space designation. The project also includes outdoor eating and seating areas for customers and employees.
Create New Open Spaces Goal ROS-9: Public plazas or green spaces provide additional open space opportunities for existing and future residents and employees.	*Not applicable.* Per the City's General Plan, the project area was not zoned as an open space land use type (e.g., park), and the project area does not include elements (e.g., creek, designated trail) that would require open space designation. The project also includes outdoor eating and seating areas for customers and employees.

* **Source:** City of Murrieta 2011b.
Notes: GHG = greenhouse gas; SCAQMD = South Coast Air Quality Management District; HVAC = heating, ventilation, and air conditioning.

As shown in Table 4.6-8, the project demonstrates consistency with the City's Climate Action Plan Strategy Goals, included for informational purposes.

The City's General Plan includes various goals and policies that promote the use of clean and renewable energy sources, facilitate alternative modes of transportation and reduce vehicle miles travelled, reduce waste, conserve water, and promote the efficient and sustainable use of energy. The Conservation Element includes goals and policies that result in co-benefits of reducing GHG emissions. Table 4.6-9 summarizes the project's consistency with these policies.

Table 4.6-9. Consistency with City of Murrieta's General Plan Policies

General Plan Policies*	Project Consistency
Policy CSV-2.1. Ensure that all developments comply with water efficiency requirements, as mandated by the applicable Building Code.	*Consistent.* The project would include **PDF-AQ/GHG-2**, which would conserve water, including planting drought-tolerant vegetation, installing water-efficient irrigation system, and installing high-efficiency restroom fixtures.
Policy CSV-12.1. Ensure that all developments comply with energy efficiency requirements as mandated by the applicable Building Code.	*Consistent.* The project would comply with energy efficiency requirements as mandated by the applicable building code. Additionally, the project would include **PDF-AQ/GHG-1** and **PDF-AQ/GHG-2**, which would reduce energy use and increase energy efficiency, including the installation of LED lamps, using recycled and renewable building materials, installation of cool roofs and building materials, installation of high-efficiency HVAC systems, installation of high-efficiency water heaters, recycling of construction waste, installation of a 708-kilowatt solar photovoltaic system on the roof of the Costco within 2 years of opening, and construction of solar-ready roofs on the remaining roof space.
Policy CSV-12.3. Support the on-site installation and use of renewable energy generation systems for residential, commercial, institutional, and industrial uses.	*Consistent.* Under **PDF-AQ/GHG-1** and **PDF-AQ/GHG-2**, the project would install a 708-kilowatt solar photovoltaic system on the roof of the Costco within 2 years of opening and design the remaining roofing structure to accommodate the additional structural load of solar panels to allow for the flexibility for possible future installation. The project would install a 708-kilowatt photovoltaic system on the roof of the Costco within 2 years of opening. The retail east of Warm Springs Parkway would have four of the EV stations tied to a solar source on two buildings upon opening.
Policy CSV-13.1. Continue to comply with the landfill diversion requirements of the Integrated Waste Management Program.	*Consistent.* Under **PDF-AQ/GHG-1** and **PDF-AQ/GHG-2**, the project would incorporate recycling to divert waste from landfills. Extensive recycling/reuse program would be implemented for warehouse and office space, including tires, cardboard, grease, plastics, and electronic waste. Furthermore, the project would use renewable building materials whenever possible, exterior skin metal would be 100% recycled, roof material would be 100% recycled, the main building structure would be 100% recycled, and construction waste would be recycled whenever possible. Each trash enclosure in the retail east of Warm Springs Parkway would have a recycling bin slot for each landfill bin slot for each tenant.
Policy CSV-13.2. Ensure that non-residential and	*Consistent.* Under **PDF-AQ/GHG-1** and **PDF-AQ/GHG-2**, the

Table 4.6-9. Consistency with City of Murrieta's General Plan Policies

General Plan Policies*	Project Consistency
multi-family developments provide readily accessible areas for recycling (at a minimum) paper, corrugated cardboard, glass, plastics and metals, as required by California law.	project would incorporate recycling as applicable to divert waste from landfills. Extensive recycling/reuse program would be implemented for warehouse and office space, including tires, cardboard, grease, plastics, and electronic waste. Each trash enclosure in the retail east of Warm Springs Parkway would have a recycling bin slot for each landfill bin slot for each tenant.
Policy CSV-14.1. Ensure all applicable construction projects comply with the California State Green Building Standards Code.	*Consistent.* The project would include **PDF-AQ/GHG-1** and **PDF-AQ/GHG-2**, which would reduce energy use, increase energy efficiency, and conserve water that would help reduce environmental impacts.
Policy CSV-14.2. Encourage the integration of other principles of green building into development standards and guidelines, looking for opportunities to realize other benefits such as improved health and increased bicycle transportation.	*Consistent.* The project would include **PDF-AQ/GHG-1** and **PDF-AQ/GHG-2**, which would reduce energy use, increase energy efficiency, and conserve water that would help reduce environmental impacts.

* **Source:** City of Murrieta 2011a.
Note: HVAC = heating, ventilation, and air conditioning.

As discussed in Table 4.6-9, the project would be consistent with the City's General Plan Policies.

The Scoping Plan (approved by CARB in 2008 and updated in 2014 and 2017) provides a framework for actions to reduce California's GHG emissions and requires CARB and other state agencies to adopt regulations and other initiatives to reduce GHGs. The Scoping Plan is not directly applicable to specific projects, nor is it intended to be used for project-level evaluations.[5] Under the Scoping Plan, however, there are several state regulatory measures aimed at the identification and reduction of GHG emissions. CARB and other state agencies have adopted many of the measures identified in the Scoping Plan. Most of these measures focus on area-source emissions (e.g., energy usage, high-GWP GHGs in consumer products) and changes to the vehicle fleet (i.e., hybrid, electric, and more fuel-efficient vehicles) and associated fuels (e.g., LCFS), among others.

The Scoping Plan recommends strategies for implementation at the statewide level to meet the goals of AB 32 and establishes an overall framework for the measures that will be adopted to reduce California's GHG emissions. Table 4.6-10 highlights measures that have been, or will be, developed under the Scoping Plan, and the project's consistency with these Scoping Plan measures. To the extent that these regulations are applicable to the proposed project, its inhabitants, or uses, the project would comply with all regulations adopted in furtherance of the Scoping Plan to the extent required by law.

Table 4.6-10. Project Consistency with Scoping Plan Greenhouse Gas Emission Reduction Strategies

Scoping Plan Measure	Measure Number	Project Consistency

[5] The Final Statement of Reasons for the amendments to the CEQA Guidelines reiterates the statement in the Initial Statement of Reasons that "[t]he Scoping Plan may not be appropriate for use in determining the significance of individual projects because it is conceptual at this stage and relies on the future development of regulations to implement the strategies identified in the Scoping Plan" (CNRA 2009).

Table 4.6-10. Project Consistency with Scoping Plan Greenhouse Gas Emission Reduction Strategies

Scoping Plan Measure	Measure Number	Project Consistency
Transportation Sector		
Advanced Clean Cars	T-1	*Consistent.* The project's customers and employees would purchase vehicles in compliance with CARB vehicle standards that are in effect at the time of vehicle purchase.
Low Carbon Fuel Standard	T-2	*Consistent.* Motor vehicles driven by the project's customers and employees would use compliant fuels.
Regional Transportation-Related GHG Targets	T-3	*Consistent.* The project location would be convenient for customers and employees to travel to shopping and work.
Vehicle Efficiency Measures 1. Tire Pressure 2. Fuel Efficiency Tire Program 3. Low-Friction Oil 4. Solar-Reflective Automotive Paint and Window Glazing	T-4	*Consistent.* The project's tire center would purchase tires in compliance with EPA and NHTSA standards that are in effect at the time of tire purchase.
Ship Electrification at Ports (Shore Power)	T-5	*Not applicable.*
Goods Movement Efficiency Measures 1. Port Drayage Trucks 2. Transport Refrigeration Units Cold Storage Prohibition 3. Cargo Handling Equipment, Anti-Idling, Hybrid, Electrification 4. Goods Movement Systemwide Efficiency Improvements 5. Commercial Harbor Craft Maintenance and Design Efficiency 6. Clean Ships 7. Vessel Speed Reduction	T-6	*Not applicable.*
Heavy-Duty Vehicle GHG Emission Reduction 1. Tractor-Trailer GHG Regulation 2. Heavy-Duty Greenhouse Gas Standards for New Vehicle and Engines (Phase I)	T-7	*Consistent.* The project's delivery trucks would comply with EPA and NHTSA federal Phase 2 Standards that are in effect at the time of vehicle purchase.
Medium- and Heavy-Duty Vehicle Hybridization Voucher Incentive Project	T-8	*Consistent.* The project's delivery trucks would comply with EPA and NHTSA federal Phase 2 Standards that are in effect at the time of vehicle purchase.
High-Speed Rail	T-9	*Not applicable.*
Electricity and Natural Gas Sector		
Energy Efficiency Measures (Electricity)	E-1	*Consistent.* The project would comply with current Title 24, Part 6, of the California Code of Regulations energy efficiency standards for electrical appliances and other devices at the time of building construction. The project would implement **PDF-AQ/GHG-1** and **PDF-AQ/GHG-2**, which include the use of high-efficiency HVAC units,

Table 4.6-10. Project Consistency with Scoping Plan Greenhouse Gas Emission Reduction Strategies

Scoping Plan Measure	Measure Number	Project Consistency
		installation of reflective roof material to lower heat absorption in the hot summer months, and indoor and outdoor lighting fixtures to be controlled by an overall energy management system. In addition, the project would install a 708-kilowatt solar photovoltaic system on the roof of the Costco within 2 years of opening and include solar-ready roofs on the remaining roof tops to accommodate the solar equipment that may be installed at a future date.
Energy Efficiency (Natural Gas)	CR-1	*Consistent.* The project would comply with current Title 24, Part 6, of the California Code of Regulations energy efficiency standards for natural gas appliances and other devices at the time of building construction. The project would implement **PDF-AQ/GHG-1**, which includes installing high-efficiency bathroom faucets and toilets.
Solar Water Heating (California Solar Initiative Thermal Program)	CR-2	*Consistent.* The project would implement **PDF-AQ/GHG-1**, which includes installing direct vented gas water heaters that are highly efficient.
Combined Heat and Power	E-2	*Not applicable.*
Renewable Portfolios Standard (33% by 2020)	E-3	*Consistent.* The electricity used by the project would benefit from reduced GHG emissions resulting from increased use of renewable energy sources with implementation of **PDF-AQ/GHG-1** and **PDF-AQ/GHG-2**.
SB 1 Million Solar Roofs (California Solar Initiative, New Solar Home Partnership, Public Utility Programs) and Earlier Solar Programs	E-4	*Consistent.* Under **PDF-AQ/GHG-1** and **PDF-AQ/GHG-2**, the project would install a 708-kilowatt solar photovoltaic system on the roof of the Costco within 2 years of opening and the remaining roofs would be solar-ready roofs. The retail east of Warm Springs Parkway would open with four EV stations tied to solar source on two roofs.
Water Sector		
Water Use Efficiency	W-1	*Consistent.* The project would implement **PDF-AQ/GHG-1**, which includes installation of low-flow bathroom faucets and low-flow toilets. In regard to outdoor water, the project would install water-efficient devices and landscaping in accordance with applicable ordinances, including use of drought-tolerant species appropriate to the climate and region.
Water Recycling	W-2	*Not feasible.* Recycled water is not available to the site; however, the project would install non-potable irrigation lines in preparation for recycled water becoming available in the future, as implemented under **PDF-AQ/GHG-1** and **PDF-AQ/GHG-2**.
Water System Energy Efficiency	W-3	*Not applicable.* This is applicable for the transmission and treatment of water, but it is not applicable for the project.
Reuse Urban Runoff	W-4	*Not feasible.* Per the applicant, reuse of urban water on

Table 4.6-10. Project Consistency with Scoping Plan Greenhouse Gas Emission Reduction Strategies

Scoping Plan Measure	Measure Number	Project Consistency
		site was determined to not be feasible.
Renewable Energy Production	W-5	*Not applicable.* Applicable for wastewater treatment systems.
Green Buildings		
State Green Building Initiative: Leading the Way with State Buildings (Greening New and Existing State Buildings)	GB-1	*Consistent.* The project would be required to be constructed in compliance with state or local green building standards in effect at the time of building construction, which currently includes the 2019 Title 24 and 2019 CALGreen standards.
Green Building Standards Code (Greening New Public Schools, Residential and Commercial Buildings)	GB-1	*Consistent.* The project's buildings would meet green building standards that are in effect at the time of design and construction.
Beyond Code: Voluntary Programs at the Local Level (Greening New Public Schools, Residential and Commercial Buildings)	GB-1	*Consistent.* The project would be required to be constructed in compliance with local green building standards in effect at the time of building construction, which currently includes the 2019 Title 24 and 2019 CALGreen standards.
Greening Existing Buildings (Greening Existing Homes and Commercial Buildings)	GB-1	*Not applicable.* This is applicable for existing buildings only. It is not applicable for the project except as future standards may become applicable to existing buildings.
Industry Sector		
Energy Efficiency and Co-Benefits Audits for Large Industrial Sources	I-1	*Not applicable.*
Oil and Gas Extraction GHG Emission Reduction	I-2	*Not applicable.*
GHG Emissions Reduction from Natural Gas Transmission and Distribution	I-3	*Not applicable.*
Refinery Flare Recovery Process Improvements	I-4	*Not applicable.*
Work with the local air districts to evaluate amendments to their existing leak detection and repair rules for industrial facilities to include methane leaks	I-5	*Not applicable.*
Recycling and Waste Management Sector		
Landfill Methane Control Measure	RW-1	*Not applicable.*
Increasing the Efficiency of Landfill Methane Capture	RW-2	*Not applicable.*
Mandatory Commercial Recycling	RW-3	*Consistent.* During both construction and operation of the project, the project would comply with all state regulations related to solid waste generation, storage, and disposal, including the California Integrated Waste Management Act, as amended. During construction, all waste would be recycled to the maximum extent possible. During operation, under **PDF-AQ/GHG-1** and **PDF-**

Table 4.6-10. Project Consistency with Scoping Plan Greenhouse Gas Emission Reduction Strategies

Scoping Plan Measure	Measure Number	Project Consistency
		AQ/GHG-2, an extensive recycling/reuse program would be implemented for the Costco Warehouse and office space, including for tires, cardboard, grease, plastics, and electronic waste. Each trash enclosure in the retail east of Warm Springs Parkway would have a recycling bin slot for each landfill bin slot for each tenant.
Increase Production and Markets for Compost and Other Organics	RW-3	*Not applicable.*
Anaerobic/Aerobic Digestion	RW-3	*Not applicable.*
Extended Producer Responsibility	RW-3	*Not applicable*. Applicable to product designer and producers.
Environmentally Preferable Purchasing	RW-3	*Not applicable.* Applicable to product designer and producers.
Forests Sector		
Sustainable Forest Target	F-1	*Not applicable.*
High GWP Gases Sector		
Motor Vehicle Air Conditioning Systems: Reduction of Refrigerant Emissions from Non-Professional Servicing	H-1	*Consistent.* The project's customers and employees would be prohibited from performing air conditioning repairs and would be required to use professional servicing.
SF_6 Limits in Non-Utility and Non-Semiconductor Applications	H-2	*Not applicable.*
Reduction of Perfluorocarbons in Semiconductor Manufacturing	H-3	*Not applicable.*
Limit High GWP Use in Consumer Products	H-4	*Not applicable.*
Air Conditioning Refrigerant Leak Test During Vehicle Smog Check	H-5	*Not applicable.*
Stationary Equipment Refrigerant Management Program – Refrigerant Tracking/Reporting/Repair Program	H-6	*Not applicable.*
Stationary Equipment Refrigerant Management Program – Specifications for Commercial and Industrial Refrigeration	H-6	*Not applicable.*
SF_6 Leak Reduction Gas Insulated Switchgear	H-6	*Not applicable.*
Agriculture Sector		
Methane Capture at Large Dairies	A-1	*Not applicable.*

Source: CARB 2017.
Notes: CARB = California Air Resources Board; GHG = greenhouse gas; SB = Senate Bill; EPA = U.S. Environmental Protection Agency; NHTSA = National Highway Traffic Safety Administration; HVAC = heating, ventilation, and air conditioning; SF_6 = sulfur hexafluoride; GWP = global warming potential.

Based on the analysis in Table 4.6-10, the project would be consistent with the applicable strategies and measures in the Scoping Plan.

SCAG's 2016 RTP/SCS is a regional growth-management strategy that targets per capita GHG reduction from passenger vehicles and light-duty trucks in the Southern California region pursuant to SB 375. In addition to demonstrating the region's ability to attain and exceed the GHG emission-reduction targets set forth by CARB, the 2016 RTP/SCS outlines a series of actions and strategies for integrating the transportation network with an overall land use pattern that responds to projected growth, housing needs, changing demographics, and transportation demands. Thus, successful implementation of the 2016 RTP/SCS would result in more complete communities with a variety of transportation and housing choices, while reducing automobile use. The SCAG 2016 RTP/SCS provides employee estimates for the years 2012 and 2040. To provide an interim year comparison, this analysis interpolates the City's projected employee population in the project's operational year (2021) based on the average growth rate to compare with the estimated increase in employees generated by the project. The SCAG 2016 RTP/SCS estimates that the City's employee population will increase approximately 30% between 2012 and 2040. Regarding households, the SCAG 2016 RTP/SCS estimates that the City's total households will increase approximately 25% between 2012 and 2040. The project's 285 potential employees would not exceed the interpolated annual growth rate of 782 employees a year for the City. Based on these considerations, vehicle trip generation and planned development for the site are concluded to have been anticipated in the SCAG growth projections because the land use designation and zoning would remain the same (i.e., Regional Commercial). The addition of project-generated employees to the City's estimated employee population would not exceed the SCAG 2016 RTP/SCS forecasted population.

With regard to individual developments, such as the project, the strategies and policies set forth in the 2016 RTP/SCS can be grouped into the following three categories: (1) reduction of vehicle trips and vehicle miles traveled (VMT); (2) increased use of alternative fuel vehicles; and (3) improved energy efficiency. The project's consistency with these three strategy categories is presented below.

1. Consistency with VMT Reduction Strategies and Policies

The project's consistency with this aspect of the 2016 RTP/SCS is demonstrated via the project's land use characteristics and features that would reduce vehicular trips and VMT, as well as the project's consistency with the regional growth forecast assumed in the 2016 RTP/SCS for the City. As discussed in Section 4.2.4 of the EIR, vehicle trip generation and planned development for the project site are concluded to have been anticipated in the SCAG 2016 RTP/SCS growth projections because the project would be consistent with the current zoning and land use designation. Regarding VMT reduction characteristics, the project would be serviced by the Riverside Transit Agency bus route 61, which provide residents and employers/employees an alternate mode of transportation to the project site, and the project would provide 100% of the project employees transit subsidies for 3 to 6 months. Furthermore, the residents in the City and surrounding communities would also be provided a nearer commercial/retail center rather than driving to other, more distant locations. Furthermore, the project would also provide additional employment opportunities in the City, which reduces VMT for residents who may otherwise be traveling outside the City for these retail jobs. The project site would be accessible for bicycles and pedestrians. A pedestrian pathway would be constructed to ensure connectivity throughout the site and easy access from adjacent streets and neighboring properties. Bicycle racks would be provided on site.

Furthermore, the proposed Costco warehouse will operate on a members-only basis. There are currently existing warehouses in Temecula and Lake Elsinore within the trade area of the proposed Costco. It is anticipated that up to 80% of Costco members who will shop at the new warehouse are currently shopping at existing Costco

warehouses. As the proposed Costco has been purposely sited to be closer to the homes of those members in the trade area, it is expected the trip lengths, and VMT, of these members will decrease as compared to existing conditions. Nonetheless, to provide a more conservative analysis, the air quality and GHG analyses assumed that all trips to the Costco would be new and did not reflect any VMT reduction.

2. Increased Use of Alternative Fueled Vehicles Policy Initiative

The second goal of the 2016 RTP/SCS with regard to individual development projects such as the project is to increase alternative-fueled vehicles to reduce per capita GHG emissions. This 2016 RTP/SCS policy initiative focuses on accelerating fleet conversion to electric or other near-zero-emission technologies. The project would be consistent with these strategies since EV charging stations would be implemented into the project, including designating 17 (i.e., 5%) parking spaces as EV charging spaces capable of supporting future electric vehicle supply equipment.

3. Energy Efficiency Strategies and Policies

The third important focus within the 2016 RTP/SCS for individual developments such as the proposed project involves improving energy efficiency (e.g., reducing energy consumption) to reduce GHG emissions. The 2016 RTP/SCS goal is to actively encourage and create incentives for energy efficiency where possible. The project would comply with the current CALGreen and Title 24 standards. Additionally, the project applicant committed to installing LED lamps, cool roofs and building materials, high-efficiency HVAC systems, high-efficiency bathroom faucets, high-efficiency water heaters, EV charging stations, a 708-kilowatt solar photovoltaic system, and solar-ready roofs.

Based on the analysis above, the proposed project would be consistent with the SCAG 2016 RTP/SCS.

Conclusion

The City has taken steps to address climate change impacts at a local level. In 2011, the City Council adopted a CAP. The purpose of the City's CAP is to guide the development, enhancement, and implementation of actions that would reduce the City's GHG emissions by 15% below 2009 baseline emission levels by 2020. Actions to be taken to achieve this goal are outlined in the City's CAP. In addition, as summarized in Table 4.6-9, the City's General Plan includes various goals and policies that promote the use of clean and renewable energy sources, facilitate alternative modes of transportation and reduce vehicle miles traveled, reduce waste, conserve water, and promote the efficient and sustainable use of energy. Table 4.6-7 and Table 4.6-8 describe the project's consistency with the City's CAP strategies and goals. As stated in the City's CAP, projects that demonstrate consistency with the goals, strategies, actions, and emission reduction targets contained in the City's CAP would have a less-than-significant impact on climate change. Since Table 4.6-7 and Table 4.6-8 demonstrate the project's consistency with those strategies and goals, the project would be consistent with the City's climate action strategies and would not result in a conflict with the adopted CAP.

SCAG's 2016 RTP/SCS is a regional growth-management strategy that targets per-capita GHG reduction from passenger vehicles and light-duty trucks in Southern California. The 2016 RTP/SCS incorporates local land use projections and circulation networks in city and county general plans. The City's Zoning Map shows the site as being zoned Regional Commercial (City of Murrieta 2014). The project would be consistent with the current zoning and land use designation. The project would add 285 full-time employees.

The project would not impede the attainment of the GHG reduction goals for 2030 or 2050 identified in EO S-3-05 and SB 32. EO S-3-05 establishes the following goals: GHG emissions should be reduced to 2000 levels by 2010, to 1990 levels by 2020, and to 80% below 1990 levels by 2050. SB 32 establishes for a statewide GHG emissions reduction target whereby CARB, in adopting rules and regulations to achieve the maximum technologically feasible and cost-effective GHG emissions reductions, ensures that statewide GHG emissions are reduced to at least 40% below 1990 levels by December 31, 2030. Although there are no established protocols or thresholds of significance for that future year analysis, CARB forecasts that compliance with the current Scoping Plan puts the state on a trajectory of meeting these long-term GHG goals, although the specific path to compliance is unknown (CARB 2014).

CARB has expressed optimism with regard to both the 2030 and 2050 goals. It states in the First Update to the Climate Change Scoping Plan that "California is on track to meet the near-term 2020 GHG emissions limit and is well positioned to maintain and continue reductions beyond 2020 as required by AB 32" (CARB 2014). With regard to the 2050 target for reducing GHG emissions to 80% below 1990 levels, the First Update to the Climate Change Scoping Plan states the following (CARB 2014):

> This level of reduction is achievable in California. In fact, if California realizes the expected benefits of existing policy goals (such as 12,000 megawatts of renewable distributed generation by 2020, net zero energy homes after 2020, existing building retrofits under AB 758, and others) it could reduce emissions by 2030 to levels squarely in line with those needed in the developed world and to stay on track to reduce emissions to 80% below 1990 levels by 2050. Additional measures, including locally driven measures and those necessary to meet federal air quality standards in 2032, could lead to even greater emission reductions.

In other words, CARB believes that the state is on a trajectory to meet the 2030 and 2050 GHG reduction targets set forth in AB 32, SB 32, and EO S-3-05. This is confirmed in the Second Update, which states the following (CARB 2017):

> The Proposed Plan builds upon the successful framework established by the Initial Scoping Plan and First Update, while also identifying new, technologically feasibility and cost-effective strategies to ensure that California meets its GHG reduction targets in a way that promotes and rewards innovation, continues to foster economic growth, and delivers improvements to the environment and public health, including in disadvantaged communities. The Proposed Plan is developed to be consistent with requirements set forth in AB 32, SB 32, and AB 197.

The project is consistent with the GHG emission reduction measures in the Scoping Plan. The project is consistent with the Scoping Plan, 2016 RTP/SCS, City's General Plan, and the City's CAP, which all promote economic growth while achieving greater energy efficiency. The project would be consistent with SCAG's RTP/SCS, SB 32, and EO S-3-05 by being consistent with VMT reduction strategies and policies, increasing the use of alternative fueled vehicles, and implementing energy efficiency strategies. The project would not conflict with any plans adopted with the purpose of reducing GHG emissions; therefore, the proposed project's impacts with respect to GHG emissions would be less than significant.

4.6.5 Mitigation Measures

No mitigation is required.

4.6.6 Level of Significance After Mitigation

Impacts would be less than significant without mitigation.

4.6.7 Cumulative Impacts

As previously discussed in Section 4.6.1, Existing Conditions, GHG emissions inherently contribute to cumulative impacts, and, thus, any additional GHG emissions would result in a cumulative impact. Development of the project site would be consistent with the City's CAP climate action strategies and would not result in a conflict with the adopted CAP; would support the SCAG 2016 RTP/SCS by being consistent with the current zoning and land use designation and through incorporation of energy and water-efficient features; and would demonstrate consistency with the Scoping Plan. Given the project's consistency with statewide, regional, and local plans adopted for the purpose of reducing GHG emissions, it is concluded that the project's incremental contribution to GHG emissions and their effects on climate change would not be cumulatively considerable. Therefore, the project would result in a less than cumulatively considerable GHG emissions impact.

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4.7 Hazards and Hazardous Materials

This section describes the existing hazardous materials within the vicinity of the project site, identifies associated regulatory requirements, evaluates potential impacts, and identifies mitigation measures related to implementation of the proposed Costco/Vineyard II Retail Development Project (project). This analysis was completed, in part, based on a Phase I Environmental Site Assessment (ESA) prepared by Kleinfelder Inc. (Kleinfelder) in November 2019 (provided as Appendix F) and covers the entirety of the project site. This chapter also references the Fire Assessment Summary Letter completed for the project and included as Appendix K. A detailed discussion of potential impacts to fire protection services is included in Section 4.11, Public Services, and a detailed discussion of potential wildfire impacts is included in Section 4.17, Wildfire.

4.7.1 Existing Conditions

A Phase I ESA was prepared by Kleinfelder. Kleinfelder conducted a site reconnaissance on November 2, 2017; conducted interviews with the property owner, site manager, and City of Murrieta (City) Building Safety Division staff; reviewed online historical aerial photographs, maps, historical fire insurance maps, and a radius map report from Environmental Data Resources Inc. (EDR); and reviewed available pertinent records of local, state, and federal agencies in its investigation of the project site. These activities are commonly undertaken during ESAs to help identify recognized environmental conditions. The term "recognized environmental condition" means the presence or likely presence of any hazardous substances or petroleum products on the project site under conditions that indicate an existing release, a past release, or a material threat of a release into the ground, groundwater, or surface water, and can be potential hazards to the public or environment. The following discussion summarizes the findings of the Phase I ESA regarding the existing conditions at the project site.

Site History

According to the Phase I ESA, aerial photographs and historical topographic maps were reviewed to determine the history of the project site. The Phase I ESA concluded that a portion of the site was formerly used for low-intensity agriculture between at least 1901 and 2004. As discussed in Section 3 of this Environmental Impact Report (EIR), Project Description, most of the project site's ground surface has now been disturbed by the grading and rock, sand, and gravel removal project approved by the City in 2006 (Antelope and Cape Aire Mass Grading Plan, EA 2005-1763) and terminated in December 2019. The hills have been heavily excavated, with approximately 55 feet (elevation 1,582 feet) being removed from the northernmost hill (Appendix E-2).

Site Reconnaissance

A site reconnaissance was conducted on November 2, 2017, as part of preparing the December 2017 Phase I ESA (Appendix F). The site reconnaissance consisted of walking the project site and viewing properties adjacent to it. During the reconnaissance, several sand and gravel stockpiles were observed throughout the site. A pole-mounted transformer was observed on the northwestern corner of the site. The transformer was not labeled with its polychlorinated biphenyl (PCB) content, although the transformer appeared new, and no staining or leakage was observed at the base of the transformer. Based on the apparent recent installation of the transformer, it was determined that PCBs were unlikely to be used. Stormwater drains into a catch basin, which was observed on the southeastern corner of the site. Evidence of discolored water, stressed vegetation, underground storage tanks (USTs), aboveground storage tanks, wells, pits, ponds, or lagoons was not observed on the site during the reconnaissance.

Hazardous Materials History

During the Phase I ESA (Appendix F), a review of historical aerial photographs from EDR was conducted for the project site to document prior use of the project site. Table 4.7-1 summarizes land uses and historical development of the project site from 1938 through 2012.

Table 4.7-1. Review of Historical Photographs

Year	Approximate Scale	Summary
1938 1949	1 inch=500 feet	**Site:** The Site encompasses two hills which appear undeveloped. The lowland around the hills appears to be developed for agricultural low-lying crops. **Surrounding Area:** The surrounding lowland to the north, east, and south appears developed for agricultural use. Row crops are present in the fields to the east on the 1949 aerial photograph. The area to the west of the Site appears to be a mix of undeveloped land, a road, and agricultural land or grazing land.
1953 1961 1967 1978	1 inch=500 feet	**Site:** The Site appears generally the same. Some dirt roads are present on the western side of the Site. **Surrounding Area:** The Site vicinity appears generally the same except that the row crops are not apparent. Antelope Road is present along the western boundary of the Site. By 1978, the highway (presently I-215) to the west also appears to be under construction, with widening and further development with on and off-ramps.
1985 1989 1996	1 inch=500 feet	**Site:** The Site appears to consist of vacant land. There appears to be a trail to the peak of the southern hill on Site. **Surrounding Area:** The Site vicinity is generally the same, with the exception that there is some development north and northeast of the Site. By 1985, construction of the I-215 had been completed.
2002	1 inch=500 feet	**Site:** The majority of the Site (all except the southern portion and hill tops) appears to have been cleared of brush. The dirt road remains in the western side of the Site, and the trail to the top of the southern hill remains. **Surrounding Area:** Clinton Keith Road is present south of the Site, and the land beyond appears graded. The land north of the Site appears fallow, and the land east of the Site appears cleared of brush and has dirt roads extending throughout. The highway remains west of the Site. A structure appears between the adjoining road to the west and the highway farther to the west, northwest of the Site.
2005 2006	1 inch=500 feet	**Site:** The site appeared relatively similar to the 2002 aerial photograph. **Surrounding Area:** The land to the east appears to have been developed with residences. The land south of Clinton Keith Road has also been developed with a track, baseball fields, parking lot, and a campus (Vista Murrieta High School). Clinton Keith Road appears paved. The land north of the Site remains undeveloped.
2009 2010 2012	1 inch=500 feet	**Site:** The northern portion of the Site appears to be in the process of being mined/graded. A trailer is located on the west side of the Site and construction vehicles and materials appear to be located on the eastern side of the Site. **Surrounding Area:** The Site vicinity in 2009 appears generally the same as the previous aerial photograph. In the 2010 aerial photograph, the area south of the middle portion of the Site appears graded, and appears to be used as an access road to the Site and staging area for vehicles and trailers. By 2010, reconfiguration of interchange and construction associated with the widening of I-215 was visible.

Note: Aerial photographs only provide information concerning indications of land use, and no conclusions regarding the release of hazardous substances or petroleum products can be drawn from the review of photographs alone.

Table 4.7-2 summarizes historical uses of the project site and surrounding areas from 1901 through 2012. Topographic maps from 1901, 1942, 1943, 1947, 1953, 1973, 1979, and 2012 were reviewed.

Table 4.7-2. Review of Historical Topographic Maps

Year	Scale	Summary
1901	1:125,000	**Site:** The Site is consists of two hills and surrounding lowland. A road is shown bisecting the Site north to south. No other development is shown on the Site. **Surrounding Area:** A road is shown running east to west along the western half of the northern Site boundary. Other roads are shown in the Site vicinity; however, no structures are shown.
1942 1943 1947	1:62,500 1:62,500 1:50,000	**Site:** The road bisecting the Site is no longer present. A structure and adjoining road is present on the western boundary of the Site. **Surrounding Area:** Another structure is located north of the Site.
1953 1973 1979	1:24,000 1:24,000 1:24,000	**Site:** Structures are not shown on these topographic maps. A dirt road is shown along the western side of the hills on the Site's west boundary. **Surrounding Area:** It appears that highway I-395 ends at the northern boundary of the Site and extends north.
2012	1:24,000	**Site:** No structures or development on the Site is shown. **Surrounding Area:** I-215 extends north to southwest of the Site. Clinton Keith Road is located south of the Site. The Site vicinity appears generally more developed, though structures are not shown on this topographic map.

As part of the Phase I ESA, Kleinfelder requested EDR to search its library of Sanborn Fire Insurance maps of the site, but no such maps were available for the site.

Surrounding Property Use

Properties surrounding the project site as observed by during the Phase I ESA (Appendix F) include the following:

- North: Vacant land
- East: Single-family and multifamily residential uses
- South: Vacant land that is under development as the Vineyard I commercial development (also commonly referred to as CK-17), Clinton Keith Road, and Vista Murrieta High School
- West: Vacant land that is proposed as the Vineyard III commercial development (also commonly referred to as Curci or Interstate [I] 215 Scott/Lambda) and I-215

According to the Phase I ESA (Appendix F), none of these nearby properties have documented releases or hydrocarbons close enough to the definition of a potential vapor encroachment condition as defined by American Society for Testing and Materials Standard 2600-10. Additionally, a review of maps prepared by the California Department of Conservation, Geologic Energy Management (CalGEM) (formerly the Division of Oil, Gas, and Geothermal Resources [DOGGR]), revealed that no oil or gas wells are located on the site or in the site vicinity (Appendix F).

Hazardous Materials Inventory

The Phase I ESA conducted for the project site revealed no evidence of recognized environmental conditions in connection with the project site. Table 4.7-3 summarizes the materials/items observed during Kleinfelder's site visit and categorizes them with regard to risk and potential recognized environmental conditions.

Table 4.7-3. Review of Risk and Potentially Recognized Environmental Conditions

Currently Tracked Materials	On-Site Risk	Comment
Asbestos	No	None observed. Mass grading operations were previously performed at the site.
Chromium	No	None observed. Mass grading operations were previously performed at the site.
Freon	No	None observed. Mass grading operations were previously performed at the site.
Lead paint	No	None observed. Mass grading operations were previously performed at the site.
Lead shielding	No	None observed. Mass grading operations were previously performed at the site.
Mercury	No	None observed. Mass grading operations were previously performed at the site.
PCBs lighting ballasts	Low	A pole mounted transformer on the northwestern corner of the site was not labelled with its PCB content. The transformer appeared new, and no staining or leakage was observed at the base of the transformer. Based on the apparent recent installation of the transformer, it is unlikely PCBs were used.
Soil remediation (i.e., lead and other non-tank related materials)	Low	Although not considered a recognized environmental condition, the site was historically used for agricultural purposes from at least 1901 through 2004. It is common for residual concentrations of pesticides and associated applications for pest control to be present in shallow soils on former agricultural sites. However, sand and gravel were actively removed from the site through December 2019, and the elevation has been lowered significantly. Therefore, the potential for further action to be required to address pesticides is low.
USTs	No	None reported or observed.
Aboveground storage tanks	No	None reported or observed.

Source: Appendix F.
Notes: PCB = polychlorinated biphenyl; UST = underground storage tank

Hazardous Sites Database Searches

CEQA requires review of Section 65962.5 of the California Government Code, also known as the "Cortese List," to identify whether the project crosses or is in close proximity to a site known to have had a hazardous materials release or to represent a threat to human health and the environment. A regulatory database search was conducted to identify known chemical handlers, hazardous waste generators, or polluters within a 1-mile radius of the project site. The database search is included as Appendix B of the Phase I ESA (Appendix F).

Table 4.7-4 summarizes the reviewed environmental databases that evaluated the listed sites generally within a 1-mile radius from the project site.

Table 4.7-4. Environmental Agency Lists, Search Distance, Listings

Agency List/Database	Search Radius	Number of Listed Sites
Federal National Priorities List sites	1.0 mile	0
Federal delisted National Priorities List sites	0.5 mile	0
Federal CERCLA list	0.5 mile	0
Federal CERCLA No Further Remedial Action Planned list	0.5 mile	0
Federal Resource Conservation and Recovery Act Corrective Action facilities	1.0 mile	0
Federal Resource Conservation and Recovery Act Non- Conservation and Recovery Act Corrective Action Transportation, Storage, and Disposal	1.0 mile	0

Table 4.7-4. Environmental Agency Lists, Search Distance, Listings

Agency List/Database	Search Radius	Number of Listed Sites
Federal Resource Conservation and Recovery Act generators	0.25 mile	0
Federal institutional controls/engineering controls registries	0.5 mile	0
Federal Emergency Response Notification System of Spills	0.25 mile	1
State and tribal – Equivalent National Priorities List	1.0 mile	0
State and tribal – Equivalent CERCLA	1.0 mile	1
State and tribal – Solid waste facilities	1.0 mile	0
State and tribal – Registered storage tank sites	0.5 miles	0
State and tribal – Leaking storage tank sites	0.5 miles	0
State and tribal – Voluntary cleanup sites	0.5 miles	0
Local brownfield sites	0.5 miles	0
Local lists of landfill/solid waste disposal sites	0.5 miles	1
Local lists of hazardous waste sites	Various	0
Local lists of registered storage tanks	0.5 miles	0
Local land records	Various	0
Records of emergency release reports	Site	0
Other ascertainable records	Various	7
EDR manufactured gas plants	1.0 mile	0
EDR historical auto stations	0.25 miles	1
EDR historical cleaners	0.25 miles	0

Source: Appendix F.
Notes: CERCLA = Comprehensive Environmental Response, Compensation, and Liability Act; EDR = Environmental Data Resources Inc.

North County Sand & Gravel Inc. was mapped at the site and listed in the U.S. Mines database. According to the Phase I ESA (Appendix F), observations made during the site reconnaissance indicate that the site's listing in the U.S. Mines database does not represent a recognized environmental condition to the site. In total, 10 other off-site facilities were identified in the environmental database. No releases have been identified at these facilities, and the facilities were not identified as a potential concern to the site.

4.7.2 Relevant Plans, Policies, and Ordinances

Hazardous materials and wastes are identified and defined by federal and state regulations for the purpose of protecting public health and the environment. Hazardous materials contain certain chemical, physical, or infectious properties that cause them to be considered hazardous. Hazardous wastes are defined in the Code of Federal Regulations, Title 40, Volume 25, Parts 260–265, and in the California Code of Regulations (CCR), Title 22 Division 4.5, Chapter 11, Article 1, Section 66261. Over the years, the laws and regulations have evolved to deal with different aspects of the handling, treatment, storage, and disposal of hazardous substances.

Federal

Federal Toxic Substances Control Act of 1976

The Federal Toxic Substances Control Act of 1976 tasked the U.S. Environmental Protection Agency (EPA) with authority to require reporting, record-keeping and testing requirements, and restrictions relating to chemical substances and/or mixtures. The Federal Toxic Substances Control Act addresses the production, importation, use, and disposal of specific chemicals including PCBs, asbestos, radon, and lead-based paint (EPA 2017).

Resource Conservation and Recovery Act of 1976

The objectives of the Resource Conservation and Recovery Act of 1976 are to protect human health and the environment from the potential hazards of waste disposal, conserve energy and natural resources, reduce the amount of waste generated, and ensure that wastes are managed in an environmentally sound manner. The Resource Conservation and Recovery Act affirmed and extended the "cradle-to-grave" system of regulating hazardous wastes. The use of certain techniques for the disposal of some hazardous wastes was specifically prohibited by the Hazardous and Solid Waste Act. The Hazardous and Solid Waste Amendments of 1984 also added Subtitle I, which governs USTs (EPA 2018a).

Comprehensive Environmental Response, Compensation, and Liability Act of 1980

The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), commonly known as "Superfund," was enacted by Congress on December 11, 1980. This law provided broad federal authority to respond directly to releases or threatened releases of hazardous substances that may endanger public health or the environment. CERCLA established requirements concerning closed and abandoned hazardous waste sites, provided for liability of persons responsible for releases of hazardous waste at these sites, and established a trust fund to provide for cleanup when no responsible party could be identified. CERCLA also enabled the revision of the National Contingency Plan. The National Contingency Plan provided the guidelines and procedures needed to respond to releases and threatened releases of hazardous substances, pollutants, or contaminants. The National Contingency Plan also established the National Priorities List, which is a list of contaminated sites warranting further investigation by EPA. CERCLA was amended by the Superfund Amendments and Reauthorization Act on October 17, 1986 (EPA 2018b).

Superfund Amendments and Reauthorization Act

The Superfund Amendments and Reauthorization Act amended CERCLA on October 17, 1986. The Superfund Amendments and Reauthorization Act had several changes and additions, including the following:

- Stressed the importance of permanent remedies and innovative treatment technologies in cleaning up hazardous waste sites
- Required Superfund actions to consider the standards and requirements found in other state and federal environmental laws and regulations
- Provided new enforcement authorities and settlement tools
- Increased state involvement in every phase of the Superfund program
- Increased the focus on human health problems posed by hazardous waste sites
- Encouraged greater citizen participation in making decisions on how sites should be cleaned up
- Increased the size of the trust fund to $8.5 billion

The Superfund Amendments and Reauthorization Act also required EPA to revise the Hazard Ranking System to ensure that it accurately assessed the relative degree of risk to human health and the environment posed by uncontrolled hazardous waste sites that may be placed on the National Priorities List (EPA 2018c).

Hazardous Materials Transportation Act

The U.S. Department of Transportation regulates hazardous materials transportation between states under the Code of Federal Regulations, Title 49, Chapter 1, Parts 100–185. In California, the California Department of Transportation (Caltrans) and the California Highway Patrol enforce federal law related to the transport of hazardous materials. Together, these agencies determine driver training requirements, load labelling procedures, and specifications for container types.

Occupational Safety and Health Act of 1970 and Occupational Safety and Health Administration

The Occupational Safety and Health Act of 1970 was passed to prevent workers from being killed or seriously harmed at work. The Occupational Safety and Health Act created the Occupational Safety and Health Administration (OSHA), which sets and enforces protective workplace safety and health standards. OSHA also provides information, training, and assistance to employers and workers. Under the Occupational Safety and Health Act, employers have the responsibility to provide a safe workplace (OSHA 2014).

State

Primary state agencies with jurisdiction over public health hazards and hazardous chemical materials management are the Department of Toxic Substances Control (DTSC) and the Regional Water Quality Control Board. Other state agencies involved in hazardous materials management are the Department of Industrial Relations (California OSHA implementation), Office of Emergency Services (Office of Emergency Services–California Accidental Release Prevention Implementation), California Department of Conservation, Geologic Energy Management (CalGEM) (formerly the Division of Oil, Gas, and Geothermal Resources [DOGGR]), California Department of Fish and Wildlife, California Air Resources Board (CARB), Caltrans, State Office of Environmental Health Hazard Assessment (Proposition 65 implementation), and the California Integrated Waste Management Board.

The enforcement agencies for hazardous materials transportation regulations are the California Highway Patrol and Caltrans. Hazardous materials and waste transporters are responsible for complying with applicable packaging, labeling, and shipping regulations. South Coast Air Quality Management District Rules and Regulations pertain to asbestos abatement (including Rule 1403), Construction Safety Orders 1529 (pertaining to asbestos), and Section 1532.1 (pertaining to lead) from Title 8 of CCR. Hazardous chemical and biohazardous materials management laws in California include the following statutes:

- Hazardous Materials Management Act – Requires that businesses handling or storing certain amounts of hazardous materials prepare a hazardous materials business plan, which includes an inventory of hazardous materials stored on site (above specified quantities), an emergency response plan, and an employee training program.
- Hazardous Waste Control Act (California Health and Safety Code, Division 20, Chapter 6.5, Article 2, Section 25100, et seq.) – Authorizes DTSC and local certified unified program agencies to regulate facilities that generate or treat hazardous waste.

- Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65) – Requires the governor to publish and update, at least annually, a list of chemicals known to the state to cause cancer, birth defects, or other reproductive harm and to inform citizens about exposures to such chemicals.
- Hazardous Waste Management Planning and Facility Siting, also known as the Tanner Act (Assembly Bill 2948, 1986) – Requires counties to prepare, for California DTSC approval, hazardous waste management plans and prescribes specific public participation activities, which must be carried out during the local land use permit process for siting new or expanding off-site commercial treatment, storage, and disposal facilities.
- Hazardous Materials Storage and Emergency Response (Assembly Bill 2185) – Requires the immediate reporting to local fire departments and Offices of Emergency Services of any release or threatened release of a hazardous material, regardless of the amount handled by the business.
- California Medical Waste Management Act (California Health and Safety Code, Sections 117600–118360) – Establishes procedures for the proper handling, storage, treatment, and transportation of medical waste.
- Land Disposal Restrictions (22 CCR, Chapter 18) – Set up by Congress in 1984 for EPA, ensures that toxic constituents present in hazardous waste are properly treated before hazardous waste is land disposed.
- California Fire Code (Chapter 38) – Includes requirements for handling, storing, and using liquefied petroleum gas, principally propane, to reduce the possibility of damage to containers, accidental releases of liquefied petroleum gas, and exposure of flammable concentrations of liquefied petroleum gas to ignition sources.
- California Health and Safety Code, Section 25501 – California law defines a hazardous material as any material that, because of its quantity, concentration, or physical, chemical, or infectious characteristics, may pose a present or potential hazard to human health and safety or to the environment if released in the workplace or the environment.
- California Health and Safety Code, Section 25280 – Establishes requirements for USTs to mitigate for the potential accidental release of hazardous materials into the environment. The section requires that USTs and associated piping be designed and constructed to have primary and second levels of containment (double-walled). Tanks are required to have continuous leak detection systems capable of detecting the entry of the stored substance from the primary containment into the secondary containment, and be capable of detecting water intrusion into the interstitial space from the environment (CWB 2011).

State regulations and agencies pertaining to hazardous materials management and worker safety are described in the following subsections.

California Air Resources Board Vapor Recovery Program

CARB's role is to protect the public from the harmful effects of air pollution and to develop programs and actions to fight climate change. CARB is part of a coordinated three-tiered approach to cleaning up air pollution:

- The U.S. Environmental Protection Agency (EPA) sets nationwide air quality and emissions standards and oversees state efforts and enforcement.
- CARB focuses on California's unique air quality challenges by setting the state's own stricter emissions standards for a range of statewide pollution sources including vehicles, fuels, and consumer products.
- Thirty-five local air pollution control districts regulate emissions from businesses and stationary facilities, ranging from oil refineries to auto body shops and dry cleaners. The project site is located within the jurisdiction of the South Coast Air Quality Management District (SCAQMD).

As the regulatory body that establishes and enforces emissions standards for the State, CARB has jurisdiction over a wide range of pollution sources, including gasoline dispensing facilities, where gasoline vapor is a precursor to the formation of ozone and contains benzene, a constituent of gasoline vapor that has been identified as a toxic air contaminant (CARB 2008). As such, CARB has established the Enhanced Vapor Recovery (EVR) Program, which is designed to reduce emissions at gasoline dispensing facilities by requiring gasoline dispensing facilities to install high-efficiency Phase I and Phase II EVR equipment to capture and control gasoline fumes (SCAQMD 2020). EVR equipment is a new generation of equipment collect gasoline vapors that would otherwise escape into the atmosphere during bulk fuel delivery (Phase I) or fuel storage and vehicle refueling (Phase II). Since 2009, the installation of EVR Phase I and Phase II systems has been required for all gasoline dispensing facilities. In-Station Diagnostic systems, which detect and report failures automatically, are another component of the EVR Program that has been required for gasoline dispensing facilities with annual throughputs of 600,000 to 1.8 million gallons since 2010. Throughout the years, the EVR Program has been periodically amended through executive orders issued by CARB to allow for modifications to performance standards, effective dates, and implementation deadlines.

California Environmental Protection Agency

The boards, departments, and offices that make up the California Environmental Protection Agency (CalEPA) include the California Air Resources Board, the Department of Pesticide Regulation, the Department of Resources Recycling and Recovery, DTSC, the Office of Environmental Health Hazard Assessment, and the State Water Resources Control Board. These boards, departments, and offices were placed within the CalEPA "umbrella" to create a cabinet-level voice for the protection of human health and the environment (such as clean air, clean water, clean soil, safe pesticides, and waste recycling and reduction) to assure the coordinated deployment of state resources (CalEPA 2018).

Government Code Section 65962.5

Pursuant to Government Code, Section 65962.5, environmental regulatory database lists are compiled to identify and locate properties with known hazardous substance contamination (California Government Code, Section 65960 et seq.). Four state agencies are required to provide lists of facilities that have contributed to, harbor, or are responsible for environmental contamination within their jurisdiction. The four state agencies that are required to provide these lists to the Secretary for Environmental Protection include DTSC, the State Department for Health Services, the State Water Resources Control Board, and the California Integrated Waste Management Board. The Secretary for Environmental Protection then takes each of the four respective agency lists and forms one list, referred to as the Hazardous Waste and Substances Site List – Site Cleanup (Cortese List), which is made available to every city and/or county in California (DTSC 2007).

California Occupational Safety and Health Administration

California OSHA is the primary agency responsible for worker safety in the handling and use of chemicals in the work place. California OSHA standards are generally more stringent than federal regulations. The employer is required to monitor worker exposure to listed hazardous substances and notify workers of exposure (8 CCR 337–340). The regulations specify requirements for employee training, availability of safety equipment, accident prevention programs, and hazardous substance exposure warnings.

California Occupational Safety and Health Regulations, Section 2540.7

Section 2540.7 of CCR helps mitigate fire and explosion dangers by providing safeguards for dispensing liquid and gaseous motor fuels into the fuel tanks of automotive vehicles. Specifically, the regulations require fuel-dispensing facilities to install vapor-processing (recovery) systems and abide by dispenser siting and design requirements. The regulations of the program are contained in CCR, Title 8, Division 1, Chapter 4.5.

California Hazardous Waste Control Law

The California Hazardous Waste Control Law (California Health and Safety Code, Division 20, Chapter 6.5) is administered by CalEPA to regulate the management of hazardous wastes. While the California Hazardous Waste Control Law is generally more stringent than the Resource Conservation and Recovery Act, until EPA approves the California Hazardous Waste Control Program (which is charged with regulating the generation, treatment, storage, and disposal of hazardous waste), both the state and federal laws apply in California. The Hazardous Waste Control Law lists 791 chemicals and approximately 300 common materials that may be hazardous; establishes criteria for identifying, packaging, and labeling hazardous wastes; prescribes management controls; establishes permit requirements for treatment, storage, disposal, and transportation; and identifies some wastes that cannot be disposed of in landfills.

California Accidental Release Prevention Program

Similar to the Federal Risk Management Program, the California Accidental Release Prevention Program includes additional state requirements and an additional list of regulated substances and thresholds. The regulations of the program are contained in CCR Title 19, Division 2, Chapter 4.5. The intent of the California Accidental Release Prevention Program is to prevent accidental releases of substances that can cause serious harm to the public and the environment, minimize the damage if releases do occur, and satisfy community right-to-know laws.

California Health and Safety Code

The handling and storage of hazardous materials is regulated by Division 20, Chapter 6.95, of the California Health and Safety Code. Under Sections 25500–25543.3, facilities handling hazardous materials are required to prepare a hazardous materials business plan. Hazardous materials business plans contain basic information on the location, type, quantity, and health risks of hazardous materials stored, used, or disposed of in the state. Chapter 6.95 of the California Health and Safety Code establishes minimum statewide standards for hazardous materials business plans.

In addition, in the event that a facility stores quantities of specific acutely hazardous materials above the thresholds set forth by the California Health and Safety Code, facilities are also required to prepare a risk management plan and California accidental release plan. The risk management plan and California accidental release plan provide information on the potential impact zone of a worst-case release and require plans and programs designed to minimize the probability of a release and mitigate potential impacts (California Health and Safety Code, Chapter 6.95).

Local

South Coast Air Quality Management District – Gasoline Transfer and Dispensing

The SCAQMD is the local air pollution control district responsible for permitting and enforcement activities related to retail gasoline dispensing facilities (SCAQMD 2020). SCAQMD Rule 461 applies to the transfer of gasoline from any tank truck, trailer, or railroad tank car into any stationary storage tank or mobile fueler, and from any stationary storage tank or mobile fueler into any mobile fueler or motor vehicle fuel tank (SCAQMD 2012). SCAQMD Rule 461 requires installation of CARB-certified EVR systems for new and in-use gasoline dispensing facilities from certified vapor recovery testing companies/contractors, as well as their regular testing. SCAQMD Rule 461 also contains additional regulations pertaining to permit conditions, recordkeeping requirements, and equipment maintenance.

Riverside County Community Health Agency – Department of Environmental Health

The Environmental Protection and Oversight Division is one of two divisions of the Riverside County (County) Department of Environmental Health. The Environmental Protection and Oversight Division has regulatory control over a number of hazardous materials, land use, and water system–based programs.

The Hazardous Materials Management Division is one of three divisions of the County Community Health Agency. The Hazardous Materials Management Division is the certified unified program agency for the County (City of Murrieta 2011a). A local certified unified program agency is responsible for administering/overseeing compliance with the following programs, as required by state and federal regulations:

- Hazardous materials release response plans and inventories (area plans)
- California Accidental Release Prevention program
- UST program
- Aboveground Petroleum Storage Act requirements for spill prevention, control and countermeasure plans (aboveground storage tank)
- Hazardous waste generator and on-site hazardous waste treatment (tiered permitting) programs
- California Fire Code: Hazardous material management plans and hazardous material inventory statements

Facilities that store, use, or handle hazardous materials above reportable amounts are required to prepare and file a hazardous materials business plan for the safe storage and use of chemicals. In the event of an emergency, firefighters, health officials, planners, public safety officers, health care providers, and others rely on the business plan. Implementation of the business plan should prevent or reduce damage to the health and safety of people and the environment when a hazardous material is released.

A hazardous materials business plan must be submitted by businesses that handle a hazardous material, or a mixture containing a hazardous material, in quantities equal to or greater than the following:

- 500 pounds of a solid
- 55 gallons of a liquid
- 200 cubic feet of a compressed gas at standard temperature and pressure
- The federal threshold planning quantity for extremely hazardous substances
- Radioactive materials in quantities for which an emergency plan is required per Parts 30, 40, or 70, Chapter 1, Title 10, of the Code of Federal Regulations

The business plan must include (1) the type and quantity of hazardous materials, (2) site map, (3) risks of using these materials, (4) spill prevention, (5) emergency response, (6) employee training, and (7) emergency contacts.

Businesses, such as photographic, chrome plating, or service stations, that generate small amount of hazardous waste or require underground storage of hazardous materials require a permit from the department.

City of Murrieta Emergency Operations Plan

The City's Emergency Operations Plan (EOP) addresses the planned response to extraordinary emergency situations associated with natural disasters, national security emergencies, and technological incidents affecting the City. The City's EOP describes the operations of the City's Emergency Operations Center, which is the central management entity responsible for directing and coordinating the various City departments and other agencies in their emergency response activities. The City's Emergency Operations Center centralizes the collection and dissemination of information about the emergency and makes policy-level decision about response priorities and the allocation of resources. As part of the City's Emergency Management Program, the City's Emergency Operations Center Manager (Fire Division Chief) is responsible for ensuring the readiness of the Emergency Operations Center (City of Murrieta 2011a).

City of Murrieta General Plan 2035

The Safety Element of the City's General Plan 2035 (City of Murrieta 2011b) includes goals and policies that would be applied to the project related to hazards and hazardous materials. The following are relevant goals and policies that would be applied to the project (City of Murrieta 2011b):

Goal SAF-8: A community that is protected from the harmful effects of hazardous materials, hazardous waste, and environmental contamination.

Policy SAF-8.1: Require geologic investigations for sites of proposed uses that manufacture, handle, or store hazardous or explosive materials.

Policy SAF 8.2: Ensure that land uses involved in the production, storage, transportation, handling, or disposal of hazardous materials are located and operated to reduce risk to other land uses.

Policy SAF 8.3: Designate appropriate routes for transportation of hazardous materials that are used or produced by facilities in the City.

Policy SAF 8.8: Comply with the Riverside County Hazardous Waste Management Plan.

Policy SAF 8.9: Support Caltrans and California Highway Patrol efforts to ensure safe transportation of hazardous materials on freeways.

Policy SAF 8.13: When approving new development, ensure that the site:

- Is sufficiently surveyed for contamination and remediation, particularly for sensitive uses near existing or former toxic or industrial sites.
- Is adequately remediated to meet all applicable laws and regulations, if necessary.
- Is suitable for human habitation.

- Is protected from known hazardous and toxic materials.
- Does not pose higher than average health risks from exposure to hazardous materials.

4.7.3 Thresholds of Significance

The significance criteria used to evaluate the project impacts related to hazards and hazardous materials are based on Appendix G of the CEQA Guidelines. According to Appendix G of the CEQA Guidelines, a significant impact related to hazards and hazardous material would occur if the project would:

1. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials.
2. Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment.
3. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school.
4. 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 result, would it create a significant hazard to the public or the environment.
5. For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area.
6. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.

Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires.

Thresholds 4 and 5 were analyzed in the Initial Study (Appendix A). The project is not included on a list of hazardous materials sites compiled pursuant to Government Code, Section 65962.5. Additionally, the project site not located within the vicinity of a private airstrip and is outside the planning area for the French Valley Airport or any other airport land use plan. For these reasons, the impacts of the project with respect to hazardous materials sites and airport land use plans were determined to be less than significant. Therefore, Thresholds 4 and 5 will not be further discussed in this section.

With regard to Threshold 7, the Initial Study determined that the project site is located in a predominantly urban area and is not considered to be at a significant risk of loss, injury, or death involving wildland fires. However, because the scope of the threshold was broadened by a December 2018 update to the CEQA Guidelines, this threshold is analyzed in Section 4.17 of this EIR, and the results of the discussion are summarized and included in Section 4.7.4, Impact Analysis.

4.7.4 Impacts Analysis

Would the project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

and

Would the project 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?

Both construction and operation of the project could lead to conditions in which the project could create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials or result in their accident conditions.

Construction Impacts

Less-Than-Significant Impact. The project involves the construction of several retail pads, a gas station, and associated infrastructure improvements. It is assumed construction of the project would involve the transport, use, or disposal of hazardous materials on or off site. These materials would include gasoline, diesel fuel, lubricants, and other petroleum-based products used to operate and maintain construction equipment. The transportation, use, and handling of hazardous materials would be temporary and would coincide with project construction activities. Construction contractors are responsible for accident prevention and containment, and construction specifications typically include provisions to properly manage hazardous substances and wastes. Contractors are required to comply with applicable laws and regulations regarding hazardous materials and hazardous waste management and disposal. Examples of hazardous materials management include preventing the disposal or release of hazardous materials onto the ground or into groundwater or surface water during construction and providing completely enclosed containment for all refuse generated in the planning area. In addition, construction waste, including trash, litter, garbage, solid waste, petroleum products, and any other potentially hazardous materials, would be removed and transported to a permitted waste facility for treatment, storage, and/or disposal from the project site onto I-215, which is a National Hazardous Materials Route Registry-designated safe haul route (FMCSA 2020). As a result, proper use and disposal of these materials would not pose a significant risk to the public and the environment.

Operational Impacts

Retail, Fitness Center, and Restaurants

Less-Than-Significant Impact. The project includes operation of several retail pads, a gas station, and associated infrastructure improvements. These facilities would involve the routine handling, transport, use, and disposal of hazardous materials, including the following:

- Cleaning solvents and disinfectants for retail, restaurant, and fitness center operations
- Petroleum-based lubricants associated with the tire center within the Costco Wholesale (Costco) warehouse
- Photo-processing chemicals associated with the photo center within the Costco warehouse
- Automobile batteries sold within the Costco warehouse
- Chlorine, bleach, and other chemicals associated with the pool within the fitness center

Consistent with applicable federal, state, and local requirements, any handling of hazardous materials would be limited to the quantities and concentrations set forth by the manufacturer or applicable regulations, and hazardous materials would be stored in secure locations. The actual quantity of hazardous materials that would be stored on site would be determined by the individual hazardous characteristics of the material; manufacturer guidelines; and applicable federal, state, and local regulations. Measures would also be taken by employees to properly store, handle, and dispose of these materials to the manufacturer's and retailers' specifications.

Additionally, the handling, transport, use, and disposal of hazardous materials must comply with all applicable federal, state, and local agencies and regulations, including the Resource Conservation and Recovery Act, CERCLA, DTSC, OSHA, Caltrans, and the County Fire Department Hazardous Materials Division.

Therefore, based on compliance with federal, state, and local regulations and adherence to manufacturer's and retailers' specifications concerning the handling of hazardous materials, the retail, restaurant, and fitness center operational impacts associated with the handling, transport, use, and disposal of hazardous materials and their accident conditions would be less than significant.

Gas Station

The day-to-day operations of the proposed gas station could pose a significant hazard to the environment through the routine transport, use, and disposal of hazardous materials and may pose a threat to the environment as a result of hazardous materials being accidentally released into the environment.

The operations associated with the gas station where hazardous materials are transported, used, and handled are listed below:

- Gasoline would regularly be transported to the station.
- Petroleum trucks would regularly refill USTs.
- Gasoline would be pumped from USTs to fuel dispensers.
- Motorists would regularly refill automobiles using fuel dispensers

Throughout each of these steps in the vendor-to-consumer chain, the possibility exists that accident conditions could result, and gasoline could be released into the environment. A summary of these accident conditions are listed below:

- Operators could spill gasoline while refueling USTs.
- Motorists could spill gasoline while refueling automobiles.
- USTs could leak, causing fuel to be released into soil.
- Pipes that dispense fuel from USTs to fuel dispensers could burst.
- Automobiles could crash into fuel dispensers, causing the release of gasoline into the environment.
- Motorists could incorrectly refuel their automobile while the engine is on, creating a potential fire hazard.

As referenced above, many of the operations associated with the proposed gas station involve the transport and use of hazardous materials and could involve accident conditions that would allow for the release of hazardous materials into the environment. However, gas stations are required to operate in a strict regulatory environment that mitigates the chance that these conditions would occur.

Regulations

Consistent with California Health and Safety Code, Section 25280, USTs installed after 1988 are required to have a leak detection system consisting of at least one of the following detection methods: secondary containment with interstitial monitoring, automatic tank gauging systems (including continuous automatic tank gauging systems), vapor monitoring (including tracer compound analysis), groundwater monitoring, statistical inventory reconciliation, or other method meeting established performance standards.

Regardless of the chosen leak detection method ultimately used on the project site, efficacy requirements established by EPA require that leak detection methods be able to detect certain leak rates and that they also give the correct answer consistently. In general, methods must detect the specified leak rate with a probability of detection of at least 95% and a probability of false alarm of no more than 5%. EPA found that, with effective leak detection, operators can respond quickly to signs of leaks and minimize the extent of environmental damage and the threat to human health and safety (EPA 1997).

USTs and associated fuel delivery infrastructure (i.e., fuel dispensers) would be required to comply with applicable federal, state, and local regulations, including those provisions established by Section 2540.7, Gasoline Dispensing and Service Stations, of the California OSHA Regulations; Chapter 38, Liquefied Petroleum Gases, of the California Fire Code; the Resource Conservation and Recovery Act; and the County Fire Department Hazardous Materials Division.

The project would also be required to incorporate high-efficiency Phase I and Phase II enhanced vapor recovery (EVR) systems to capture and control gasoline fumes. EVR refers to a new generation of equipment to control emissions at gasoline dispensing facilities in California. EVR systems collect gasoline vapors that would otherwise escape into the atmosphere during bulk fuel delivery (Phase I) or fuel storage and vehicle refueling (Phase II). The project would include an in-station diagnostic system to automatically detect failures and immediately alert operators. Gasoline dispensers would also be fitted with breakaway couplings that allow for the safe separation of the hose from the dispenser or the hose from the nozzle in the event of a forced removal such as in the case of a "drive-off."

The fuel dispensers, USTs, and associated fuel delivery infrastructure would be subject to routine inspection by federal, state, and local regulatory agencies with jurisdiction over convenience service station facilities.

The handling, transport, use, and disposal of hazardous materials must comply with applicable federal, state, and local agencies and regulations, including the Resource Conservation and Recovery Act; CERCLA; DTSC; OSHA; Caltrans; and the County Fire Department Hazardous Materials Division.

Costco Fuel Station Operation Practices

- In addition to compliance with local, state, and federal requirements, Costco would take additional measures to prevent environmental and safety impacts. Product, vapor, and vent piping would be noncorrosive and would provide three levels of protection. First, product piping would be monitored with pressure line leak detection. Second, piping would be double wall to provide secondary containment. Third, fiberglass piping would be additionally monitored under vacuum in accordance with California Health and Safety Code, Section 25280 regulations such that, if a breach is detected in the vacuum, the product delivery system would shut down, and the system would sound an audible alarm.
- Piping connections to the tanks and dispensers would be flexible. Flexible connectors would be used to prevent rupture from any form of ground movement.

- Piping would slope to the sumps at the USTs. If a piping leak occurs, the gasoline would flow through the secondary pipe to the sump, where a sensor would be triggered to immediately shut down the system and activate an audible/visual alarm.
- Tanks and dispensers would be equipped with latest Phase I and Phase II EVR vapor recovery air pollution control equipment technology in accordance with the California Air Resources Board regulations and associated Executive Orders (SCAQMD 2020). The Phase I EVR equipment would control the vapors in the return path from the tanks back to the tanker truck during offloading filling operations. Phase I EVR systems are 98% effective in controlling fugitive emissions from escaping into the environment. Phase II EVR equipment, which also includes in-station diagnostic systems" would control and monitor the vapors in the return path from the vehicles back to the tanks and are 95% effective in controlling fugitive emissions from escaping into the environment.
- The UST monitoring system incorporates automatic shutoffs. If gasoline is detected in the sump at the fuel dispenser, the dispenser would shut down automatically, and an alarm would sound. If a problem is detected with a tank, the tank would be automatically shut down, and an alarm would sound. If the product piping system detects a failure of the 0.1 gallons per hour test, the line would be automatically shut down, and the alarm would sound. Pursuant to federal requirements, monitoring equipment must be able to detect a minimum leak of 3 gallons per hour (equivalent to the accuracy of a mechanical leak detector). By providing monitoring to a higher standard (0.1 versus 3), Costco would maintain a higher degree of safety than required by current federal requirements.
- Each fuel dispenser would include several safety devices. Specifically, each dispenser sump would be equipped with an automatic shutoff valve to protect against vehicle impact. In addition, each fuel hose would include a breakaway device that would stop the flow of fuel at both ends of the hose in the event of an accidental drive-off. Also, each dispenser would be equipped with internal fire extinguishers. Lastly, dispensers would include leak detection sensors connected to the alarm console inside the controller enclosure.

Therefore, based on compliance with federal, state, and local regulations, impacts associated with the handling, transport, use, and disposal of hazardous materials and the release of hazardous materials into the environment would be less than significant.

Would the project emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

Less-Than-Significant Impact. The closest school to the project site is Vista Murrieta High School (28251 Clinton Keith Road), approximately 0.1 miles to the south. As discussed in the impact discussion above, the project must comply with a variety of federal, state, and local regulations that collectively ensure that operation of the new retail pads, fitness center, and gas station would not emit hazardous or acutely hazardous materials, substances, or wastes and that any handling of such activities is done so consistent with applicable regulatory requirements. Therefore, based on compliance with federal, state, and local regulations, impacts associated with the emitting or handling hazardous materials or substances within 0.25 miles of a school would be less than significant.

Would the project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

Less-Than-Significant Impact. Currently the City has no defined emergency routes; however, I-15 and I-215 may be considered emergency routes, as they traverse the City and connect to multiple major roads (City of Murrieta 2011b). The I-215 travels north to south through the City and is located immediately west of the project site. As

analyzed in Section 4.13, Transportation, of this EIR, the project is not anticipated to significantly impact the freeway mainline facilities. Thus, the project would not impact any potential emergency evacuation routes in the City.

The City's EOP is designed to ensure the most effective response and allocation of resources in the event of an emergency, and is intended to facilitate multi-agency and multi-jurisdictional coordination (City of Murrieta 2017). Murrieta Fire and Rescue also provides emergency preparedness information and safety tips specific to emergency operations. In the event of a major emergency such as fire, hazardous materials spill, police activity, or other situation which may directly impact the City or its residents, the City's Emergency Incident Information website page will contain updated information on the nature of the incident, potential impacts to traffic circulation, possible evacuations, and other pertinent information (City of Murrieta 2011b). The project must comply with the City's EOP for both construction and operations of all phases. Construction activities that may temporarily restrict vehicular traffic during all phases would be required to implement adequate and appropriate measures to facilitate the passage of persons and vehicles through and around any required road closures in accordance with the City's EOP.

In addition, the project would be designed to provide adequate vehicular and emergency apparatus access along these routes at all times. As discussed in Section 4.13 of this EIR, mitigation has been proposed to offset any potential impacts to traffic and circulation that could result from project construction or operation. Further, the project would be designed to provide adequate vehicular and emergency apparatus access with multiple points of ingress/egress via driveways off Warm Springs Parkway, Creighton Avenue, and Antelope Road. Drive aisles, turning radii, and all access points would be designed with adequate emergency access. The project would be required to design, construct, and maintain structures, roadways, and facilities in compliance with applicable local, regional, state, and federal requirements related to fire safety, emergency access, and evacuation plans, and the proposed site plan is subject to approval by the City and the City's Fire Department. More specifically, the City and the City's Fire Department would review any modifications to existing roadways to ensure that adequate emergency access or emergency response would be maintained. Further, travel distance from the nearest fire station (Fire Station No. 4) and potential impacts to existing emergency services have been addressed in Section 4.11, Public Services. As discussed in Section 4.11, the project would result in a less-than-significant impact to public services, including fire protection services. Given these considerations, the project would not result in inadequate emergency access.

Upon review and approval of the site plan, the project would not conflict with emergency ingress or egress. Further, adherence to regulatory requirements would ensure that the project would not substantially impair an emergency response plan or emergency evacuation plan, and impacts would be less than significant.

Would the project expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?

Less-than-Significant Impact. The project site is surrounded by vacant land to the north, Vista Murrieta High School to the south, existing residential development to the east, and Interstate 215 to the west. Land directly to the west is proposed for retail development known as Vineyard III. Land to the south has been approved for retail development known as Vineyard I. The project site is identified by the City's General Plan EIR as occurring within a Very High FHSZ (City of Murrieta 2011a). However, the project site is located in an area of the City where many of the adjacent properties are developed. The vacant land to the west and north is not currently developed and is the subject of the fire assessment (Appendix K).

As discussed in further detail in Section 4.17 of this EIR, the project would be required to comply with regulations regarding wildfire hazards in the Murrieta Municipal Code (Section 15.24) and incorporate mitigation measures **MM-WF-1** through **MM-WF-4**. Structures would be composed of low-flammability materials, and a setback without

vegetative fuels would be maintained along the northern border of the site. For the reasons stated above and as discussed in further detail in Section 4.17, impacts would be **less than significant**.

4.7.5 Mitigation Measures

The project **would not result in significant impacts** related to hazards or hazardous materials, and no mitigation measures are necessary. Mitigation measures relating to wildfire (**MM-WF-1** through **MM-WF-4**) are discussed in Section 4.17 of this EIR.

4.7.6 Level of Significance After Mitigation

Since there would be no significant impacts relating to hazards and hazardous materials needing mitigation, residual impacts would be **less than significant**. With implementation of mitigation measures **MM-WF-1** through **MM-WF-4**, project impacts related to wildfire would be less than significant

4.7.7 Cumulative Impacts

The geographic scope of the cumulative hazards and hazardous materials analysis is the immediate project area, including surrounding land uses and other nearby properties. Hazardous materials incidents are typically site-specific, since adverse effects typically only result from accidental spills or inadvertent releases. Associated health and safety risks generally would be limited to those individuals using the materials or to persons in the immediate vicinity of the materials. As such, adverse effects of hazards and hazardous materials tend to be localized, and thus, the area near the project site would be most affected by project activities. In addition, retail development does not typically combine with other projects to produce cumulative effects, since the use typically only involves the routine use of commercial maintenance products (such as paints, solvents, cleaning supplies, pool chemicals, pesticides, and herbicides). For example, there are limited amounts of hazardous materials (and by extension, limited opportunities for adverse effects) used during construction and operation of retail development when compared to uses that involve greater volumes of hazardous materials (i.e., industrial uses), or uses that produce wastes that would have a more severe adverse effect in the event of upset conditions (i.e., uses that produce radiological wastes). Further, use of hazardous materials by any related projects would be fully regulated, thus reducing potential for public safety risks, and cumulative impacts associated with exposure to hazards and hazardous materials would be less than significant. Through compliance with regulatory requirements, neither the construction nor operation of the related projects would create significant human or environmental health or safety risks that could create a significant and cumulatively considerable impact. Implementation of applicable hazardous materials management laws and regulations adopted at the federal, state, and local level would ensure cumulative impacts related to hazardous materials use remain less than significant.

Because the project site is not located on a hazardous materials site, the project would not combine with other sites to result in a cumulatively considerable impact with respect to existing hazardous materials impact. Additionally, because the project would not produce significant hazardous emissions within 0.25 miles of a school, the project would not combine with other related projects to result in a cumulatively considerable impact. With regard to the City's EOP and evacuation routes, the project would be designed to provide adequate vehicular and emergency apparatus access along these routes at all times, and would not impair emergency access. Related projects would be required to undergo the same site plan review requirements to ensure that ensure that adequate emergency access or emergency response would be maintained. Further, the City is responsible for administering the City's EOP. In the event of a major emergency such as fire, hazardous materials spill, police activity, or other situation that may directly impact the City or its residents, the City's Emergency Incident

Information website page will contain updated information on the nature of the incident, potential impacts to traffic circulation, possible evacuations, and other pertinent information. A coordinated, centralized response by the City, as outlined in the City's EOP, would ensure that the effects of the project and the related projects are not cumulative considerable. Lastly, as discussed in Section 4.17 of this EIR, cumulative impacts with respect to wildfire are less than significant. Therefore, significant cumulative impacts related to hazards and hazardous wastes would be less than significant.

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4.8 Hydrology and Water Quality

This section describes the existing hydrological and water quality conditions of the proposed Costco/Vineyard II Retail Development Project (project) site, identifies associated regulatory requirements, evaluates potential impacts, and identifies mitigation measures related to implementation of project. This analysis was completed, in part, based on the Murrieta General Plan 2035 Environmental Impact Report (EIR) (City of Murrieta 2011a), the Murrieta General Plan 2035 (City of Murrieta 2011b), and the following technical reports, which are included as appendices to this EIR:

- *Geotechnical Review Proposed Costco Wholesale Warehouse Northeast of Interstate 215 and Clinton Keith Road Murrieta, California CW# 17-0237* prepared by Kleinfelder Inc. in October 2017, updated February 4, 2020 (Appendix E-1)
- Preliminary Geotechnical Investigation Proposed Vineyard/Val Vista Center NEC Clinton Keith Road and 215 Freeway Murrieta, California prepared by Geotechnical Professionals Inc. in September 2017 (Appendix E-2)
- Drainage Study Costco Wholesale Murrieta CA prepared by Fuscoe Engineering Inc. in October 2019 (Appendix G-1)
- Hydrology/Hydraulics Study For: TPM 37511 Unit 2 Clinton Keith Road prepared by Excel Engineering in March 2018 (Appendix G-2)
- Project-Specific Water Quality Management Plan Costco Wholesale, Murrieta CA prepared by Fuscoe Engineering Inc. in October 2019 (Appendix G-3)
- Project Specific Water Quality Management Plan Candee prepared by Excel Engineering Inc. in September 2018 (Appendix G-4)

4.8.1 Existing Conditions

Regional Hydrology

The project site is located within the inland portion of the Santa Margarita River Watershed, which is composed of approximately 750 square miles. The watershed is located in northern San Diego and southwestern Riverside Counties and borders San Juan Watershed to the northwest and San Luis Rey Watershed to the south. The Santa Margarita Watershed can be divided into nine distinct hydrological areas, each with unique hydrological and environmental features. Specifically, the project site is located on the boundary of the Wildomar and Murrieta Hydrologic Subareas (2.31 and 2.32, respectively) of the Murrieta Hydrologic Area (2.30) and encompassing Santa Margarita Hydrologic Unit (i.e., Santa Margarita Watershed) (2.00). Murrieta Creek and Temecula Creek collect water from the upper watershed and represent the main tributaries to the Santa Margarita River (City of Murrieta 2011). The Santa Margarita Hydrologic Unit empties into the Pacific Ocean via the Santa Margarita Lagoon, on Marine Corps Base Camp Pendleton. The slough at the river mouth is normally closed off from the ocean by a sandbar, except during periods of high precipitation. Primary water storage areas in the Santa Margarita Hydrologic Unit are Vail Lake and O'Neill Lake. Annual precipitation ranges from less than 12 inches near the coast to more than 45 inches inland, near Palomar Mountain (San Diego RWQCB 2016).

Project Site Drainage

The existing topography overlaps portions of two adjacent, partially excavated hills, about 660 feet apart, with original prominent peaks rising to about 100 to 130 feet above nearby Clinton Keith Road to the south and Cape Aire Way to the north. The hills form a northeast trending drainage. Existing off-site stormwater runoff occurs toward three locations, denoted as Points of Comparison (POC) A, POC-B, and POC-C in Figure 4.8-1, Existing Site Drainage (Appendix G-1; Appendix G-2). Since approximately 2006, the project site and area south of Clinton Keith Road have been disturbed by sand and gravel mass-grading operations (Appendix G-1). A review of historical topographic maps and aerial photographs show that after about 2009 the site has been disturbed by excavation activities at both hill peaks and south to Clinton Keith Road (Appendix G-1). Variable stockpiles of rock, gravel, and soil have been present in association with rock crushing equipment (Appendix E-1). The slopes are highly variable as a result of grading activities, with localized areas exhibiting grades as steep as 2.5:1 (horizontal to vertical) (Appendix E-2).

Surface water is generated by precipitation that cannot be absorbed into the ground in the period following a storm event. The amount of surface water runoff is a factor of precipitation, ground saturation, and the permeability (or perviousness) of existing ground surfaces. Permeability is a measure of how quickly water can penetrate a surface area. Natural or unpaved surfaces have a higher permeability compared to paved and other built surfaces. A portion of the stormwater falling on a relatively pervious surface will infiltrate into surface soils. Runoff occurs when soil infiltration capacity is exceeded. In contrast, stormwater falling onto pavement or other hardscape areas does not infiltrate, resulting in immediate runoff during precipitation events. The project site is underlain by topsoil and weathered bedrock, consisting of silty sands, sands, and sandy silts, with varying amounts of cobbles and boulders, underlain by relatively impermeable granitic bedrock (Appendices E-1 and E-2); therefore, stormwater infiltration is limited at the site. The drainage studies conducted for the project use pre-mass grading baselines to conservatively estimate the changes in pre- and post-development runoff flows (Appendices G-1 and G-2).

Regional Drainage

Surface runoff from the project site flows toward a network of improved and natural streams, storm channels, storm drains, and catch basins. These facilities are maintained by the Riverside County Flood Control and Water Conservation District and the City of Murrieta (City). Regional master-planned facilities are owned and maintained by the Riverside County Flood Control and Water Conservation District, and all non-master -planned facilities are maintained by the City. The drainage facilities in the vicinity of the project site flow to Warm Springs Creek through tributary creeks, including a south-trending unnamed creek, approximately 1,200 feet west of the site, and a southeast-trending creek, approximately 1,500 feet northeast of the project site. Warm Springs in turn flows into Murrieta Creek, approximately 5 miles south of the project site. Murrieta Creek extends approximately 14 miles and drains an area of approximately 220 square miles. Both Warm Springs and Murrieta Creeks remain in a semi-natural state, with areas of substantial native vegetation occurring along portions of each. Stormwater runoff represents the primary source of surface water within the Murrieta Creek Basin. Additional sources of surface water include groundwater from springs, runoff from agricultural uses, and snowmelt (City of Murrieta 2011). Downstream, these flows combine and constitute the Santa Margarita River.

Surface Water Quality

Stormwater runoff is a nonpoint source of pollutants in the greater Santa Margarita River Watershed. The amount of nonpoint pollution is generally a function of the amount of developed areas, agricultural fields, and roadways. The project site is bordered to the west by vacant land, Interstate 215, and a shopping center to the west of Interstate 215, which contains existing paved surfaces, existing buildings, and parking lots. Vacant land is located to the north, Murrieta High School and vacant land to the south, and a residential tract to the east, all of which are

composed of a mix of permeable and impermeable surfaces. Within the Santa Margarita River Watershed, constituents of concern include nitrate (surface water and groundwater), sediment, indicator bacteria, and total dissolved solids in groundwater. Specific activities or uses that affect the quality of surface water include agricultural activities, orchards, livestock, domestic animals, septic systems, use of recycled water, and urban runoff (City of Murrieta 2011).

Warm Springs Creek is a receiving water that the project site is tributary to. The U.S. Environmental Protection Agency (EPA) lists Warm Springs Creek as impaired under the *2014–2016 California 303(d) List of Water Quality Limited Segments* for chlorpyrifos, iron, manganese, phosphorous, and total nitrogen (EPA 2018). Surface water quality within Murrieta Creek is generally good; however, high concentrations of total dissolved solids occur intermittently during times of low flow. Occasional exceedances of nitrate and phosphate levels also occur. Murrieta Creek is also listed as impaired under the *2014–2016 California 303(d) List of Water Quality Limited Segments* for chlorpyrifos, copper, indicator bacteria, iron, manganese, nitrogen, and toxicity (EPA 2018). Beneficial uses for Murrieta Creek and Warm Springs Creek are identified as municipal/domestic supply, agricultural supply, industrial process/service supply, recreation, warm freshwater habitat, and wildlife habitat (San Diego RWQCB 2016).

To minimize detrimental effects of stormwater pollution, the City implements a Stormwater Management Plan (SWMP), which identifies methods to reduce potential stormwater runoff and the contribution of pollutants to the storm drain system from industrial, commercial, residential, and municipal sources (City of Murrieta 2011). In addition, water quality in the encompassing upper Santa Margarita River Watershed, which includes the City, is managed under the Santa Margarita Region Watershed Protection Program, the Upper Santa Margarita Integrated Regional Water Management Plan (IRWMP), and the Santa Margarita Region Hydromodification Management Plan. The latter was prepared as part of the Santa Margarita River Municipal Separate Storm Sewer System (MS4) Permit. See additional information in Section 4.8.2, Relevant Plans, Policies, and Ordinances.

Flooding

The project site is located within the Warm Springs Creek and Murrieta Creek Watersheds. Flooding problems in the Murrieta Creek Watershed are related to inadequate capacity of the existing drainage network. Much of the Murrieta Creek area and sections along Warm Springs Creek are currently without formal flood control systems. As a result, moderate rainfall creates haphazard drainage in the less developed areas of the City. The problem manifests itself as frequent overtopping of the Murrieta Creek channel by floodwaters in a number of channel reaches, flood inundation of structures with attendant damages, and other water-related problems caused by these events, including emergency costs, traffic disruption, and automobile damage (City of Murrieta 2011).

Floods that have a 1% chance of occurring in any given year are referred to as “100-year floods.” Flood insurance rates are based on Federal Emergency Management Agency (FEMA) designations of flood zones. The practice is to avoid or restrict construction within the 100-year flood zones, or to engage in flood-proofing techniques, such as elevating building pads or constructing flood walls and levees. The project site is not located within or in the vicinity of a 100-year flood zone. The site is located within FEMA Zone X, which is an area of minimal flooding (City of Murrieta 2011; FEMA n.d.).

Portions of the City are subject to potential flooding in the event of dam failure at Lake Skinner and Diamond Valley Lake. However, the project site is not located in a potential inundation area due to dam failure (City of Murrieta 2011).

Groundwater

The project site is underlain by topsoil and weathered bedrock, underlain by relatively impervious granitic bedrock. Groundwater is not reported to be present on site, as the San Marcos gabbro that underlies the project site is composed of interlocking materials with little to no permeability (Appendix E-1). Furthermore, borings drilled on site to a maximum depth of 38 feet did not encounter groundwater (Appendix E-2).

Runoff from the project site flows southeast toward Warm Springs Creek and Murrieta Creek, which are important sources of groundwater recharge of the downstream Murrieta–Temecula Groundwater Basin. The Murrieta–Temecula Groundwater Basin is approximately 60,000 acres and has an estimated storage capacity of 1.2 million acre-feet.

Groundwater quality varies within the Murrieta Basin. Many wells extracting groundwater from this basin are present within the Murrieta area. In general, water that is extracted at higher elevations and from deeper unconfined aquifers is typically of higher quality. Groundwater is generally unconfined within Pleistocene (older) alluvium, which is estimated to exceed 2,500 feet in thickness in the Murrieta–Temecula Groundwater Basin. In addition, Holocene (younger) alluvium, consisting of unconsolidated gravel, sand, silt, and clay, ranges from 100 to 200 feet in thickness (City of Murrieta 2011).

4.8.2 Relevant Plans, Policies, and Ordinances

Federal

Clean Water Act

The federal Clean Water Act (CWA) was enacted with the primary purpose of restoring and maintaining the chemical, physical, and biological integrity of the nation's navigable waters. The State Water Resources Control Board (SWRCB) and the Regional Water Quality Control Boards (RWQCBs) are responsible for enforcing water quality standards within the state. As mandated by Section 303(d) of the CWA, the SWRCB maintains and updates a list of "impaired water bodies" (i.e., water bodies that do not meet state and federal water quality standards). This list is known as the Section 303(d) list of impaired water bodies. The state is required to prioritize waters/watersheds for development of total maximum daily load (TMDL) regulations. Section 303(d) of the CWA bridges the technology-based and water quality–based approaches for managing water quality, and requires each state to make a list of waters that are not attaining standards after implementation of the technology-based limits. For waters on this list (and where the EPA administrator deems it appropriate), the states develop TMDLs that are established at the level necessary to implement applicable water quality standards. A TMDL must account for all sources of pollutants that cause the water to be listed. Federal regulations require that TMDLs, at a minimum, account for contributions from point sources and nonpoint sources. This information is compiled in a list and submitted to the EPA for review and approval. Section 303(c)(2)(b) of the CWA requires states to update the TMDLs on a triennial basis (SWRCB 2018a).

Section 319 of the CWA mandates specific actions for the control of pollution from nonpoint sources. The EPA has delegated responsibility for implementation of portions of the CWA, including water quality control planning and programs such as the National Pollutant Discharge Elimination System (NPDES) program, to the SWRCB and RWQCBs.

National Pollutant Discharge Elimination System Permit

The NPDES permit system was established by the CWA to regulate both point-source discharges and nonpoint-source discharges. Nonpoint pollution often enters receiving waters in the form of surface runoff and is not conveyed by way of pipelines or discrete conveyances. Each NPDES permit contains limits on allowable concentrations and mass emissions of pollutants contained in the discharge. Sections 401 and 402 of the CWA contain general requirements regarding NPDES permits. Section 307 of the CWA describes the factors that the EPA must consider in setting effluent limits for priority pollutants.

A detailed discussion of the NPDES program is provided under the discussion of state regulations in this section, since the authority to implement the NPDES program has been delegated to the SWRCB and RWQCBs.

State

Responsibility for the protection of water quality in California rests with the SWRCB and nine RWQCBs. The SWRCB establishes statewide policies and regulations for the implementation of water quality control programs mandated by federal and state water quality statutes and regulations. The RWQCBs develop and implement water quality control plans that consider regional beneficial uses, water quality characteristics, and water quality problems. The project site is located within the jurisdiction of the San Diego RWQCB.

All projects resulting in discharges, whether to land or water, are subject to Section 13263 of the California Water Code and are required to obtain approval of waste discharge requirements (WDRs) by the RWQCBs. WDRs related to land and groundwater (i.e., non-NPDES WDRs) regulate discharges of privately or publicly treated domestic wastewater and process/wash-down wastewater. WDRs for discharges to surface water also serve as NPDES permits, which are further described in this section.

Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act authorizes the SWRCB to adopt, review, and revise policies for all waters of the state (including surface water and groundwater), and directs the RWQCBs to develop regional water quality control plans. Section 13170 of the California Water Code authorizes the SWRCB to adopt water quality control plans on its own initiative.

Waste Discharge Requirements

All dischargers of waste to waters of the state are subject to regulation under the Porter-Cologne Water Quality Control Act, and the requirements for WDRs is incorporated into the California Water Code. This includes point-source and nonpoint-source dischargers. All current and proposed nonpoint-source discharges to land must be regulated under WDRs, waivers of WDRs, a water quality control plan prohibition, or some combination of these administrative tools. Discharges of waste directly to state waters are subject to an individual or general NPDES permit, which also serves as WDRs. The RWQCBs have primary responsibility for issuing WDRs to cover a category of discharges. WDRs may include effluent limitations or other requirements that are designed to implement applicable water quality control plans, including designated beneficial uses and the water quality objectives established to protect those uses and prevent the creation of nuisance conditions. Violations of WDRs may be addressed by issuing Cleanup and Abatement Orders or Cease and Desist Orders, assessing administrative civil liability, or seeking imposition of judicial civil liability or judicial injunctive relief.

National Pollutant Discharge Elimination System Permits

The NPDES permit system was established by the CWA to regulate point-source discharges and nonpoint-source discharges to surface waters of the United States, and the authority to implement the NPDES program has been delegated to the SWRCB and RWQCBs. The EPA developed the federal NPDES stormwater permitting program in two phases. Phase I, promulgated in 1990, addresses large and medium MS4s located in incorporated places and counties with populations of 100,000 or more. Phase I addresses 11 categories of industrial activity, one of which is large construction activity that disturbs 5 acres or more of land. Phase II, also promulgated in 1999, addresses additional sources, including MS4s not regulated under Phase I, and small construction activity disturbing from 1 to 5 acres of land. For point-source discharges, each NPDES permit outlines limits on allowable concentrations and mass emissions of pollutants contained in the discharge. For diffuse-source discharges, the NPDES program establishes a stormwater quality program to manage urban stormwater and minimize pollution of the environment to the maximum extent practicable. The NPDES program consists of characterizing receiving water quality, identifying harmful constituents, targeting potential sources of pollutants, and implementing a comprehensive stormwater management program.

One of the primary objectives of water quality regulations is to reduce pollutants in urban stormwater discharge to the maximum extent practicable through the use of structural and nonstructural best management practices (BMPs). BMPs typically used to manage runoff water quality include controlling roadway and parking lot contaminants by installing oil and grease separators at storm drain inlets, cleaning parking lots on a regular basis, incorporating peak-flow reduction and infiltration features (e.g., grass swales, infiltration trenches, and grass filter strips in landscaping), and implementing educational programs.

Construction General Permit

The SWRCB permits all regulated construction activities under Order No. 2009-009-DWQ, as amended by 2010-0014-DWQ and 2012-0006-DWQ. The order requires that, prior to beginning any construction activity, the permit applicant obtain coverage under the Construction General Permit by preparing and submitting to the SWRCB a Permit Registration Document that includes a Notice of Intent and appropriate fee. The SWRCB may issue a Construction General Permit or an Individual Construction Permit that would contain more specific permit provisions. Individual Construction Permits replace Construction General Permit regulations and provisions, if issued. Additionally, coverage would not occur until an adequate stormwater pollution prevention plan (SWPPP) has been prepared. A separate Notice of Intent is submitted to the SWRCB for each construction site.

SWRCB adopted the Construction General Permit on September 2, 2009, and it became effective on July 1, 2011. In addition, 2010-0014-DWQ was adopted on November 16, 2010, and became effective on February 14, 2011. The amendment provided text changes to the fact sheet, Conditions for Permit Coverage, Special Provisions, Electronic Signature, and Certification Requirements of Order No. 2009-009-DWQ. Similarly, 2012-0006-DWQ was adopted on July 17, 2012. The amendment provided updated text changes to the Fact Sheet, primarily with respect to replacing numeric effluent limitations with narrative effluent limitations for Risk Level 3 and Linear Underground/Overhead Project Type 3 construction sites (with the exception of Active Treatment Systems).

Construction activities subject to the NPDES Construction General Permit include clearing, grading, and disturbances to the ground (e.g., stockpiling or excavating), which result in soil disturbances of at least 1 acre of total land area. Because construction of the project would cumulatively disturb more than 1 acre, all improvements and development activities would be subject to these permit requirements, and the project would be required to prepare a SWPPP. The SWPPP has two main objectives: to help identify the sources of sediment and other pollutants that affect the quality of stormwater

discharges, and to describe and ensure the implementation of BMPs to reduce or eliminate sediment and other pollutants in stormwater and non-stormwater discharges.

A SWPPP's required elements include a site description addressing the elements and characteristics specific to the site; BMPs for erosion and sediment controls; BMPs for construction waste handling and disposal; implementation of approved local plans; proposed post-construction controls, including a description of local post-construction erosion and sediment control requirements; and non-stormwater management. The SWPPP must include BMPs that address source control, and if necessary, include BMPs that address specific pollutant control. The SWPPP prepared to comply with the Construction General Permit would also address post-construction activities that can result in ongoing erosion and sedimentation impacts.

All construction activities related to the project are subject to the requirements of the Construction General Permit. The current amended order includes the following:

- **Technology-Based Numeric Action Levels:** The Construction General Permit includes numeric action levels for pH and turbidity.
- **Narrative Effluent Limitations:** The Construction General Permit requires Risk Level 3 and Linear Underground/Overhead Project Type 3 dischargers with direct discharges to surface waters to conduct receiving-water monitoring whenever their effluent exceeds specified receiving-water monitoring triggers with respect to pH and turbidity. However, in contrast to previous numeric effluent limitations, exceedance of a receiving-water monitoring trigger does not constitute a violation of the Construction General Permit. Best available technology/best conventional technology must be installed to control erosion and off-site sedimentation.
- **Risk-Based Permitting Approach:** The Construction General Permit establishes a four-level risk calculation, with only the lowest three levels covered under the Construction General Permit. Discharges determined to be Risk Level 4 are not covered by the Construction General Permit, and those projects are required to submit a Report of Waste Discharge to the appropriate RWQCB and seek coverage under an individual or other applicable general permit.
- **Minimum Requirements Specified:** The Construction General Permit specifies minimum BMPs and requirements that were previously only required as elements of the SWPPP or were suggested by guidance.
- **Project Site Soil Characteristics Monitoring and Reporting:** The Construction General Permit requires all dischargers to monitor and report the soil characteristics at the project location. The primary purpose of this requirement is to provide better risk determination and eventually better program evaluation.
- **Effluent Monitoring and Reporting:** The Construction General Permit requires effluent monitoring and reporting for pH and turbidity in stormwater discharges. This monitoring is to be used to determine compliance with the narrative effluent limitations included in this Construction General Permit.
- **Receiving Water Monitoring and Reporting:** The Construction General Permit requires some Risk Level 2 and Risk Level 3 dischargers to monitor receiving waters.
- **New Development and Redevelopment Stormwater Performance Standards:** The Construction General Permit specifies runoff reduction requirements for all sites not covered by a Phase I or Phase II MS4 NPDES permit to avoid, minimize, and/or mitigate post-construction stormwater runoff impacts.
- **Rain Event Action Plan:** The Construction General Permit requires sites to develop and implement a Rain Event Action Plan that must be designed to protect all exposed portions of the site 48 hours prior to any likely precipitation event.

- **Site Photographic Self-Monitoring and Reporting:** The Construction General Permit requires all projects to provide photographs of their sites at least once quarterly if there are no rain events causing a discharge during that quarter. The purpose of this requirement is to help RWQCB staff prioritize their compliance evaluation measures (e.g., inspections). In addition, this reporting makes compliance-related information more available to the public.
- **Annual Reporting:** The Construction General Permit requires all projects that are enrolled for more than one continuous 3-month period to submit information and annually certify that their site is in compliance with the requirements. The primary purpose of this requirement is to provide information needed for overall program evaluation and public information.
- **Certification/Training Requirements for Key Project Personnel:** The Construction General Permit requires that key personnel (e.g., SWPPP preparers, inspectors) have specific training or certifications to ensure that their level of knowledge and skills are adequate to ensure their ability to design and evaluate project specifications that will comply with permit requirements.

Sustainable Groundwater Management Act

On September 16, 2014, Governor Jerry Brown signed into law a three-bill legislative package—Assembly Bill 1739 (Dickinson), Senate Bill 1168 (Pavley), and Senate Bill 1319 (Pavley)—collectively known as the Sustainable Groundwater Management Act (SGMA). SGMA requires governments and water agencies of high- and medium-priority basins to halt overdraft and bring groundwater basins into balanced levels of pumping and recharge. Under SGMA, these basins should reach sustainability within 20 years of implementing their sustainability plans. For critically overdrafted basins, sustainability should be achieved by 2040. For the remaining high- and medium-priority basins, 2042 is the deadline. Through SGMA, the California Department of Water Resources provides ongoing support to local agencies through guidance, financial assistance, and technical assistance. SGMA empowers local agencies to form Groundwater Sustainability Agencies to manage basins sustainably, and requires those Groundwater Sustainability Agencies to adopt Groundwater Sustainability Plans for crucial groundwater basins in California. The Temecula Valley Groundwater Basin (9-005), located downstream of the project site, is considered a very low-priority basin with respect to SGMA (SWRCB 2018b).

California Water Code, Section 12924

The California Department of Water Resources, in conjunction with other public agencies, conducts investigations of the state's groundwater basins. The Department of Water Resources identifies the state's groundwater basins on the basis of geological and hydrologic conditions and with consideration of political boundary lines whenever practical. The Department of Water Resources also investigates existing general patterns of groundwater extraction and groundwater recharge within those basins to the extent necessary to identify basins that are subject to critical conditions of overdraft. The Temecula Valley Groundwater Basin has not been identified as a critically overdrafted basin (California Department of Water Resources 2016).

Regional

Santa Margarita Region Watershed Protection Program

Water quality in the encompassing upper Santa Margarita River Watershed, including in the City, is managed under the Santa Margarita Region Watershed Protection Program. The Riverside County Flood Control and Water Conservation District is the Principal Permittee of the Santa Margarita MS4 Permit (Regional Permit), in accordance

with San Diego RWQCB Order No. R9-2013-0001, as amended by R9-2015-0001 and R9-2015-0100. The area covered by this Regional Permit is referred to as the Santa Margarita Region.

To assist in the design of the development projects within the Santa Margarita Region and ensure compliance with the Regional Permit, the co-permittees have developed and adopted the Water Quality Management Plan for the Santa Margarita Region of Riverside County (San Diego RWQCB 2018a). As stipulated in the Water Quality Management Plan for the Santa Margarita Region of Riverside County, a project-specific water quality management plan (WQMP) is required to be prepared for all development projects within the Santa Margarita Region that meet the Priority Development Project categories and thresholds, as defined in Section F.1.d.(1) of the Regional Permit. Priority Development Projects are defined within the Water Quality Management Plan for the Santa Margarita Region of Riverside County and include new development projects that create 10,000 square feet or more of impervious surfaces. Because the project is a new development project that creates more than 10,000 square feet of impervious surfaces, the project is considered a Priority Development Project and a project-specific WQMP is required.

Per the Regional Permit, and as described in the Water Quality Management Plan for the Santa Margarita Region of Riverside County, a project-specific WQMP is required to manage the discharge of stormwater pollutants from development projects to the "maximum extent practicable" (San Diego RWQCB 2018a). The maximum extent practicable is the standard for control of stormwater pollutants, as set forth by Section 402(p)(3)(iii) of the CWA. However, the CWA does not quantitatively define the term maximum extent practicable. As implemented, maximum extent practicable varies with conditions. In general, to achieve the maximum extent practicable standard, co-permittees must require deployment of whatever BMPs are technically feasible (that is, are likely to be effective) and are not cost prohibitive. To achieve fair and effective implementation, criteria and guidance for those controls must be detailed and specific, while also offering the right amount of flexibility or exceptions for special cases. A project-specific WQMP's compliance with the requirement to achieve the maximum extent practicable standard is documented within the project-specific WQMP through the completion of worksheets that document the feasibility or infeasibility of the deployment of BMPs.

Per the requirements of the Water Quality Management Plan for the Santa Margarita Region of Riverside County, the project's project-specific WQMP is required to address potential water quality impacts from pollutants to the maximum extent practicable by ensuring that the project incorporates low-impact development (LID) principles, LID BMPs, and conventional treatment control BMPs (where LID BMPs are technically infeasible), and by explaining the basis for the determination of each BMP's feasibility.

Water Quality Control Plan for the San Diego Region

The San Diego RWQCB has prepared the Water Quality Control Plan for the San Diego Region (Basin Plan) in accordance with state and federal law, and completed its most recent triennial review in 2018 (San Diego RWQCB 2016, 2018b). The Basin Plan sets forth the regulatory water quality standards for surface water and groundwater within the region. The applicable water quality standards are composed of the designated beneficial use for each water body and the water quality objectives to meet those designated beneficial uses. Where multiple designated beneficial uses exist, water quality standards must protect the most sensitive use. Water quality objectives are typically numeric, although narrative criteria based on biomonitoring methods may be employed where numerical objectives cannot be established or where narrative criteria are needed to supplement numerical objectives. In cases where the Basin Plan does not contain a water quality objective for a particular pollutant, other criteria are used to establish a standard. Other criteria may be applied from SWRCB documents (e.g., the Inland Surface Waters Plan and the Pollutant Policy Document) or from water quality criteria developed under Section 304(a) of the CWA.

Total Maximum Daily Loads

In accordance with the CWA and Porter-Cologne Water Quality Control Act, TMDLs have been developed and incorporated into the Basin Plan for some pollutants identified on the 303(d) list as causing impairment in receiving waters. For other pollutants listed on the 303(d) list, TMDLs are scheduled to be determined, are undergoing determination, or are in the process of review by the SWRCB. No TMDLs have been established for the Santa Margarita River Basin (SWRCB 2018a).

Upper Santa Margarita Integrated Regional Water Management Plan

The upper Santa Margarita River Watershed is also managed in accordance with the Upper Santa Margarita IRWMP. The Upper Santa Margarita IRWMP is a planning and management tool that facilitates efficient use of water resources and the development of effective water conservation measures through a regional- and watershed-based approach. Development of the Upper Santa Margarita IRWMP is a cooperative effort by the Rancho California Water District, Riverside County Flood Control and Water Conservation District, and Riverside County. The intent of the IRWMP is to enable greater watershed-wide coordination and management of water resources within the Santa Margarita Watershed, as well as adjoining watershed and regional planning and funding efforts. Through the Upper Santa Margarita IRWMP, stakeholders collaborate across jurisdictional boundaries to implement water resource management projects. These stakeholders include regional water agencies, flood control districts, counties, cities, and federal/state/local agencies. The Upper Santa Margarita IRWMP also provides opportunities to identify and evaluate information on the present and future needs within the watershed, for consideration in the California Water Plan (City of Murrieta 2011).

Local

City of Murrieta Stormwater Management Plan

To minimize the potential effects of stormwater runoff, the City implements its SWMP to reduce pollutants in urban runoff to the maximum extent practicable. The SWMP identifies methods to reduce potential stormwater runoff and contribution of pollutants to the storm drain system. BMPs for industrial, commercial, and residential sources are identified for consideration and implementation to reduce potential discharges to the maximum extent practicable.

Murrieta Municipal Code

Municipal Code 8.36.140, Jurisdictional Runoff Management Program, requires the city engineer to adopt a specific jurisdictional runoff management program to comply with the NPDES permit and ensure that stormwater pollutant discharges in runoff are reduced to the maximum extent practicable and do not cause or contribute to a violation of water quality standards.

Municipal Code 15.52.160, Erosion and Sediment Control, requires that all grading plans include an erosion and sediment control plan designed to limit erosion and sediment of all disturbed portions of the property and to minimize the transport of soil onto adjacent properties or into streets, storm drains, or drainage ways.

Municipal Code 16.96.030, Application Filing and Department Review, requires that a detailed drainage and flood control report be prepared. Municipal Code 16.98.070, Preliminary Submittal, requires completion of a 100-year flood inundation map and complete hydrology and hydraulic calculations of all flood flows, retention facilities, and storm drains.

City of Murrieta General Plan 2035

The Conservation Element of the City's General Plan sets forth goals, policies, and implementation measures for the protection and management of surface water and groundwater within the boundaries of the City and sphere of influence, as well as the management of stormwater volumes and flows, including the following (City of Murrieta 2011):

Goal CSV-3 A community that participates in a multi-jurisdictional approach to protecting, maintaining, and improving water quality and the overall health of the watershed.

Policy CSV-3.1 Collaborate with partner agencies and other communities to conserve and properly manage surface waters within the City and Sphere of Influence, through protection of the watershed and natural drainage system.

Policy CSV-3.2 Promote storm water management techniques that minimize surface water runoff in public and private developments.

Policy CSV-3.3 Utilize low-impact development (LID) techniques to manage storm water through conservation, on-site filtration, and water recycling, and continue to ensure compliance with the NPDES permit.

Policy CSV-3.4 Encourage the creation of a network of "green" streets that minimize stormwater runoff, using techniques such as on-street bioswales, bio-retention, permeable pavement, or other innovative approaches, as feasible.

Policy CSV-3.5 Seek opportunities to restore natural watershed function as an added benefit, while mitigating environmental impacts.

4.8.3 Thresholds of Significance

The significance criteria used to evaluate the project impacts to hydrology and water quality are based on Appendix G of the CEQA Guidelines. According to Appendix G of the CEQA Guidelines, a significant impact related to hydrology and water quality would occur if the project would:

1. Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality.
2. Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin.
3. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces in a manner which would:
   i. Result in substantial erosion or siltation on or off site;
   ii. Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off site;
   iii. Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or
   iv. Impede or redirect flood flows.

4. In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation.
5. Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

Thresholds 3(iv) and 4 were analyzed in the Initial Study and were not carried forward for further analysis in this EIR because the project site is not in a flood hazard, tsunami, or seiche zone or susceptible to substantial inundation.

4.8.4 Impacts Analysis

Would the project violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?

Construction

Less-than-Significant Impact. Project construction would involve the use of heavy machinery on site, including bulldozers, front loaders, track hoes, trenchers, semi-trucks, and various other large equipment, which would be used for site preparation and construction activities. The project site has been subject to extensive grading and therefore has exposed soil/bedrock and very limited vegetation. Excavations and grading for the project would result in disturbance of existing sediments, such that erosion could be exacerbated during precipitation events. In addition, construction and related activities could result in the incidental, minor release of oils, grease, antifreeze, paint washout, cement washout, and other potential water quality pollutants. During a storm event, these pollutants could also become entrained in stormwater and be released into natural waterways, causing water quality degradation in receiving waters. This could have an adverse impact on water quality.

Because the project would involve construction within an area that is larger than 1 acre, the project applicants would be required to apply for and receive coverage under the current General Construction Permit. As discussed in Section 4.8.2, acquisition of coverage under the General Construction Permit would require adherence to a variety of conditions designed to protect receiving water quality from degradation that could otherwise result from construction activities, as specified in a project-specific SWPPP. Conditions would include adherence to sediment and stormwater pollutant control BMPs, effluent monitoring and compliance, post-construction period requirements, worker training, and various other measures designed to minimize potential for sediment and construction-related pollutants to degrade stormwater quality downstream.

In addition to requirements of the General Construction Permit, the project would be required to adhere to relevant construction stormwater practices required under the City Municipal Code, including the Jurisdictional Runoff Management Program and Erosion/Sediment Control requirements. Stormwater BMPs would include those recommended by the California Stormwater Quality Association, such as scheduling or limiting activities to certain times of the year, installing sediment barriers (e.g., silt fences and fiber rolls), maintaining equipment and vehicles used for construction, tracking controls such as stabilizing entrances to the construction site, and developing and implementing a spill prevention and cleanup plan. Non-stormwater management BMPs would include installing specific discharge controls during activities such as paving operations, vehicle and equipment washing, and fueling. BMPs that relate to the handling of hazardous materials, spill prevention and clean up, and the handling of contaminated soil could include minimizing the storage of hazardous materials on site, providing training on spill prevention and clean up, and ensuring proper handling procedures for contaminated soils (California Stormwater Quality Association 2003). Compliance with existing regulations and implementation of an SWPPP would prevent violation of water quality standards and minimize the potential for contributing sources of polluted runoff. Therefore, impacts to water quality and waste discharge from construction activities associated with the project would be less than significant.

Operation

Less-than-Significant Impact. Operation of the project would not result in the violation of any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality, as discussed in detail below.

Groundwater Quality

The project site is underlain by relatively impermeable granitic bedrock (Appendices E-1 and E-2); therefore, stormwater infiltration is limited at the site. Due to the layer of relatively impermeable granitic bedrock underlying the site, and the fact that the project does not involve a groundwater recharge component, the project would have no impact on groundwater quality.

Waste Discharge Requirements

Development projects that have the potential to violate waste discharge requirements are typically industrial in nature and generate wastewater flows that may contain pollutants that could affect the quality of receiving waters that receive those discharges. Examples of projects for which waste discharge requirements are an important consideration include mining projects, oil and gas projects, and projects that involve chemical processing. The project involves the development of a retail center, and thus, would not involve the discharge of waste flows into receiving waters. As discussed in detail in Section 4.15, Utilities and Service Systems, the project would only generate municipal wastewater flows that would be typical of other wastewater flows generated within the City, and all wastewater flows would be collected via the project's interior plumbing systems and discharged into the local sewer system for treatment at the regional water reclamation facility. The project would not generate any wastewater streams that would require specialized treatment processes, and the project's future wastewater treatment provider (i.e., Eastern Municipal Water District) has indicated that it has the capacity and capability to treat all project-generated wastewater at its regional wastewater treatment plants to a standard that is consistent with the water quality requirements imposed upon it by the San Diego RWQCB and EPA. For additional detail about project-generated wastewater and its treatment, see Section 4.15.

Surface Water Quality

A project could have a significant impact with respect to surface water quality if a project were to contribute pollutants to downstream receiving waters and the addition of those pollutants were to cause water quality objectives within the San Diego RWQCB Basin Plan to be violated, or if the addition of those pollutants were to cause the loss or impairment of beneficial uses. A project may contribute pollutants to downstream receiving waters through a variety of vectors, such as directly discharging pollutants into receiving waters, or by indirectly allowing stormwater runoff, which can collect and carry pollutants, to flow into receiving waters. As previously discussed, the project would not directly discharge wastewater into receiving waters and would therefore not directly result in a water quality violation or cause the loss or impairment of beneficial uses. With the occurrence of rain events, the project would generate stormwater runoff that would be routed through the City's stormwater system and ultimately into Warm Springs Creek, Murrieta Creek, and the Santa Margarita River. With the generation of stormwater and its discharge into receiving waters, the project has the potential to allow for pollutants to be collected within the project site and carried toward receiving waters, which could potentially indirectly result in a water quality violation or loss or impairment of beneficial uses.

To ensure that development projects do not contribute pollutants via stormwater runoff to receiving waters, projects in the Santa Margarita Water Region are required to prepare a project-specific WQMP in accordance with the requirements of Section F.1.d.(1) of the Regional Permit for the Santa Margarita Region. Project-specific WQMPs are required to manage and treat the discharge of stormwater pollutants from development projects to the maximum extent practicable. The Regional Permit and the CWA do not quantitatively define the term maximum extent practicable, nor do they establish quantitative criteria by which a project's efforts to manage and treat stormwater may be evaluated. Rather, the CWA and Regional Permit qualitatively define the maximum extent practicable standard that requires projects to deploy whatever BMPs are technically feasible (i.e., are likely to be effective) and not cost prohibitive (San Diego RWQCB 2018a). A project-specific WQMP's compliance with the requirement to achieve the maximum extent practicable standard is documented within the project-specific WQMP through the completion of worksheets and studies that document the feasibility or infeasibility of deployment of BMPs.

In accordance with the requirements of the Regional Permit, two project-specific preliminary WQMPs have been prepared for the project: one report for the western Costco portion of the site and one report for the eastern Vineyard II portion of the site (Appendices G-3 and G-4). As discussed in the project-specific WQMPs, the project would deploy a number of BMPs that would meet the maximum extent practicable standard, as discussed in detail below.

Costco Portion of Site

Based on the WQMP for the western, Costco portion of the project site, stormwater will be managed and treated through a mixture of strategies, including self-mitigating drainage management areas, hydromodification, and the use of low-impact development BMPs.

The project site is underlain by dense, generally impermeable bedrock; therefore, soil infiltration would be limited in effectiveness and is therefore not deployed as a strategy to manage and treat stormwater. On-site percolation tests indicate infiltration rates ranging from 0.13 to 0.38 inches per hour, which is both below and above the generally accepted minimum infiltration rate of 0.3 inches per hour (Appendix G-1).

To compensate for the lack of natural infiltration, the project design would utilize biofiltration and self-mitigating drainage management areas, where feasible, as hydromodification tools. Self-mitigating drainage management areas consist of cut slopes and landscaped perimeter slopes that would be isolated and planted per the requirements of self-mitigation. For impervious pavement, the project would grade select areas into landscaped BMPs, consisting of bioretention areas located around the perimeter of the parking lot and BMP bioretention planters located within the parking lot. The larger perimeter bioretention BMP basins would treat and meet hydromodification requirements, including a 36-inch layer of biofiltration soil media, a 12- to 18-inch layer of gravel, and an underlying perforated subdrain that would flow into the storm drain system. Within the parking lot, areas would be graded to flow into parking lot bioretention planter islands to be located throughout the project site. For planter islands and other areas where bioretention alone is too small to meet hydromodification requirements, underground stormwater tanks would be utilized to supplement storage and serve as low-impact development BMPs. The treatment control BMPs have been designed to remove greater than 80% of the priority pollutants, including bacteria, metals, organic compounds, sediment, trash, and oil/grease, which is considered to be a removal efficiency of high effectiveness (Appendix G-3).[1]

[1] The 80% effectiveness threshold is a threshold used to evaluate the effectiveness of proprietary treatment mechanisms to treat potential pollutants in runoff (San Diego RWQCB 2018a).

The street runoff in Warm Springs Parkway (east of the Costco portion of the project site) would be treated using tree wells. The proposed gas station would be covered, and roof runoff would be collected and conveyed into bioretention areas for treatment and hydromodification. Under the gas station canopy, the area would be isolated by concrete ditches that, in case of an accidental spill, would collect and convey spills into an oil–water separator. Gasoline spill kits would be included in the gasoline dispensing area for personnel to utilize as necessary (Appendix G-3).

The strategy for roof areas, including the main building and food court, would be to convey water to proprietary biofiltration units (modular wetlands units) for treatment and collection to underground tanks for hydromodification. This strategy would be implemented because roof drains tie in 3 feet below ground and are too deep to daylight to surface biofiltration planters. The proposed refuse trash area would be covered (Appendix G-3).

Vineyard II Portion of Site

Similar to the Costco portion of the project site, the eastern, Vineyard II portion of the project site is underlain by dense, generally impermeable bedrock; therefore, soil infiltration would be limited in effectiveness. Based on the WQMP completed for this portion of the project site, at 100% buildout, the site would be approximately 80% impervious. When brought to grade, the site will become much flatter than its natural condition and all impervious areas would successively drain to detention pipe storage and water quality basins, before draining into the public storm drain system that flows beneath the adjacent residential tract to the east. Curb cuts would be placed on site to drain runoff to two on-site bioretention basins, in the southeast and northeast corners of the site, and two tree wells. Bioretention basins would treat and meet hydromodification requirements, including a 24-inch layer of biofiltration soil media, a 36- to 48-inch layer of gravel, and an underlying perforated subdrain that would flow into the storm drain system. The proprietary treatment control BMPs have been designed to remove greater than 80% of the priority pollutants, including bacteria, metals, organic compounds, sediment, trash, and oil/grease (Appendix G-4).

The street runoff in Warm Springs Parkway (east of the Costco portion of the project site) would be treated using tree wells. For Antelope Road, the improvements for the cul de sac utilize the existing asphalt concrete pavement area. The added pavement is a de minimis condition and does not require treatment.

Surface Water Quality Conclusion

Although the effectiveness of the project's BMPs is not easily predictable, the Water Quality Management Plan for the Santa Margarita Region states that that deployment of BMPs has been shown in studies throughout the country to be effective and reliable at treating a wide range of pollutants that can be found in runoff (San Diego RWQCB 2018a). As such, if deployed to the maximum extent practicable as demonstrated in a project-specific WQMP, the Water Quality Management Plan for the Santa Margarita Region states that BMPs are expected to treat discharges of urban-sourced pollutants from priority development projects with a high level of effectiveness, such that the runoff discharges from the priority development projects should not cause or contribute to an exceedance of receiving water quality objectives or the loss or impairment of beneficial uses. As demonstrated within the project-specific WQMPs, the project has been designed to include the appropriate selection of BMPs that would satisfy the requirements of a project-specific WQMP per the Regional Permit. Furthermore, the project's project-specific WQMPs will be submitted to the City's Engineering Department for review prior to issuance of grading permits. Implementation of the strategies identified in the two project-specific WQMPs would ensure that potential impacts to surface water quality resulting from stormwater runoff are less than significant.

Operational Impacts Conclusion

The project would collect waste through an indoor plumbing system and discharge it to the existing sewer treatment system and would not generate any wastewater streams that would require specialized treatment processes. Eastern Municipal Water District has indicated that it has the capacity and capability to treat all project-generated wastewater at its regional wastewater treatment plants to a standard that is consistent with the water quality requirements imposed upon it by the San Diego RWQCB and EPA. For additional detail about project-generated wastewater and its treatment, see Section 4.15.

Project grading and construction would be completed in accordance with an NPDES-mandated SWPPP, which would include standard BMPs to reduce potential off-site water quality impacts related to erosion and incidental spills of petroleum products and hazardous substances from equipment. Surface water runoff during project operations would be managed through a mixture of strategies, including self-mitigating drainage management areas, hydromodification, and low-impact development BMPs, such as bioretention basins, tree wells, planter boxes, underground detention basins, and spill interceptor trenches. These features are designed to remove priority pollutants from on-site runoff prior to discharge into the storm drain system to the maximum extent feasible, as demonstrated within the project-specific WQMPs. Therefore, the project would not violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality and water quality impacts would be less than significant.

Would the project substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?

Less-than-Significant Impact. The project site is underlain by relatively impermeable granitic bedrock with no appreciable quantities of groundwater. As a result, local groundwater would not be used for the project. The nearest groundwater basin is located in downstream alluvial sediments of the Murrieta–Temecula Groundwater Basin. Water would be provided to the project by the Eastern Municipal Water District, which utilizes a combination of imported water, groundwater, and recycled water as water sources. As a result, impacts would be less than significant. See Section 4.15 regarding availability of water for the project.

Because the project site is underlain by granitic bedrock that is not an area of groundwater recharge, the project would not interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table. Thus, impacts would be **less than significant**.

Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces in a manner which would (i) result in substantial erosion or siltation on- or off-site; (ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off site; or (iii) create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?

Erosion or Siltation

Less-than-Significant Impact. The project site overlies portions of two partially excavated hills, with drainage generally flowing to the northwest and southeast. Existing off-site stormwater runoff occurs toward three locations, denoted as POC-A, POC-B, and POC-C in Figure 4.8-1. Precise grading would result in a series of building pads with intervening south-, east-, and southeast-facing slopes. The northern property boundary would consist of a south-

facing cut slope. The controlled drainages, as described earlier in this section with respect to water quality, would change the internal drainage patterns of the site. However, stormwater would continue to flow off site toward existing storm drains located at POC-A, POC-B, and POC-C. Runoff from the southwest portion of the project site would flow toward off-site location POC-A, where runoff is collected via catch basins and conveyed west into Interstate 215. A portion of the runoff from the cut slope along the northern site boundary would flow east and then north toward a storm drain at off-site location POC-C, and runoff from the remaining project area would flow southeast toward a storm drain located at an off-site location POC-B (Appendix G-1).

The proposed drainages have been designed such that no substantial erosion and associated off-site siltation would occur. Hydromodification calculations were performed to determine the flow duration for the flow rates that cause erosive conditions. As previously described in this section with respect to water quality, bioretention basins and other low-impact development BMPs are proposed as part of the project. The basins were designed with low-flow thresholds in order to meet peak flow frequency and flow duration controls. The resulting mitigated outflows associated with design storm scenarios (i.e., theoretical storm scenarios used to evaluate the effectiveness of a storm drain system; a design storm is the rainfall amount and distribution in space and time, used to determine a design flood or design peak discharge) would be equal to or less than the pre-developed outflows, or within the 10% tolerance (Appendix G-3; Appendix G-4). As a result, the project would not substantially alter the existing drainage pattern of the site, such that substantial erosion or siltation on or off site would occur. Additionally, as discussed in Section 4.5, Geology and Soils, the project would implement an SWPPP during construction, which would involve adherence to sediment and stormwater pollutant control BMPS, effluent monitoring and compliance, post-construction-period requirements, worker training, and various other measures designed to minimize potential for soil erosion and loss of top soil. Thus, the project would not result in substantial erosion or siltation on or off site and impacts would be less than significant.

Surface Runoff and Stormwater System Capacity

Less-than-Significant Impact. As previously discussed, proposed controlled drainages would change the internal drainage patterns of the site. The site would be graded such that there would be large building pads with relatively small, intervening south-, east-, and southeast-facing slopes. The proposed grading patterns and drainage facilities would match the existing drainage patterns to the maximum extent practical. The on-site drainage would be collected and treated via a combination of on-site biofiltration basins with retention and partial infiltration biofiltration units with storm drain retention tanks. The project proposes the construction of on- and off-site storm drain pipes to convey runoff to POCs A, B, and C. Based on project-specific drainage analyses, the project would result in a decrease of unmitigated 100-year runoff flow rates compared to pre-developed conditions (i.e., conditions before the mass grading operation began) for both the western, Costco portion of the project, and the eastern, Vineyard II portion of the project (Appendices G-1 and G-2). The unmitigated conditions do not account for project design features, including the bioretention basins and retention storm drain tanks provided for hydromodification. This unmitigated reduction in runoff can be attributed to the fact that the project lies on two hills with peaks over 100 feet above adjacent street grades, and the post-developed conditions would effectively level the site to adjacent street grades.

The proposed biofiltration features would further attenuate flows associated with 10-year storm events and have additional stormwater storage for 100-year attenuation, as necessary. On-site biofiltration basins with partial retention and partial infiltration are designed to serve dual purposes for water quality and hydromodification requirements. Storm drainage storage tanks throughout the site supplement biofiltration-only units, are designed to meet hydromodification requirements to attenuate 10-year storm events, and have additional available storage for 100-year attenuation, as necessary. Because the project, by way of the design of the on-site stormwater system,

would result in post-development 100-year peak flows rates that would be below or effectively equal to pre-development conditions (Appendix G-1; Appendix G-2), it follows that the project would not contribute additional stormwater that would exceed the capacity of existing or planned stormwater drainage systems. Therefore, although the project would substantially alter the existing drainage pattern of the site, the project would not substantially increase the rate or amount of surface runoff in a manner that would result in flooding on or off site. Additionally, the project's project-specific WQMPs address the requirements for water quality, as discussed in the section above. Accordingly, the project would not result in substantial additional sources of polluted runoff, would not substantially increase the rate or amount of surface runoff in a manner that would result in flooding on or off site, and would not create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff. Thus, impacts would be less than significant.

Would the project conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

Less-than-Significant Impact. As previously discussed, during construction and operation the project would comply with applicable water quality regulatory requirements, including implementation of a SWPPP, stormwater BMPs, and low-impact development design, which would minimize potential off-site surface water quality impacts and contribute to a reduction in water quality impacts within the overall Santa Margarita Region watersheds. In addition, with compliance with these regulatory requirements, the project would reduce potential water quality impairment of surface waters such that existing and potential beneficial uses of key surface water drainages throughout the jurisdiction of the San Diego RWQCB Basin Plan and Upper Santa Margarita Integrated Regional Water Management Plan would not be adversely impacted. As a result, the project would not conflict with or obstruct the San Diego RWQCB Basin Plan.

With respect to groundwater management, the Temecula Valley Groundwater Basin has not been identified as a critically overdrafted basin and is considered a very low-priority basin with respect to SGMA. As a result, the project would not conflict with or obstruct this sustainable groundwater management plan. Impacts are considered less than significant, and no mitigation measures are required.

No other adverse water quality impacts would occur in association with the project. Thus, impacts would be less than significant.

4.8.5 Mitigation Measures

No mitigation measures are required.

4.8.6 Level of Significance After Mitigation

The project would not result in significant impacts, and no mitigation measures are necessary.

4.8.7 Cumulative Impacts

Water Quality

The geographic context for the analysis of cumulative impacts associated with water quality is the encompassing Santa Margarita River Watershed. The analysis accounts for projects provided in Table 4-1, Cumulative Projects, in Chapter 4, Environmental Analysis. Cumulative development in the watershed could add new sources of stormwater runoff. Construction activities associated with development could temporarily increase the amount of exposed surfaces that could contribute to sediments in stormwater runoff. Additionally, materials associated with construction activities could be deposited on surfaces and carried to receiving waters in stormwater runoff.

Continued development and redevelopment within the Santa Margarita River Watershed could also increase the amount of impervious surfaces that could increase stormwater runoff rates and amounts, as well as changes in land use that may increase the amount of pollutants in stormwater runoff. However, all cumulative development in the watershed would be subject to the existing regulatory requirements to protect water quality and minimize increases in stormwater runoff during construction and operation. For example, the Construction General Permit requires development and implementation of a SWPPP for all construction sites larger than 1 acre to mitigate potential impacts to water quality from polluted stormwater runoff. Additionally, because the City is a co-permittee of the Regional MS4 Permit, new development would be required to prepare a project-specific WQMP to mitigate operational impacts to water quality.

Every 2 years, the San Diego RWQCB must re-evaluate water quality within its geographic region and identify those water bodies not meeting water quality standards. For those impaired water bodies, a TMDL must be prepared and implemented to reduce pollutant loads to levels that would not contribute to a violation of water quality standards. All development within the Santa Margarita River Watershed is subject to the water quality standards outlined in the Basin Plan and must comply with any established TMDLs. The continuing review process would ensure that cumulative development within the watershed would not substantially degrade water quality.

As discussed in detail in Section 4.15, wastewater treated by cumulative development would be treated by the applicable future wastewater treatment provider to a standard that is consistent with the water quality requirements imposed upon it by the San Diego RWQCB and EPA prior to discharge into the Santa Margarita River Watershed. The project would generate a wastewater stream that is similar to other wastewater streams generated throughout the Santa Margarita River Watershed region. As discussed in detail in Section 4.15, the project's future wastewater treatment provider (i.e., Eastern Municipal Water District) has indicated that it has the capacity and capability to treat all project-generated wastewater at its regional wastewater treatment plants. Given the excess capacity available at Eastern Municipal Water District wastewater treatment plants (see Section 4.15), the project would not combine with other cumulative development to result in a scenario where wastewater treatment providers could not treat wastewater to applicable standards.

Because the project site is underlain by granitic bedrock that is not an area of groundwater recharge, the project would not interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table. It follows that the project would not combine with other cumulative development to result in a cumulatively considerable impact to groundwater quality.

In addition, other projects in the City would be subject to the City Municipal Code requirements and City's SWMP, and other projects in the Santa Margarita River Watershed would be subject to provisions, goals, and requirements of the Santa Margarita Region Watershed Protection Program and the Upper Santa Margarita IRWMP. Therefore,

impacts associated with water quality standards and polluted runoff in the watershed would be minimized, and the project's contribution to cumulative impacts would not be cumulatively considerable.

Stormwater Drainage

The geographic context for the analysis of cumulative impacts related to storm drainage is the Santa Margarita River Watershed. Cumulative development within the watershed could potentially increase the amount of impervious surfaces that could cause or contribute to storm drain and creek bed capacity exceedance, alter existing creek bed profiles (i.e., create erosive downcutting and bank failure), and/or require construction of new or expanded flood control infrastructure. However, as the project decreases flows from the project site into the watershed as compared with the pre-development condition of the site, the project would not contribute to such exceedances and therefore impacts would not be cumulative considerable. New development within the watershed would be subject to the environmental review process and compliance with local stormwater regulations, such as the Construction General Permit, Section 1602 of the California Fish and Game Code, the Section 404 permit process of the CWA, local municipal code requirements, and local Water Quality Management Plan requirements. Similar to the project, other projects in the Santa Margarita River Watershed would incorporate hydromodification features such that drainage rates and volumes would be less than or equal to existing conditions. Therefore, impacts associated with changes in runoff in the watershed would be minimized, and the project's contribution to cumulative impacts would not be cumulatively considerable.

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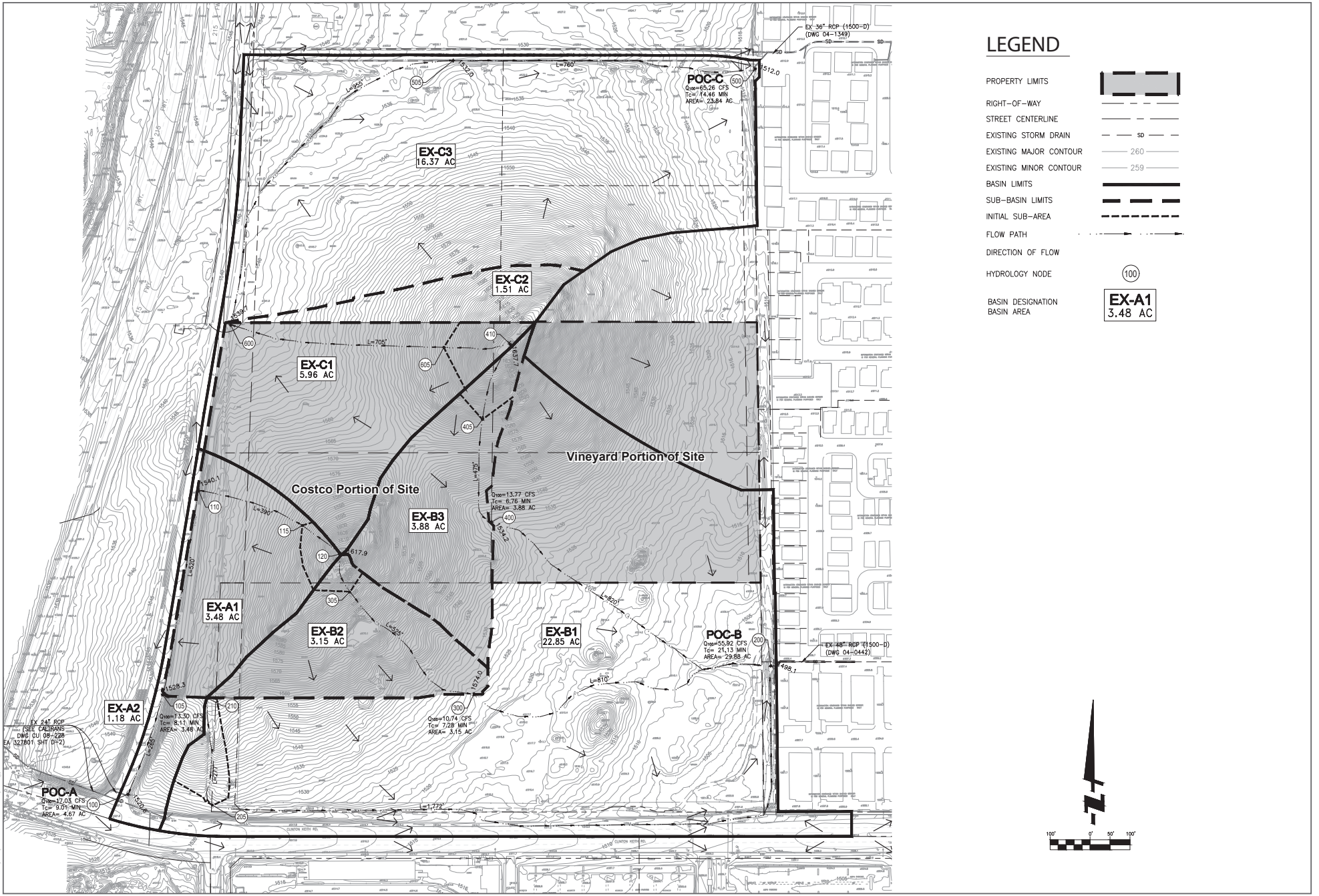
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SOURCE: Fuscoe Engineering 2018a; Excel Engineering 2018a

DUDEK

FIGURE 4.8-1

Existing Site Drainage

Costco/Vineyard Phase II Retail Development Project, City of Murrieta, California

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4.9 Noise

This section describes the existing noise setting of the project site, identifies associated regulatory requirements, evaluates potential impacts, and identifies mitigation measures related to implementation of the proposed Costco/Vineyard II Retail Development Project (project).

4.9.1 Existing Conditions

Noise and Vibration Concepts

Sound may be described in terms of level or amplitude (measured in decibels [dB]), frequency or pitch (measured in hertz, or cycles per second), and duration (measured in seconds or minutes). The standard unit of measurement of the amplitude of sound is the decibel. Because the human ear is not equally sensitive to sound at all frequencies, a special frequency-dependent rating scale is used to relate noise to human sensitivity. The A-weighted decibel scale (dBA) performs this compensation by discriminating against low and very high frequencies in a manner approximating the sensitivity of the human ear.

Noise is defined as unwanted sound and is known to have several adverse effects on people, including hearing loss, speech interference, sleep interference, physiological responses, and annoyance. Based on these known adverse effects of noise, the federal government, the State of California, and local agencies have established criteria to protect public health and safety, to prevent disruption of certain human activities, and to minimize annoyance.

Several descriptors of noise (noise metrics) exist to help predict average community reactions to the adverse effects of environmental noise, including traffic-generated noise, on a community. These descriptors include the equivalent noise level over a given period (L_{eq}), the day–night average noise level (L_{dn}), and the community noise equivalent level (CNEL). Each of these descriptors uses units of dBA.

L_{eq} is a sound energy level averaged over a specified time period (usually 1 hour). L_{eq} is a single numerical value that represents the amount of variable sound energy received by a receptor during a time interval. For example, a 1-hour L_{eq} measurement would represent the average amount of energy contained in all the noise that occurred in that 1 hour. L_{eq} is an effective noise descriptor because of its ability to assess the total time-varying effects of noise on sensitive receptors. L_{max} is the greatest sound level measured during a designated time interval or event.

Unlike the L_{eq} metric, L_{dn} and CNEL metrics always represent 24-hour periods. L_{dn} and CNEL also differ from L_{eq} because they apply a time-weighted factor designed to emphasize noise events that occur during the evening and nighttime hours (when speech and sleep disturbance is of more concern). “Time weighted” refers to the fact that L_{dn} and CNEL penalize noise that occurs during certain sensitive periods. In the case of CNEL, noise occurring during the daytime (7:00 a.m.–7:00 p.m.) receives no penalty. Noise during the evening (7:00 p.m.–10:00 p.m.) is penalized by adding 5 dB, and nighttime (10:00 p.m.–7:00 a.m.) noise is penalized by adding 10 dB. L_{dn} differs from CNEL in that the daytime period is defined as 7:00 a.m.–10:00 p.m., thus eliminating the evening period. L_{dn} and CNEL are the predominant criteria used to measure roadway noise affecting residential receptors. These two metrics generally differ from one another by no more than 0.5 to 1 dB; for that reason, the L_{dn} and CNEL noise metrics are often considered functionally equivalent to one another for most purposes.

Table 4.9-1 represents some typical noise levels found in the existing environment. Noise-sensitive uses near the project site include residential uses and a school (Vista Murrieta High School).

Table 4.9-1. Typical Sound Levels in the Environment and Industry

Common Outdoor Activities	Noise Level (dB)	Common Indoor Activities
—	110	Rock band
Jet flyover at 300 meters (1,000 feet)	100	—
Gas lawn mower at 1 meter (3 feet)	90	—
Diesel truck at 15 meters (50 feet), at 80 kph (50 mph)	80	Food blender at 1 meter (3 feet) Garbage disposal at 1 meter (3 feet)
Noisy urban area, daytime gas lawn mower at 30 meters (100 feet)	70	Vacuum cleaner at 3 meters (10 feet)
Commercial area Heavy traffic at 90 meters (300 feet)	60	Normal speech at 1 meter (3 feet)
Quiet urban daytime	50	Large business office Dishwasher, next room
Quiet urban nighttime	40	Theater, large conference room (background)
Quiet suburban nighttime	30	Library
Quiet rural night time	20	Bedroom at night, concert hall (background)
—	10	Broadcast/recording studio
Lowest threshold of human hearing	0	Lowest threshold of human hearing

Source: Caltrans 2013a.
Note: kph = kilometers per hour; mph = miles per hour.

There are three conceptual components to noise: the source; the transmission path; and the receiver. Noise can be reduced by reducing noise at its source; by lengthening or interrupting the transmission path through diversion, absorption, or dissipation; or by protecting the receiver through noise insulation. The most efficient and effective means of abating noise is to reduce noise at its source. Source noise can be controlled through regulation, such as restrictions outlined in noise ordinances, muffling techniques, or sound proofing. The transmission path can be interrupted through creation of a buffer between the source and the receiver, such as a noise wall, earth embankment, or a building. The receiver can be protected from noise impacts through insulation, building orientation, or shielded areas.

Noise sources can be classified in two forms: point sources, such as individual pieces of stationary or mobile equipment (pumps, heavy construction equipment); and line sources, such as a roadway with a large number of pass-by sources (motor vehicles). Sound generated by a point source typically diminishes (attenuates) at a rate of 6 dB for each doubling of distance from the source to the receptor. For example, a 60 dBA noise level measured at 50 feet from a point source would be 54 dBA at 100 feet from the source and 48 dBA at 200 feet from the source. Sound generated by a line source typically attenuates at a rate of 3 dB and 4.5 dB per doubling of distance from the source to the receptor for hard and soft sites, respectively. Typical sound levels generated by various activities are listed in Table 4.9-1.

Sound levels can also be attenuated by built or natural barriers. Intervening noise barriers, such as a solid wall or berm, typically reduce noise levels by 5 dB to 10 dB. Structures can also provide noise reduction by insulating interior spaces from outdoor noise. The exterior-to-interior noise attenuation provided by typical California building structures ranges from 15 dB to 25 dB for windows open and closed, respectively. Acoustically designed enclosures and buildings can provide up to approximately 50 dB of noise reduction, depending on the noise abatement treatments.

Vibration tolerance typically depends on the type of structures that are affected. Structural response to vibration is typically evaluated in terms of peak particle velocity (PPV), generally expressed in inches per second (in/sec). PPV is often used since it is related to the stresses that are experienced by the buildings. Various general standards are contained in the International Standards Organization's Standards 3945, 4866, and 7626-1. Limits set by these standards indicate a low probability of structural damage occurring to common structures at a PPV of 2 in/sec. Older (and non-reinforced) masonry structures would have a limit of 0.75 to 1.0 in/sec (Caltrans 2013b). The U.S. Department of Transportation's Federal Transit Administration identifies a vibration damage threshold criterion of 0.20 in/sec for non-engineered timber and masonry buildings (i.e., fragile buildings) or 0.12 in/sec for buildings extremely susceptible to vibration (i.e., fragile historic buildings) (DOT 2018).

Existing Noise Environment

The approximately 26-acre project site is located on a vacant lot and is undergoing an ongoing mass-grading operation (with the associated noise from heavy construction equipment) that is removing the low-lying hills on site. Additionally, the surrounding roadways (Interstate 215, Clinton Keith Road, Whitewood Road) generate traffic noise. Surrounding residential and educational land uses also generate noise that contribute to ambient noise levels in the project area.

A sound level survey was conducted on February 23, 2018, and August 13, 2019, to evaluate existing sound levels and assess potential project noise impacts on the surrounding area. Short-term sound levels were measured at existing noise-sensitive receptors adjacent to the project site, as shown in Figure 4.9-1, Noise Measurement and Modeling Locations. Noise measurements were taken at the multi-family residences south of the project site (ST1), the high school south of the project site (ST2), the multi-family residences east of the project site (ST3), and the single-family residences east of the project site (ST4 and ST5).

Short-term (1 hour or less), attended sound level measurements were taken with a Rion NL-52 Sound Level Meter. This instrument is categorized as Type 1, Precision Grade. The sound measuring instrument used for the survey was set to the "slow" time response and the dBA scale for all noise measurements. To ensure accuracy, the laboratory calibration of the instrument was field checked before and after each measurement period using an acoustical calibrator. The accuracy of the acoustical calibrator is maintained through a program established through the manufacturer and traceable to the National Institute of Standards and Technology. The sound measurement instrument meets the requirements of American National Standards Institute Standard S 1.4-1983 and International Electrotechnical Commission Publications 804 and 651. In all cases, the microphone height was 5 feet above the ground, and the microphone was equipped with a windscreen.

During the field measurements, physical observations of the predominant noise sources were noted. The primary noise source in the project area was vehicle traffic on Clinton Keith Road, located south of the project site. Other secondary noise sounds included noise from heating, ventilation, and air conditioning (HVAC) equipment, distant construction noise, rustling leaves, birds, distant aircraft overflights, and other community noises. The results of the sound level measurements are summarized in Table 4.9-2. As shown in Table 4.9-2, measured noise levels ranged from 41 dBA L_{eq} at ST5 to 56 dBA L_{eq} at ST1 when rounded to whole numbers, as is customary for community noise measurements.

Table 4.9-2. Short-Term Sound-Level Measurement Results

Site ID	Measurement Location	Measurement Period			Noise Sources	Measurement Results (dBA)					
		Date	*Start Time (a.m.)*	*Duration (minutes)*		L_{eq}	L_{max}	L_{min}	L_{90}	L_{50}	L_{10}
ST1	Multi-family residences south of project site	02-23-18	10:56	10	Traffic, birds, rustling leaves	55.6	71.3	46.3	48.9	52	55.4
ST2	Vista Murrieta High School, south of project site	02-23-18	9:56	15	HVAC, pool pumps, distant traffic, birds, distant aircraft, distant construction noise	55	65.1	46.8	49.2	52	58.4
ST3	Multi-family residential east of project site	02-23-18	10:18	10	Traffic, birds, rustling leaves	54.3	65.8	44.2	47.3	52.6	57.8
ST4	Single-family residential east of project site	02-23-18	10:39	10	Construction noise, birds, distant aircraft, rustling leaves	52.1	63.6	43.9	45.4	48.2	55.9
ST5	Single-family residential east of project site	08-13-19	10:34	15	Construction noise, birds, distant aircraft, distant traffic	40.6	49.7	37.5	38.7	40.1	42.1

Note: L_{eq} = equivalent continuous sound level (energy-averaged sound level); L_{max} = maximum sound level during the measurement interval; L_{min} = minimum sound level during the measurement interval; L_{90} = sound level exceeded for 90% of the measurement period; L_{50} = sound level exceeded for 50% of the measurement period; L_{10} = sound level exceeded for 10% of the measurement period; HVAC = heating, ventilation, and air conditioning.

4.9.2 Relevant Plans, Policies, and Ordinances

Federal

Noise Control Act

The Noise Control Act of 1972 recognized the role of the federal government in dealing with major commercial noise sources that require uniform treatment. Since Congress has the authority to regulate interstate and foreign commerce, regulation of noise generated by such commerce also falls under congressional authority. The federal government specifically preempts local control of noise from aircraft, railroads, and interstate highways. The U.S. Environmental Protection Agency has identified acceptable noise levels for various land uses to protect the public, with an adequate margin of safety, and to establish noise emissions standards for interstate commerce.

The Department of Housing and Urban Development's standards define day-night average sound levels (L_{dn}) at below 65 dBA for outdoors as acceptable for residential areas. Outdoor levels up to 75 dBA L_{dn} may be made acceptable through the use of insulation in buildings (HUD 2009).

State

California Code of Regulations, Title 24, Noise Insulation Standards

The pertinent California noise regulations are contained in the California Code of Regulations. Title 24, Noise Insulation Standards, establishes the acceptable interior environmental noise level for multi-family dwellings at 45 dBA L_{dn}. This may be extended by local legislative action to include single-family dwellings.

California Code of Regulations, Section 65302(f)

California Code of Regulations, Section 65302(f), requires local land use planning jurisdictions to prepare a general plan. The noise element is a mandatory component of general plans. It may include general community noise guidelines developed by the California Health and Human Services Agency and specific planning guidelines for noise/land use compatibility developed by the local jurisdiction. The state guidelines also recommend that the local jurisdiction consider adopting a local noise control ordinance. The California Health and Human Services Agency developed guidelines (OPR 2003) for community noise acceptability for use by local agencies. Selected relevant levels are as follows (OPR 2003):

- CNEL below 60 dBA – normally acceptable for low-density residential use
- CNEL of 55 dBA to 70 dBA – conditionally acceptable for low-density residential use
- CNEL below 65 dBA – normally acceptable for high-density residential use
- CNEL of 60 dBA to 70 dBA – conditionally acceptable for high-density residential use, transient lodging, churches, and educational and medical facilities
- CNEL below 70 dBA – normally acceptable for playgrounds and neighborhood parks

"Normally acceptable" is defined as satisfactory for the specified land use, assuming that normal conventional construction is used in buildings. "Conditionally acceptable" may require some additional noise attenuation or special study. Under most of these land use categories, overlapping ranges of acceptability and unacceptability are presented, leaving some ambiguity in areas where noise levels fall within the overlapping range. Table 4.9-3 presents the complete land use/noise compatibility matrix.

Table 4.9-3. Land Use Compatibility for Community Noise Environments

Land Use Category	Community Noise Exposure (CNEL)			
	Normally Acceptable	*Conditionally Acceptable*	*Normally Unacceptable*	*Clearly Unacceptable*
Residential – Low Density, Single-Family, Duplex, Mobile Homes	50–60	55–70	70–75	75–85
Residential – Multiple Family	50–65	60–70	70–75	70–85
Transient Lodging – Motel, Hotels	50–65	60–70	70–80	80–85
Schools, Libraries, Churches, Hospitals, Nursing Homes	50–70	60–70	70–80	80–85
Auditoriums, Concert Halls, Amphitheaters	N/A	50–70	N/A	65–85
Sports Arenas, Outdoor Spectator Sports	N/A	50–75	N/A	70–85
Playgrounds, Neighborhood Parks	50–70	N/A	67.5–77.5	72.5–85
Golf Courses, Riding Stables, Water Recreation, Cemeteries	50–70	N/A	70–80	80–85
Office Buildings, Business Commercial and Professional	50–70	67.5–77.5	75–85	N/A
Industrial, Manufacturing, Utilities, Agriculture	50–75	70–80	75–85	N/A

Source: OPR 2003.
Notes: CNEL = community noise equivalent level; N/A = not applicable.
Normally Acceptable: Specified land use is satisfactory based on the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements.
Conditionally Acceptable: New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features have been included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning, will normally suffice.
Normally Unacceptable: New construction or development should be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made, and needed noise-insulation features must be included in the design.
Clearly Unacceptable: New construction or development should generally not be undertaken.

California Occupational Safety and Health Administration Occupational Noise Exposure Regulations

The extensive state regulations pertaining to worker noise exposure are, for the most part, applicable only to the construction phase of any project,[1] or workers in a central plant and/or maintenance facility, or involved in the use of landscape maintenance equipment or heavy machinery.

Local

Murrieta General Plan 2035

The Noise Element of the Murrieta General Plan includes goals and policies associated with the protection of noise-sensitive land uses, development of a comprehensive land use planning and development review process that ensures noise impacts are adequately addressed, minimization of noise from mobile noise sources, and reduction of noise levels from construction activities, as follows (City of Murrieta 2011):

Goal N-1 Noise sensitive land uses that are properly and effectively protected from excessive noise generators.

[1] For example, the California Occupational Safety and Health Administration Occupational Noise Exposure Regulations (8 CCR, General Industrial Safety Orders, Article 105, Control of Noise Exposure, Section 5095, et seq.).

Policy N-1.1 Comply with the Land Use Compatibility for Community Noise Environments [shown herein as Table 4.9-3].

Policy N-1.2 Protect schools, hospitals, libraries, churches, convalescent homes, and other noise sensitive uses from excessive noise levels by incorporating site planning and project design techniques to minimize noise impacts. The use of noise barriers shall be considered after all practical design-related noise measures have been integrated into the project. In cases where sound walls are necessary, they should help create an attractive setting with features such as setbacks, changes in alignment, detail and texture, murals, pedestrian access (if appropriate), and landscaping.

Goal N-4 Reduced noise levels from construction activities.

Policy N-4.5 Allow exceedance of noise standards on a case-by-case basis for special circumstances including emergency situations, special events, and expedited development projects.

City of Murrieta Noise Ordinance

The City's Noise Ordinance (Section 16.30 of the City's Municipal Code) sets interior and exterior noise standards for specific land uses (Sections 16.30.090 and 16.30.100). The City's Noise Ordinance also has general noise regulations (Section 16.30.130) that regulate noise from construction activities. Construction noise deemed to be disturbing is prohibited from 7:00 p.m. to 7:00 a.m. Monday through Friday, or at any time on Sundays or holidays. Construction activities must be conducted in a manner that the maximum noise levels at the affected structures will not exceed those listed in Table 4.9-4.

Table 4.9-4. City of Murrieta Construction Noise Standards

Equipment Type	Single-Family Residential	Multi-Family Residential	Commercial
Mobile Equipment			
Daily, except Sundays and holidays, 7:00 a.m. to 8:00 p.m.	75 dBA	80 dBA	85 dBA
Daily, except Sundays and holidays, 8:00 p.m. to 7:00 a.m.	60 dBA	64 dBA	70 dBA
Stationary Equipment			
Daily, except Sundays and holidays, 7:00 a.m. to 8:00 p.m.	60 dBA	65 dBA	70 dBA
Daily, except Sundays and holidays, 8:00 p.m. to 7:00 a.m.	50 dBA	55 dBA	60 dBA

Source: City of Murrieta 1997.
Note: dBA = A-weighted decibel scale.

Operational noise generated between two properties within the City is regulated by the standards contained in Section 16.30.090 of the City's Noise Ordinance. The City's exterior noise level limits between properties are presented in Table 4.9-5. Pursuant to Section 16.30.090(C), if the location in question is on a boundary property between two zoning districts (as is the case for this project), the exterior noise standard is the arithmetic mean of the exterior noise

levels. For example, the exterior noise standard between the commercial zone of the project site and the residential area to the east would be 50 dBA from 10:00 p.m. to 7:00 a.m., and 55 dBA from 7:00 a.m. to 10:00 p.m.

Table 4.9-5. City of Murrieta Exterior and Interior Noise Limits

Noise Zone	Land Use (Receptor Property)	Time Period	Allowed Noise Level (dBA)
Exterior Noise Limits			
I	Noise-sensitive area	Anytime	45
II	Residential properties	10:00 p.m. to 7:00 a.m.	45
		7:00 a.m. to 10:00 p.m.	50
	Residential properties within 500 feet of a kennel(s)	7:00 a.m. to 10:00 p.m.	70
III	Commercial properties	10:00 p.m. to 7:00 a.m.	55
		7:00 a.m. to 10:00 p.m.	60
IV	Industrial properties	Anytime	70
Interior Noise Limits			
All noise zones	Multi-family residential	10:00 p.m. to 7:00 a.m.	40
		7:00 a.m. to 10:00 p.m.	45

Source: City of Murrieta 1997.
Note: dBA = A-weighted decibel scale.

Vibration Standards

The City's Noise Ordinance Section 16.30.130(K) prohibits the operation of any device that creates vibration above the City's established perception threshold of 0.01 PPV in/sec over the range of 1 to 100 hertz. Typically, the City applies this threshold to both construction and operation, except under certain circumstances, including those listed under Policy N-4.5 of the General Plan Noise Element (listed above). Additionally, Section 16.30.140 (Modification of Standards) within Title 16 (Development Code) of the City's Municipal Code provides the following exception:

Section 16.30.140 Modification of Standards.

> Modifications to the requirements of this chapter may be granted by the director for a period of up to two years, subject to any terms, conditions, or requirements to minimize adverse effects on the surrounding neighborhood reasonable. Modifications may be granted only if one of the following findings can be made:
>
> A. Additional time is necessary for the applicant to alter or modify the activity, operation, or noise source to comply with this chapter: or
>
> B. The activity, operation, or noise source cannot feasibly be done in a manner that would comply with the provisions of this chapter. and no other reasonable alternative is available to the applicant.

4.9.3 Thresholds of Significance

The significance criteria used to evaluate the project impacts related to noise are based on Appendix G of the California Environmental Quality Act (CEQA) Guidelines. According to Appendix G of the CEQA Guidelines, a significant impact related to noise would occur if the project would:

1. Result in generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?
2. Result in exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels.
3. For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

Neither the City's General Plan Noise Element nor the Municipal Code have quantified levels of increase in noise above ambient that are considered "substantial." Some guidance regarding the determination of a substantial permanent increase in ambient noise levels in the project vicinity above existing levels is provided by the 1992 findings of the Federal Interagency Committee on Noise (FICON), which assessed the annoyance effects of changes in ambient noise levels resulting from aircraft operations. The FICON recommendations are based on studies that relate aircraft and traffic noise levels to the percentage of persons highly annoyed by the noise. Annoyance is a qualitative measure of the adverse reaction of people to noise that generates speech interference, sleep disturbance, or interference with the desire for a tranquil environment (FICON 1992).

The rationale for the FICON recommendations is that it is possible to consistently describe the annoyance of people exposed to transportation noise in terms of L_{dn} (and by extension, CNEL). The changes in noise exposure that are shown in Table 4.9-6 are expected to result in equal changes in annoyance at sensitive land uses. Although the FICON recommendations were specifically developed to address aircraft noise impacts, they are used in this analysis to define a substantial increase in community noise levels related to all transportation noise sources.

Table 4.9-6. Measures of Substantial Increase for Community Noise Levels

Ambient Noise Level Without Project (L_{dn})	Significant Impact Assumed to Occur if the Project Increases Ambient Noise Levels by Amount Listed
<60 dBA	+ 5 dB or more
60–65 dBA	+ 3 dB or more
>65 dBA	+ 2 dB or more

Note: L_{dn} = day-night average noise level; dBA = A-weighted decibel scale; dB = decibel.

For stationary operational noise sources related to the proposed project, noise levels exceeding the standards contained in Table 4.9-5 are considered significant. For construction related to the proposed project, noise levels exceeding the standards contained in Table 4.9-4 are considered significant. For groundborne vibration, project-related activities exceeding the City's vibration threshold of perception (0.01 inches per second PPV) are considered potentially significant, with the proviso that this threshold may be exceeded under certain circumstances based upon Policy N-4.5 of the General Plan Noise Element.

4.9.4 Impacts Analysis

Would the project result in generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

Implementation of the proposed project would result in two primary types of potential noise impacts: short-term (i.e., temporary) noise during construction and long-term noise during operation of the project.

Short-Term Construction Noise

Less-than-Significant Impact with Mitigation Incorporated. Construction of the proposed project would occur in phases, including grading, site preparation, building construction, architectural coatings, and paving.

The types of construction equipment that would be used to construct the proposed project would include standard equipment that would be employed for any routine construction project of this scale, such as excavators, graders, trenchers, cranes, rubber-tired bulldozers, generators, and paving equipment. Additionally, rock-crushing would occur on-site and potential rock "popping"[2] may take place, if necessary. Rock popping, if necessary, is anticipated to take place at least 400 feet from the nearest noise-sensitive receivers.[3] Construction equipment with substantially higher noise-generation characteristics (such as pile drivers, rock drills, blasting equipment) would not be necessary for most proposed project components; however, rock blasting is anticipated to be needed for construction of Warm Springs Parkway, and is addressed below.

Construction equipment would typically be operating all over the project site, both near and far from any one location in the project vicinity. The nearest point of construction activities to the closest noise-sensitive receivers (single-family residences located east of the project site) would be approximately 40 feet (during site preparation, grading, and paving of the Vineyard II portion of the project), and the farthest would be approximately 1,500 feet (during some of the Costco portion of the project). Because construction taking place within 40 feet would be temporary and intermittent, and because the site is quite large, the distance from the nearby receivers to the "acoustic center" (the point from which the energy sum of all construction activity noise, near and far, would be centered on an average or typical basis) is utilized. For example, the nearest noise-sensitive receivers are located approximately 150 feet away from what would be the acoustic center of Phase I site preparation of the Vineyard II portion of the project site. Thus, the distance to construction activities for the closest residences would be as near as 40 feet away on a temporary and intermittent basis, but would typically be approximately 150 feet away during Phase I site preparation. For other nearby noise-sensitive land uses (such as the high school and the multi-family residences to the south), the nearest point of construction would be approximately 140 feet from adjacent noise-sensitive receivers, and the typical construction activity distance would range from approximately 420 feet to 1,100 feet, depending on the project phase.

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2 A technique used to break up large boulders. Rock popping differs from conventional blasting techniques in that gun-powder capsules, inserted into drilled holes, are used rather than the ammonium nitrate fuel/oil explosives typically used, resulting in substantially lower noise and groundborne vibration levels. Noise from a rock popping event was measured by Dudek staff on the project site on October 26, 2019. Two separate rock popping events were measured, each from an approximate distance of 75 feet. In order to capture the impulsive nature of the events, the measurement intervals were 1/100 of a second in duration. The resultant rock popping noise levels ranged from approximately 52 to 59 dBA, at 75 feet. These noise levels may in fact have been lower if not for the background noise from the high school marching band practice to the south, which was nearly as loud if not louder than the rock popping noise.

3 Based upon information provided by the property owner, rock popping, if any more is necessary, would not occur any closer than approximately 400 feet from receivers to the south or approximately 1,200 feet from receivers to the east.

The Federal Highway Administration's Roadway Construction Noise Model (FHWA 2008) was used to estimate construction noise levels at these noise-sensitive land uses. Although the model was funded and promulgated by the Federal Highway Administration, the Roadway Construction Noise Model is often used for non-roadway projects, because the same types of construction equipment used for roadway projects are also used for other project types. Input variables for the Roadway Construction Noise Model consist of the receiver/land use type, the equipment type and number of each (e.g., two graders, one loader, one tractor), the duty cycle for each piece of equipment (e.g., percentage of hours the equipment typically works per day), and the distance from the noise-sensitive receiver.

Noise levels from the proposed construction activities are summarized in Table 4.9-7. The complete set of Roadway Construction Noise Model input and output data for construction noise is provided in Appendix B of Appendix H, Noise Analysis Technical Report, of this Environmental Impact Report (EIR). As shown in Table 4.9-7, at the nearest residences, located east of the project site, noise levels would range from approximately 42 to 81 dBA L_{eq} when construction would take place at or near the project boundary. More typical construction noise levels at the residences east of the site would range from approximately 41 to 74 dBA L_{eq}. At the residences and the school south of the project site, noise levels would range from approximately 50 to 77 dBA L_{eq} when construction would take place at or near the project boundary; more typically, noise levels would range from approximately 47 to 70 dBA L_{eq}.

As stated previously, it is anticipated that blasting would be necessary during construction of Warm Springs Parkway. Details regarding the amount of blasting needed or duration of such activities is not known at this time. The purpose for blasting is to sufficiently break the rock in order for it to be excavated and removed. To accomplish this, the blaster drills a pattern of boreholes distributed evenly throughout the rock to be shattered. These boreholes are then filled with a pre-determined amount of explosives. Typically, the explosives are detonated in a sequence (separated by fractions of a second) for optimal breakage. The blaster is required to design the burden, stemming, subdrill, spacing, and timing to minimize excessive vibration, airblast, and fly rock. The blaster must monitor the airblast and vibration for every blasting event (or "shot") at the nearest structure. Seismographs are used to monitor the vibration (ODOT 2002). Based upon prior experience with such projects, blasting is typically limited to one or two shots per day.

Based upon the Roadway Construction Noise Model modeling, noise from blasting is estimated to range from approximately 46 to 51 dBA L_{eq}, with maximum (L_{max}) levels ranging from approximately 66 to 71 dBA at the distances (in feet) indicated in Table 4.9-7. In the context of the overall construction noise levels, the noise from blasting, while differing in character, would be lower than conventional construction.

Table 4.9-7. Construction Noise Modeling Summary Results

Project Phase	Noise-Sensitive Receiver	Nearest or Typical Construction Activity Distance (feet)	L_{eq} (dBA)
Costco			
Site Preparation	Residences to the East of Project Site	Nearest Construction Work (670)	58
		Typical Construction Work (980)	55
	School and Residences to the South of Project Site	Nearest Construction Work (450)	61
		Typical Construction Work (750)	57
Grading	Residences to the East of Project Site	Nearest Construction Work (670)	58
		Typical Construction Work (980)	55
	School and Residences to the South of Project Site	Nearest Construction Work (450)	62
		Typical Construction Work (750)	58

Table 4.9-7. Construction Noise Modeling Summary Results

Project Phase	Noise-Sensitive Receiver	Nearest or Typical Construction Activity Distance (feet)	L_{eq} (dBA)
Building Construction	Residences to the East of Project Site	Nearest Construction Work (1.100)	52
		Typical Construction Work (1,260)	51
	School and Residences to the South of Project Site	Nearest Construction Work (780)	59
		Typical Construction Work (970)	58
Paving	Residences to the East of Project Site	Nearest Construction Work (670)	54
		Typical Construction Work (980)	51
	School and Residences to the South of Project Site	Nearest Construction Work (450)	57
		Typical Construction Work (750)	53
Architectural Coating	Residences to the East of Project Site	Nearest Construction Work (1.100)	42
		Typical Construction Work (1,260)	41
	School and Residences to the South of Project Site	Nearest Construction Work (780)	50
		Typical Construction Work (970)	48
Vineyard II			
Phase I Site Preparation	Residences to the East of Project Site	Nearest Construction Work (40)	80
		Typical Construction Work (150)	70
	School and Residences to the South of Project Site	Nearest Construction Work (140)	75
		Typical Construction Work (420)	66
Phase I Grading and Trenching	Residences to the East of Project Site	Nearest Construction Work (40)	81
		Typical Construction Work (150)	74
	School and Residences to the South of Project Site	Nearest Construction Work (140)	77
		Typical Construction Work (420)	70
Phase I Building Construction	Residences to the East of Project Site	Nearest Construction Work (65)	79
		Typical Construction Work (190)	72
	School and Residences to the South of Project Site	Nearest Construction Work (800)	64
		Typical Construction Work (1,100)	62
Phase I Paving	Residences to the East of Project Site	Nearest Construction Work (40)	74
		Typical Construction Work (150)	64
	School and Residences to the South of Project Site	Nearest Construction Work (140)	69
		Typical Construction Work (420)	60
Phase I Architectural Coating	Residences to the East of Project Site	Nearest Construction Work (65)	66
		Typical Construction Work (190)	57
	School and Residences to the South of Project Site	Nearest Construction Work (800)	50
		Typical Construction Work (1,100)	47
Phase II Precise Grading and	Residences to the East of Project Site	Nearest Construction Work (40)	80
		Typical Construction Work (150)	70
		Nearest Construction Work (140)	76

Table 4.9-7. Construction Noise Modeling Summary Results

Project Phase	Noise-Sensitive Receiver	Nearest or Typical Construction Activity Distance (feet)	L_{eq} (dBA)
Footing Trenching	School and Residences to the South of Project Site	Typical Construction Work (420)	68
Phase II Building Construction	Residences to the East of Project Site	Nearest Construction Work (65)	75
		Typical Construction Work (190)	68
	School and Residences to the South of Project Site	Nearest Construction Work (800)	60
		Typical Construction Work (1,100)	58
Phase II Paving	Residences to the East of Project Site	Nearest Construction Work (40)	78
		Typical Construction Work (150)	68
	School and Residences to the South of Project Site	Nearest Construction Work (140)	73
		Typical Construction Work (420)	64
Phase II Architectural Coating	Residences to the East of Project Site	Nearest Construction Work (65)	66
		Typical Construction Work (190)	57
	School and Residences to the South of Project Site	Nearest Construction Work (800)	50
		Typical Construction Work (1,100)	47
Warm Springs Parkway			
Blasting	Residences to the East of Project Site	Nearest Construction Work (610)	47 (67 dBA L_{max})
		Typical Construction Work (740)	46 (66 dBA L_{max})
	School and Residences to the South of Project Site	Nearest Construction Work (700)	51 (71 dBA L_{max})
		Typical Construction Work (1,090)	47 (67 dBA L_{max})
Grading	Residences to the East of Project Site	Nearest Construction Work (610)	59
		Typical Construction Work (740)	58
	School and Residences to the South of Project Site	Nearest Construction Work (700)	62
		Typical Construction Work (1,090)	59
Paving	Residences to the East of Project Site	Nearest Construction Work (610)	55
		Typical Construction Work (740)	54
	School and Residences to the South of Project Site	Nearest Construction Work (700)	58
		Typical Construction Work (1,090)	55

Note: dBA = A-weighted decibels; L_{eq} = equivalent sound level; L_{max} = maximum sound level.

The estimated construction noise levels indicate that during the relatively brief periods when construction takes place at or near the eastern project boundary, the unmitigated noise levels would exceed the City's daytime construction noise standards for mobile equipment (75 dBA for single-family residences and 80 dBA for multi-family residences). However, with implementation of standard conditions and mitigation measures as required by the City as well as **Mitigation Measure (MM) NOI-1**, **MM-NOI-2**, and **MM-NOI-3** (see Section 4.9-5, Mitigation Measures), this impact would be reduced to less than significant. To control construction noise levels to a level consistent with the City's General Plan Noise Element and Noise Ordinance, the City would require noise reduction measures as conditions of approval for grading and building permits. Some standard policies include limiting the hours of construction activity, locating noisy equipment as far as possible from noise-sensitive receivers, and requiring establishment of a noise complaint/resolution process.

Long-Term Operational Noise Impact

Traffic Noise Impacts

Less-than-Significant Impact. As a result of regional population growth and growth under the proposed project, traffic on local arterial streets is expected to increase relative to current conditions. Potential noise impacts from vehicular traffic were assessed using the Federal Highway Administration's Traffic Noise Model Version 2.5 (FHWA 2004). Data used to model noise from vehicular traffic were derived from the project-specific Traffic Impact Analysis prepared by Kittelson & Associates (2020; Appendix I of this EIR). Information used in the modeling included the following scenarios (for more detailed explanation of these traffic scenarios, please refer to Section 4.13, Transportation, and/or Appendix I:

- Existing
- Existing with Project with Creighton Avenue Access
- Existing with Project without Creighton Avenue Access
- Year 2021 without Project
- Year 2021 Cumulative Conditions with Project with Creighton Avenue Access
- Year 2021 Cumulative Conditions with Project without Creighton Avenue Access
- Year 2035 without Project with Creighton Avenue Access
- Year 2035 without Project without Creighton Avenue Access
- Year 2035 Cumulative Conditions with Project with Creighton Avenue Access
- Year 2035 Cumulative Conditions with Project without Creighton Avenue Access

Each of the above scenarios was modeled using the provided average daily traffic volumes for typical weekdays and for Saturdays.[4] Noise levels were modeled at representative noise-sensitive receivers. The receivers were modeled to be 5 feet above the local ground elevation. Six receptors (ST1 through ST5 and M1) represent existing off-site residences, as shown in Figure 4.9-1.

[4] Traffic data for Saturdays were not provided by the project's traffic consultant for the Year 2035 scenarios because the 2035 scenario was assessed for informational purposes only. As stated in the traffic study and traffic section of this EIR, a long-range analysis is not required per the City's Traffic Impact Analysis Preparation Guide or for CEQA because the project does not propose a zone change. The 2035 analysis was conducted for the weekday PM peak hour to ensure that adequate capacity was provided along Warms Springs Parkway and for information requested by the California Department of Transportation. Therefore, traffic noise on Saturdays for Year 2035 was not modeled.

The information provided from this modeling was compared to the noise impact significance criteria to assess whether project-related traffic noise would cause a significant impact and, if so, where these impacts would occur. The results of the comparisons for the noise-sensitive land uses for the existing conditions are presented in Table 4.9-8. The results of the comparisons for the noise-sensitive land uses for the future year (2021 and 2035) conditions are presented in Tables 4.9-9 and 4.9-10, respectively.

As shown in Table 4.9-8, the Existing-plus-Project traffic noise would generate a noise level increase of 2 dB CNEL or less (rounded to whole numbers) along the studied roads in the vicinity of the project site. Based on the FICON criteria shown in Table 4.9-6, an increase of 2 dB is not considered to be a substantial increase for traffic noise levels of less than 65 dBA CNEL. The additional traffic volumes along the adjacent roads would not result in an exceedance of applicable compatibility standards (i.e., 60 dBA CNEL for low-density residential, 65 dBA CNEL for high-density residential, 70 dBA CNEL for playgrounds and park), nor would project traffic substantially increase the existing noise level in the project vicinity. Similarly, as shown in Table 4.9-9 and Table 4.9-10, the Future-plus-Project traffic noise would generate a noise level increase of 2 dB CNEL or less (rounded to whole numbers), and the additional traffic volumes along the adjacent roads would not result in an exceedance of applicable compatibility standards. Therefore, project-related traffic noise would be less than significant, and no mitigation measures would be required.

Table 4.9-8. Project-Related Traffic Noise: Existing

Modeled Receptor	Existing Weekday (dBA CNEL)	Existing with Project with Creighton Access Weekday (dBA CNEL)	Existing with Project without Creighton Access Weekday (dBA CNEL)	Maximum Increase (with Project vs. Without Project) (dBA)	Existing Saturday (dBA CNEL)	Existing with Project with Creighton Access Saturday (dBA CNEL)	Existing with Project without Creighton Access Saturday (dBA CNEL)	Maximum Increase (with Project vs. Without Project) (dBA)
ST1 – Multi-family residences south of project site, adjacent to Clinton Keith Road	57	58	58	1	56	58	58	2
ST2 – Vista Murrieta High School, south of project sites, adjacent to Clinton Keith Road	57	57	57	0	56	57	57	1
ST3 – Multi-family residential east of project site, adjacent to Clinton Keith Road	59	61	61	2	59	60	61	2
ST4 – Single-family residential east of project site, approximately 500 feet north of Clinton Keith Road	53	53	54	1	52	53	53	1
ST5 – Single-family residential east of project site, approximately 1,100 feet north of Clinton Keith Road	50	50	51	1	50	51	51	1
M1 – Single-family residences east of project site, adjacent to Whitewood Road	57	57	57	0	56	57	57	1

Source: Appendix H
Note: dBA = A-weighted decibels; CNEL = community noise equivalent level.

Table 4.9-9. Project-Related Traffic Noise: Future Year 2021

Modeled Receptor	Year 2021 Weekday without Project (dBA CNEL)	Year 2021 Cumulative Conditions with Project with Creighton Access Weekday (dBA CNEL)	Year 2021 Cumulative Conditions with Project without Creighton Access Weekday (dBA CNEL)	Maximum Increase (with Project vs. Without Project) (dBA)	Year 2021 Saturday without Project (dBA CNEL)	Year 2021 with Project with Creighton Access Saturday (dBA CNEL)	Year 2021 with Project without Creighton Access Saturday (dBA CNEL)	Maximum Increase (with Project vs. Without Project) (dBA)
ST1 – Multi-family residences south of project site, adjacent to Clinton Keith Road	58	59	59	1	58	59	59	1
ST2 – Vista Murrieta High School, south of project sites, adjacent to Clinton Keith Road	58	58	59	1	57	58	59	2
ST3 – Multi-family residential east of project site, adjacent to Clinton Keith Road	61	62	62	1	61	62	62	1
ST4 – Single-family residential east of project site, approximately 500 feet north of Clinton Keith Road	54	55	55	1	54	55	56	2
ST5 – Single-family residential east of project site, approximately 1,100 feet north of Clinton Keith Road	51	52	52	1	51	52	52	1
M1 – Single-family residences east of project site, adjacent to Whitewood Road	58	58	58	0	58	58	58	0

Source: Appendix H.
Note: dBA = A-weighted decibels; CNEL = community noise equivalent level.

Table 4.9-10. Project-Related Traffic Noise: Future Year 2035

Modeled Receptor	Year 2035 with Creighton Access without Project Weekday (dBA CNEL)	Year 2035 Cumulative Conditions with Project with Creighton Access Weekday (dBA CNEL)	Increase (with Project vs. Without Project) (dBA)	Year 2035 without Creighton Access without Project Weekday (dBA CNEL)	Year 2035 Cumulative Conditions with Project without Creighton Access Weekday (dBA CNEL)	Increase (with Project vs. Without Project) (dBA)
ST1 – Multi-family residences south of project site, adjacent to Clinton Keith Road	59	59	0	59	59	0
ST2 – Vista Murrieta High School, south of project sites, adjacent to Clinton Keith Road	58	59	1	58	59	1
ST3 – Multi-family residential east of project site, adjacent to Clinton Keith Road	62	63	1	62	63	1
ST4 – Single-family residential east of project site, approximately 500 feet north of Clinton Keith Road	55	56	1	55	56	1
ST5 – Single-family residential east of project site, approximately 1,100 feet north of Clinton Keith Road	52	52	0	52	52	0
M1 – Single-family residences east of project site, adjacent to Whitewood Road	60	60	0	60	60	0

Source: Appendix H.
Note: dBA = A-weighted decibels; CNEL = community noise equivalent level.

On-Site Mechanical, Delivery, and Parking Lot Noise

Less-than-Significant Impact. Mechanical HVAC equipment associated with the proposed project would have the potential to generate significant noise levels. Based on information provided by the project applicant, the HVAC equipment (consisting of 5- and 10-ton capacity units) would be located on the rooftops of the proposed buildings, and the HVAC equipment would be visually and acoustically shielded by parapet walls. Noise emissions information from the HVAC manufacturer, along with standard acoustical formulas for addition of multiple sources, attenuation with distance, and attenuation from structural shielding, were used to estimate the resulting noise levels at the nearest residences, east of the project site. As shown in Table 4.9-11, the resultant combined noise level with all HVAC units running would be approximately 45 dBA at the nearest noise-sensitive land uses. The noise from HVAC equipment would be below the City's Municipal Code noise standards for the boundary between a commercial zone and a residential zone (55 dBA L_{eq} during daytime hours (7:00 a.m. to 10:00 p.m.) and 50 dBA during nighttime hours (10:00 p.m. to 7:00 a.m.). Noise from HVAC equipment related to the proposed project would be less than significant.

Table 4.9-11. Project-Related Heating, Ventilation, and Air Conditioning Noise

Building Type	HVAC Units		Distance from sensitive receptor (approximate worst-case) (feet)	Resultant Unattenuated Noise Level (dBA L_{eq})	Attenuation from Building and Parapet (dB)	Resultant noise level with Attenuation (dBA L_{eq})
	Quantity	*Capacity (in tons)*				
Fitness Center	16	10	105	60.1	15.8	44.3
Major	8	10	200	51.5	12.9	38.5
Shop	1	5	300	38.9	17.6	21.4
Shops	4	5	500	40.5	17.9	22.6
Fast Food	1	10	600	32.9	14.8	18.2
	1	5	600	32.9	14.8	18.2
Combined noise level at nearest noise-sensitive receivers (worst-case) (dBA L_{eq})						45.4

Source: Appendix H.
Note: HVAC = heating, ventilation, and air conditioning; dBA = A-weighted decibel; L_{eq} = equivalent sound level; dB = decibel.

Noise would occur from retail store deliveries and gas station deliveries. Costco warehouse hours are anticipated to be Monday through Friday from 10:00 a.m. to 8:30 p.m., Saturday from 9:30 a.m. to 6:00 p.m., and Sunday from 10:00 a.m. to 6:00 p.m. The gas station hours are anticipated to be daily from 5:00 a.m. to 10:00 p.m. Costco anticipates an average of approximately 10 trucks delivering goods to the warehouse on a typical weekday. The trucks range in size from 26 feet long for single-axle trailers to 70 feet long for double-axle trailers. Receiving times would vary based on jurisdictional restrictions, but would typically take place in the early morning, with most deliveries completed before the 10:00 a.m. warehouse opening time. Deliveries to the warehouse would be made primarily in Costco trucks from its freight consolidation facility in Mira Loma, California, entering the site from Interstate 215 and exiting at Clinton Keith Road. The Costco warehouse location (in the northwestern portion of the project site) and the delivery area (in the northeasterly corner of the warehouse building) would result in truck delivery activities taking place approximately 800 feet or more from the nearest noise-sensitive receivers; these activities would also be shielded from a direct view by intervening structures (either the Costco warehouse building itself or the Vineyard II buildings).

It is estimated that fuel would be delivered to the gasoline facility via eight to nine trucks per day,[5] as needed. The gas station's proposed location near the northern project boundary, the acoustical shielding provided by proposed on-site structures and existing residential boundary walls, and the relatively large distances (approximately 650 feet or more from the nearest noise-sensitive receivers) would minimize gas-station-related noise.

The Costco warehouse building would include a tire center. The proposed 2,720-square-foot tire center would have five bays and hydraulic lifts where customers could have new tires installed on their vehicles. The tire center would be located approximately 780 feet from the nearest noise-sensitive land uses (the school and residences to the south) and would be physically separated from those residences by Clinton Keith Road and the proposed retail structures to the south, which would likely provide some degree of structural shielding by blocking the direct view (and thus, the direct source–receiver noise path) of the work area.

Noise-generating equipment at the tire center would most likely include tire changers, wheel balancers, air compressors, and various tools. The primary noise sources would be the power and pneumatic tools, as well as noise from hitting and banging car parts such as hubcaps, tires, car hoods, and car doors being closed. The tire center would operate during the same hours as the Costco warehouse retail hours (Monday through Friday from 10:00 a.m. to 8:30 p.m., Saturday from 9:30 a.m. to 6:00 p.m., and Sunday from 10:00 a.m. to 6:00 p.m.). Additionally, it is anticipated that the tire center would receive one to two tire delivery trucks twice a week between the hours of 6:00 a.m. and 9:00 a.m.

Based on a prior noise study conducted at an existing Costco tire center (Giroux & Associates 2015), the noise level during a noisy period (with 5 air guns in intermittent operation) was approximately 53 dBA L_{eq} at a distance of 70 feet directly in front of the open bay doors. Very brief maximum noise levels of approximately 67 dBA L_{max} at 70 feet were measured. All related work would take place within the building, which would have a solid wall with no openings to the residences to the east. However, there would be service bay doors on the south side of the building, and these would likely be open much of the time for ventilation and in order to move the cars in and out of the facility.

The closest residential properties would be approximately 780 feet or more from the tire center. At this distance, the average noise level from the tire center activities would be approximately 32 dBA L_{eq} or less, conservatively neglecting likely shielding from intervening structures. This noise level would be well below the City's noise ordinance standard for residential uses of 50 dBA L_{eq} from 7:00 a.m. to 10:00 p.m. Very brief maximum noise levels of approximately 46 dBA L_{max} at residences are estimated; these would likely not be readily audible, because the existing ambient maximum noise levels are substantially higher (a noise level of 71 dBA L_{max} was measured at ST1, and a noise level of 65 dBA L_{max} was measured at ST2). Similarly, the tire delivery noise, occurring 780 feet or more from nearby noise-sensitive uses, would be negligible.[6] Therefore, noise from auto-related services would be less than significant. No mitigation is required.

For the Vineyard II Retail Development, deliveries would be through the front doors before 10:30 a.m., except at the major retail pad (Building J), which has an enclosed truck door dock to control sound in the rear of the building. Operating hours for the retail development would vary and are subject to the policies of each building occupant; however, operating hours for the retail uses are expected to be 8:30 a.m. to 6:00 p.m. Operating hours for the restaurant uses are expected to be 11:00 a.m. to 10:00 p.m. The fitness center is expected to operate from 6:00 a.m. to 11:00 p.m.

[5] Based upon reference noise levels conducted for a proposed gas station by others (Extant Acoustics 2016), fuel delivery trucks are estimated to create maximum 1-second noise levels of approximately 71 dBA at 50 feet. At the nearest residences, located approximately 650 feet away, the resultant noise level would be approximately 49 dBA, not accounting for acoustical shielding. Thus, noise from this activity (likely the loudest activity associated with the fueling station) would not be loud or intrusive.

[6] A study in the Journal of Environmental Engineering and Landscape Management (Baltrënas et al. 2004) published cargo truck delivery noise levels of 96 dBA (L_{max}) at 1 meter (3.28 feet) from the boundary of the truck activity area. At a distance of 780 feet, the resulting noise level would be approximately 48 dBA L_{max}. Average delivery truck noise levels would be substantially lower.

Parking for the project would primarily be provided in the center of the retail center, with stores on the perimeter. Primary access to the proposed parking lots would be via Warm Springs Parkway from Clinton Keith Road to the south. Noise sources from parking lots include car alarms, door slams, radios, and tire squeals. The instantaneous sound pressure levels from these sources typically range from approximately 30 dBA to 66 dBA at a distance of 100 feet (Gordon Bricken & Associates 1996) and are generally short term and intermittent. Parking lots have the potential to generate instantaneous noise levels that exceed 60 dBA depending on the location of the source; however, noise sources from the parking lot would be different from each other in kind, duration, and location, so that the overall effects would be separate, and in most cases would not affect noise-sensitive receptors at the same time. Other parking lot activities such as periodic parking lot cleaning, which could occur prior to or after retail business hours, would create additional noise; however, such activities would be quite brief at any one location on site, and would be conducted in accordance with the City of Murrieta Municipal Code. Furthermore, the proposed parking areas would, for the most part, be shielded from a direct view of residences to the east by the intervening proposed fitness center and other retail buildings. Additionally, the existing perimeter wall (approximately 6 feet in height) at the eastern project boundary would provide noise reduction from the on-site noise-generating activities. Therefore, noise impacts from on-site operational noise would be less than significant.

Would the project result in the generation of excessive groundborne vibration or groundborne noise levels?

Less Than Significant with Mitigation Incorporated. Construction activities may generate excessive groundborne vibration or groundborne noise, causing a potentially significant impact. Heavier pieces of construction equipment, such as bulldozers, have peak particle velocities of approximately 0.089 in/sec or less at a distance of 25 feet (DOT 2018).

Groundborne vibration typically attenuates over short distances. At the distance from the nearest residence to the construction area (approximately 40 feet) and with the anticipated construction equipment (i.e., heavier equipment such as bulldozers), the PPV would be approximately 0.044 in/sec. If extended construction work with heavy equipment were to occur adjacent to the closest sensitive receptors, vibration levels would exceed the City's established perception threshold of 0.01 PPV in/sec (Section 16.30.130[K]), and thus result in a significant impact. However, this is not anticipated, because work would only occur intermittently near the project boundary. This is due to the majority of the project work not being adjacent to the project boundary. Furthermore, based upon Policy N-4.5 of the General Plan Noise Element, the City permits the exceedance of noise standards on a case-by-case basis for special circumstances, including expedited development projects, of which this project is one.

Regarding groundborne vibration from anticipated blasting activities during construction of Warm Springs Parkway, vibration levels would be negligible at the nearest sensitive receptors, located 600 feet away or further. Based upon reference Blast Vibration Prediction Curves per Oriard (Caltrans 2013b), vibration levels would typically range from less than 0.001 PPV in/sec to approximately 0.008 PPV in/sec at 600 feet, and thus would not exceed the City's established perception threshold of 0.01 PPV in/sec at the nearest sensitive receptors.

Implementation of **MM-NOI-1** would ensure that construction staging and stockpiling is situated as far from nearby noise- and vibration-sensitive receivers as possible and that sensitive receptors are notified of construction activities and are provided contact information for noise- or vibration-related complaints, as well as a resolution process. Implementation of these measures would reduce vibration impacts at sensitive receptor locations to a less-than-significant level.

Construction can also affect nearby buildings by inflicting damage from vibration. However, construction vibration associated with this project would not result in structural building damage. Building damage typically occurs at vibration levels of 0.5 in/sec or greater for buildings of reinforced concrete, steel, or timber construction (DOT 2018). As discussed above, the anticipated vibration levels during construction would be well below potential structural damage thresholds.

Once operational, the project would not generate substantial levels of groundborne vibration. Off-site delivery trucks, for example, are not anticipated to generate significant levels of vibration, because vehicles traveling on pneumatic tires with flexible suspension systems minimize such vibration, provided that the road surface is relatively smooth (Caltrans 2013b). Thus, upon compliance with **MM-NOI-1**, impacts associated with vibration would be less than significant with mitigation incorporated.

For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

No Impact. The closest airport to the project site is French Valley Airport, located at 37600 Sky Canyon Drive in Murrieta, California, approximately 2.5 miles southeast of the project site. The project would not be located within 2 miles of any airport and would not expose people residing or working in the project area to excessive noise levels associated with an airport. Additionally, there are no private airstrips in the vicinity of the project site. Therefore, the project would result in no impact related to airports.

4.9.5 Mitigation Measures

Standard Conditions

The following standard condition (SC) applies to the project:

SC-NOI-1 The applicant shall ensure that construction activities be limited to no more than the hours of 7:00 a.m. to 7:00 p.m. Monday through Saturday except in the event of emergency declared by City, State, or Federal officials. These conditions shall be listed on the project's final design plans to the satisfaction of the City.

Mitigation Measures

The following mitigation measures would be implemented as a condition of project approval:

MM-NOI-1 Prior to grading permit issuance, the applicant shall ensure the following:

- All construction equipment, fixed or mobile, shall be equipped with properly operating and maintained mufflers.
- Construction noise reduction methods, such as shutting off idling equipment, maximizing the distance between construction equipment staging areas and occupied sensitive receptor areas, and use of electric air compressors and similar power tools rather than diesel equipment, shall be used where feasible.
- Noise attenuation measures, which may include temporary noise barriers or noise blankets, shall be placed around stationary construction noise sources.

- During construction, stationary construction equipment shall be placed such that emitted noise is directed away from or shielded from sensitive receptors.
- During construction, stockpiling and vehicle staging areas shall be located as far as practical from noise-sensitive receptors while being located on the project site or on existing developed areas.
- Construction hours, allowable workdays, and the phone number of the job superintendent shall be clearly posted at all construction entrances to allow surrounding property owners and residents to contact the job superintendent if necessary. In the event that the City of Murrieta receives a complaint, appropriate corrective actions (such as eliminating the use of high-noise and vibration-producing equipment or replacing with smaller equipment types or other equivalent methods) shall be implemented and a report of the action provided to the reporting party.

MM-NOI-2 The applicant shall require that all construction equipment be operated with mandated noise control equipment (mufflers or silencers). Enforcement shall be accomplished by random field inspections by applicant personnel during construction activities to the satisfaction of the City of Murrieta Engineering Department.

MM-NOI-3 A temporary construction noise barrier shall be constructed along the eastern boundary of the project site during construction of Vineyard II. The noise barrier shall be a minimum of 8 feet in height, shall have a surface density of at least 4 pounds per square foot, shall be free of openings and cracks, and shall be designed to achieve a noise reduction of at least 5 A-weighted decibels.

4.9.6 Level of Significance After Mitigation

The effectiveness of **MM-NOI-1** and **MM-NOI-2** would vary from several decibels (which in general is a relatively small change) to 10 or more decibels (which subjectively would be perceived as a substantial change), depending on the specific equipment, the original condition of that equipment, the specific locations of the noise sources and the receivers, and other factors. Installation of more effective silencers could range from several decibels to well over 10 decibels. **MM-NOI-3**, which requires the construction of an 8-foot-high temporary noise barrier along the eastern boundary of the project site during construction of Vineyard II site, would provide an additional noise reduction of approximately 5 dB. Cumulatively, these measures would result in substantial decreases in the noise from construction. Assuming a nominal reduction of 7 dB from the combination of these measurements, the maximum estimated noise level from construction activities would be reduced to below the City of Murrieta construction noise standard of 75 dBA L_{eq}. With implementation of **MM-NOI-1**, **MM-NOI-2**, and **MM-NOI-3**, short-term construction impacts associated with exposure of persons to or generation of noise levels in excess of established standards would be less than significant.

4.9.7 Cumulative Impacts

Non-transportation noise sources (e.g., project operation) and construction noise impacts are typically project-specific and highly localized (i.e., these do not generally affect the community noise level at distances beyond several hundred feet). Construction activities associated with proposed or future development within the area would contribute to cumulative noise levels, but in a geographically limited and temporary manner. As other development occurs in the area, noise from different types of uses (e.g., traffic, aircraft, fixed noise sources) would continue to combine, albeit on a localized basis, to cause increases in overall background noise conditions within the area. However, such sources do not significantly contribute to cumulative noise impacts at distant locations, and so were not evaluated on a cumulative level.

The future (Year 2021 and Year 2035) traffic volumes used for the analysis of traffic noise include cumulative growth. As shown in Table 4.9-9 and Table 4.9-10, the project's future traffic-related impacts would not result in a significant noise level increase along adjacent roadways. Table 4.9-12 compares Future (Year 2035) Cumulative with Project Conditions traffic noise to the Existing traffic noise scenario.

Table 4.9-12. Project-Related Traffic Noise: Cumulative Impacts (Future with Project vs. Existing)

Modeled Receptor	Existing Weekday without Project (dBA CNEL)	Year 2035 Cumulative Conditions with project with Creighton Access Weekday (dBA CNEL)	Year 2035 Cumulative Conditions with project without Creighton Access Weekday (dBA CNEL)	Maximum Cumulative Increase (dBA)
ST1 – Multi-family residences south of project site, adjacent to Clinton Keith Road	57	59	59	2
ST2 – Vista Murrieta High School, south of project sites, adjacent to Clinton Keith Road	57	59	59	2
ST3 – Multi-family residential east of project site, adjacent to Clinton Keith Road	59	63	63	4
ST4 – Single-family residential east of project site, approximately 500 feet north of Clinton Keith Road	53	56	56	3
ST5 – Single-family residential east of project site, approximately 1,100 feet north of Clinton Keith Road	50	52	52	2
M1 – Single-family residences east of project site, adjacent to Whitewood Road	57	60	60	3

Note: dBA = A-weighted decibel scale; CNEL = community noise equivalent level.

As shown in Table 4.9-12, the cumulative noise increase is estimated to range from 2 to 4 dB. The resulting increase would not be substantial based upon the FICON noise thresholds. Therefore, impacts would not be cumulatively considerable and would be less than significant.

4.9.8 References Cited

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SOURCE: NAIP 2016

DUDEK

0 100 200 Feet

FIGURE 4.9-1

Noise Measurement and Modeling Locations

Costco/Vineyard II Retail Development Project, City of Murrieta, California

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4.10 Population and Housing

This section describes the existing population and housing trends in Southern California, Riverside County (County), and the City of Murrieta (City). This section evaluates consistency with applicable plans, policies, and regulations as they relate to population and housing. It also evaluates potential impacts to population and housing related to the proposed Costco/Vineyard II Retail Development Project (project). Data sources for this section include Southern California Association of Governments (SCAG), U.S. Census Bureau, California Department of Finance, the County, and the City.

4.10.1 Existing Conditions

The following subsections provide an overview of existing conditions and growth projections related to population, housing, and employment in the SCAG Region, the County, and the City.

Regional Existing Conditions

SCAG is the nation's largest metropolitan planning organization, representing six counties (Imperial, Los Angeles, Orange, Riverside, San Bernardino, and Ventura), 191 cities, and approximately 19 million residents (SCAG 2019a). The SCAG region is the second most populous metropolitan region in the nation. Approximately 6% of the national population lives in the SCAG region, and for over half a century, the region has been home to approximately half the population of California (SCAG 2016a). The highest population densities occur in Los Angeles County, and the lowest densities occur in the unincorporated territories of the other five counties. The average household size in the region grew from 3.0 in 2010 to 3.1 in 2015 (SCAG 2016a). SCAG develops long-range regional transportation plans (RTPs), including sustainable communities strategy (SCS) and growth forecast components, regional transportation improvement programs, regional housing needs allocations, and a portion of the South Coast Air Quality Management District's plans. Table 4.10-1 indicates the SCAG growth forecasts for the region in terms of population, housing, and employment.

Table 4.10-1. Regional Growth Forecast

	2014	2020	2035	2040	Total Projected Growth 2014–2040
Population	18,545,063	19,395,000	21,475,000	22,122,000	3,576,937
Housing	6,029,326	6,415,000	7,169,000	7,406,000	1,376,674
Employment	8,327,300	8,507,000	9,572,000	9,872,000	1,544,700

Source: SCAG 2016a.

Local Existing Conditions

County of Riverside

Population

As of January 2019, the total population of the County was 2,440,124 (DOF 2019). The largest ethnic group is Hispanic, making up approximately 48% of the population. The Non-Hispanic demographic groups that make up the remainder of the County population include White (36.6%), Black (6%), Asian (6.1%), Native American (0.4%), and

other (2.9%). The County has a population density of 324 people per square mile, while the average population density in the SCAG region is 494 people per square mile (SCAG 2019a).

The median age in the County is 35 years old. The 35 to 54 age group increased most during the 18-year period from 2000 to 2018, adding 254,685 people to the population (SCAG 2019a). According to the most recent census data, 81.1% of people residing in the County, age 25 years or older, have a high school degree, while 21.5% have a bachelor's degree or higher (U.S. Census Bureau n.d.).

Housing

As of 2018, there were 840,904 housing units in the County, with a homeownership rate of 52.4%. The average household size in the County is 3.1. Of the households in the County, 68.2% are single-family detached, 6.2% are single-family attached, 16.1% are multi-family, and 9.5% are mobile homes.

Employment

In 2017, there were 762,114 jobs in the County, with employees earning an average salary of $45,085. With a large population and an inequivalent number of jobs (further discussed below), only 46.9% of County residents commute to work within the County. Others commute outside of Riverside County to Los Angeles County (13.7%), San Bernardino County (13.9%), Orange County (12.7%), San Diego County (7%), and other destinations (5.5%) (SCAG 2019b).

City of Murrieta

Population

As of January 2019, the City had a population of approximately 118,125 and was the fourth largest city in the County (DOF 2019). From 2000 to 2018, the City's population grew by a rate of 156.4%, which is much higher than the County's growth rate of 56.3% during this same time period. The City's population makes up 4.7% of the population of the County (SCAG 2019c).

According to the SCAG 2019 Local Profile of the City, the median household income in the City is $80,373. As of 2018, the median age was 33.7 years old, and approximately 91.7% of residents age 25 and older graduated from high school, while 30% hold a bachelor's degree or higher. In 2016, the ethnic composition of the population of the City consisted of White (49.7%), Hispanic (28.7%), Asian (9%), Black (5.9%), Native American (0.3%), and other (6.4%) (SCAG 2019c).

Housing

There are 34,498 households in the City, and the average household size is 3.3 persons. As of 2018, the City had a homeownership rate of 66.5%. Between 2000 and 2018, the total number of households in the City increased by 140.9%, or 20,178 units. Of the households in the City, 74.2% are single-family detached, 3.4% are single-family attached, 17.8% are multi-family, and 4.6% are mobile homes (SCAG 2019c).

Employment

In 2017, there were 32,712 jobs in the City, with an average salary of $44,023. The majority of residents commute outside of the City for employment, with only 15.3% employed within the City. The top places that residents commute

to include the City of Temecula (15.1%), San Diego County (9.4%), Riverside County (4.1%), Los Angeles County (2.9%), City of Lake Elsinore (2.1%), City of Menifee (1.8%), City of Irvine (1.8%), City of Hemet (1.6%), and other locations (45.9%). As of 2017, education sector jobs make up the largest percentage (27.8%) of jobs in the City, followed by retail (15.9%) (SCAG 2019c).

Jobs-to-Housing Ratio

The "jobs-to-housing ratio" measures the extent to which job opportunities in a given geographic area are sufficient to meet the employment needs of area residents. An area with a jobs-to-housing ratio that is lower than the regional or County ratio would be considered a "jobs poor" area, indicating that many of the residents must commute to places of employment outside of the area. Alternatively, an area with a jobs-to-housing ratio that is higher than the regional ratio would be considered a "jobs rich" area, indicating the majority of persons that have jobs in the City are commuting from outside the City. A balanced community would have a match between employment and housing opportunities enabling most residents to also work in the community. Based on the growth projections shown below in Table 4.10-2, comparing the number of jobs to the number of households indicates a jobs-to-housing ratio of 0.94:1.00 for the City in 2020, and a jobs-to-housing ratio of 1.04:1 for the City in 2040. This ratio indicates that the City is providing more housing than jobs in the year 2020, as is evident by the number of people who commute outside of the City for employment. By 2040, however, the ratio becomes more equal with the City providing approximately 1 job per household. While the City's ratio is expected to equalize in the future, more employment opportunities could be added to support the growing number of households. For comparison, the jobs-to-housing ratio in the SCAG region is 1.3:1 for the year 2020 and is projected to remain the same for the year 2040.

Local Growth Forcast

As discussed above, as of January 2019, the County had a population of approximately 2,440,124 people and the City had a population of approximately 118,125 people (DOF 2019). Table 4.10-2 shows population, household, and employment projections for the County and the City, as calculated by SCAG.

Table 4.10-2. Local Growth Forecast

	City of Murrieta			County of Riverside		
Year	*Population*	*Households*	*Employment*	*Population*	*Households*	*Employment*
2012	105,600	32,800	23,200	2,245,100	694,400	616,600
2020	109,200	35,600	33,400	2,479,800	802,400	848,700
2035	129,100	43,200	43,600	3,183,100	1,009,000	1,111,800
2040	129,800	43,500	45,100	3,183,700	1,054,300	1,174,300

Source: SCAG 2016b, SCAG 2016c

4.10.2 Relevant Plans, Policies, and Ordinances

Federal

There are no federal programs, policies, or regulations related to housing that are applicable to the project.

State

Department of Housing and Community Development

State law requires that jurisdictions provide their fair share of regional housing needs. The California Department of Housing and Community Development is mandated to determine the statewide housing need. In cooperation with the California Department of Housing and Community Development, local governments and councils of governments are charged with making a determination of the existing and projected housing need as a share of the statewide housing need of their city or region. The housing construction need is determined for four broad household income categories: very low (households making less than 50% of median family income), low (50% to 80% of median family income), moderate (80% to 120% of median family income), and above moderate (more than 120% of median family income). The intent of the future needs allocation by income groups is to relieve the undue concentration of very low and low-income households in a single jurisdiction and to help allocate resources in a fair and equitable manner.

The "fair share" allocation process begins with the California Department of Finance's projection of statewide housing demand for an 8-year period, which is then apportioned by the California Department of Housing and Community Development among each of the state's official regions. The regions are represented by an agency typically termed a council of government. In the six-county Southern California region, which includes the City and other incorporated cities and unincorporated areas of the County, the agency responsible for assigning these fair share goals to each jurisdiction is SCAG. A local jurisdiction's fair share of regional housing need is the number of additional dwelling units that will need to be constructed during a given 8-year planning period.

SCAG estimates each jurisdiction's future housing need using the following four factors:

1. The number of units needed to accommodate forecasted household growth
2. The number of units needed to replace demolitions due to attrition in the housing stock (i.e., fire damage, obsolescence, redevelopment, and conversions to nonhousing uses)
3. Maintenance of ideal vacancy rate for a well-functioning housing market
4. An adjustment to avoid an over-concentration of lower-income households in any one jurisdiction

The new construction need must be allocated to the four household income categories described above. The allocations are further adjusted to avoid over-concentration of lower income households in any one jurisdiction. The fair share allocation must also consider the existing "deficit" of housing resulting from lower income households that pay more than 30% of their incomes for housing costs. This is the threshold used by the U.S. Department of Housing and Urban Development to determine housing affordability (City of Murrieta 2013).

Local

Southern California Association of Governments

SCAG is the responsible agency for developing and adopting regional housing, population, and employment growth forecasts for local governments within the SCAG region. To facilitate regional planning efforts, SCAG's planning area is further organized into 14 subregions. The City is located in the Western Riverside Council of Governments subregion.

Current regional growth forecasts are included in SCAG's 2012–2035 RTP/SCS, adopted April 2012. The forecasts included in SCAG's RTP/SCS are provided by the County Center for Demographic Research. SCAG's demographic data is developed to enable the proper planning of infrastructure and facilities to adequately meet the needs of the anticipated growth. Growth

forecasts contained in the RTP/SCS for the County, the Western Riverside Council of Governments, and the City are used in this section in order to analyze population, housing, and employment forecasts.

City of Murrieta General Plan

The Housing Element of the City of Murrieta General Plan includes goals, policies, and programs to ensure that residents have decent, safe, sanitary, and affordable housing regardless of income. The following five goals have been established to guide the development, redevelopment, and preservation of a balanced inventory of housing to meet the needs of present and future residents of the City:

1. Increased opportunities for affordable housing
2. Conservation of the City's existing housing stock
3. Removal of constraints to the constructions of affordable housing
4. Equal housing opportunity
5. Identification of adequate site to achieve a variety and diversity of housing

Riverside County General Plan

The Housing Element of the County General Plan identifies and establishes the County's policies with respect to meeting the needs of existing and future residents in the County. It establishes policies that will guide County decision making and sets forth an action plan to implement its housing goals. The commitments are in furtherance of the statewide housing goal of "early attainment of decent housing and a suitable living environment for every California family," as well as a reflection of the concerns unique to the County.

4.10.3 Thresholds of Significance

The significance criteria used to evaluate the project impacts to population and housing are based on Appendix G of the CEQA Guidelines. According to Appendix G of the CEQA Guidelines, a significant impact related to population and housing would occur if the project would:

1. Induce substantial unplanned 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).
2. Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere.

As determined in the Initial Study, the project would not displace substantial numbers of existing housing or people because the site is vacant. Thus, the project would have no impact on Thresholds 2. Threshold 1 is the only threshold addressed in this Project Environmental Impact Report.

4.10.4 Impacts Analysis

Would the project induce substantial unplanned 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)?

Less-Than-Significant Impact. The project includes the construction of a new retail development consisting of a Costco Wholesale (Costco) warehouse, tire center and fuel station, a fitness center, a major retail pad, four smaller retail shops, one restaurant, one drive-through fast-food restaurant, two detention basins, and associated parking, on approximately 26.3 acres in the City as shown on the proposed site plan in Chapter 3, Project Description (Figure 3-2). The project is expected to be completed and operational by 2021. It is anticipated that the Costco warehouse, tire center, and gas station would employ approximately 250 full-time employees, while the fitness center, restaurants, and retail development would employ approximately 35 full-time employees, for approximately 285 full time employees. Conservatively, this analysis assumes that all 285 employees would be new employees who would move to the City, and analyzes the potential for impacts to population, housing, and employment growth in the City.

Population

The population has increased throughout the region, and the population of the City in particular has grown drastically, with a growth rate of 156.4% from 2000 to 2018 (SCAG 2019c). The City is expected to see continued population growth, as shown in Table 4.10-2. The City is expected to increase by approximately 20,600 people from 2020 to 2040 (SCAG 2019c). Given the City's average household size of 3.3 persons (SCAG 2019c), adding 285 new employees to the City would result in a population increase of approximately 940.5 people. This increase represents approximately 4.6% of the 20,600 people anticipated to be added to the City between 2020 and 2040. Therefore, the project would not result in unplanned population growth in the City, as projected by SCAG.Housing

Conservatively assuming all 285 new employees would relocate to the City as new residents, the project would result in a need for 285 new housing units in the City. California's housing element law requires that each city and county develop local housing programs designed to meet its fair share of existing and future housing needs for all income groups. This effort is coordinated by the jurisdiction's Council of Governments (the City is in the Western Riverside Council of Governments) when preparing the state-mandated Housing Element of its General Plan. This fair share allocation concept seeks to ensure that each jurisdiction accepts responsibility for the housing needs of, not only its resident population, but for all households that might reasonably be expected to reside within the jurisdiction, particularly lower income households. This assumes the availability of a variety and choice of housing accommodations appropriate to their needs, as well as certain mobility among households within the regional market. Table 4.10-3 indicates the 2014 to 2021 fair share housing needs for Murrieta.

Table 4.10-3. Fair Share Housing Needs 2014–2021, in number of dwelling-units

Very Low	Low	Moderate	Above Moderate	Total Adjusted Need
395	262	289	627	1,573

Source: City of Murrieta 2013.

Thus, the City's fair share allocation for the planning period is 1,573 units. This indicates that between the years 2014 and 2021, the City would need to add at least 1,573 housing units, consisting of a variety of housing types to accommodate very low, low, moderate, and above moderate income households to keep pace with housing

demand. In addition, a list of approved and proposed projects in the area indicates that there are 942 single- and multi-family dwelling units currently planned for development in the area (see Table 4.10-4). According to the General Plan Housing Element, the City has historically been successful in meeting its fair share housing allocation and achieving the other goals set forth in the General Plan Housing Element. The potential need to provide housing for the 285 full-time employees of the project is well within the City's ability to provide housing for its future residents. Thus, the project would not have a substantial impact on the City's housing stock.

Employment

The expected 285 new full-time employees that would be added to the City as a result of the project represents 3% of the 9,500 employees anticipated to be added to the City's labor force between 2020 and 2040. Thus, the employee growth that can be attributed to the project is within SCAG's overall growth projections for the City and would not result in a substantial increase.

While the project would create the potential for new employment in the City, such growth is not unplanned and is not considered a substantial or significant population growth. The expected number of employees make up a small percentage of the overall expected growth in the City. Further, the project itself would aid in improving the jobs-housing imbalance that currently exists in the City. As previously discussed in Section 4.10.1, Existing Conditions, approximately 15.3% of residents are employed within the City, with 84.7% of residents commuting outside of the City for work. This is due to a lack of employment opportunities and an abundance of housing, which creates a jobs-housing imbalance. Also discussed in Section 4.10.1, the existing jobs-to-housing ratio in the City is 0.94:1.00, indicating a need for more employment opportunities to be added to the City. By adding new employment opportunities to the City, the project would help to improve the population-employment ratio and reduce this imbalance.

A project could result in indirect growth as a result of the extension of roads or other infrastructure. Warm Springs Parkway, a proposed four-lane north–south road, would be constructed as part of the project. The new road would extend north from Clinton Keith Road and would bisect the project site, with construction associated with the project ending at the northern extent of the project site. Any future extension of the road would occur separately from the proposed project. The Circulation Element of the General Plan identifies a future roadway alignment for the approximate location of the proposed Warm Springs Parkway and extending north to Scott Road. Exhibit 5-10 in the Circulation Element identifies the future roadway alignment as a major road, and Exhibit 5-6 indicates that the road is anticipated to have an average daily traffic volume of 17,200 vehicles on the portion of the road near the project site. Therefore, the construction of the road has been previously contemplated in the General Plan, and the project is implementing that vision. Therefore, the construction of Warm Springs Parkway would not result in substantial indirect growth in the City beyond what was previously contemplated in the General Plan.

The project would not directly or indirectly result in substantial unplanned population growth in the City. Impacts would be less than significant, and no mitigation is required.

4.10.5 Mitigation Measures

The project would not result in significant impacts, and no mitigation measures are necessary.

4.10.6 Level of Significance After Mitigation

The project would not result in significant impacts, and no mitigation measures are necessary.

4.10.7 Cumulative Impacts

Cumulative impacts to population and housing would result from a combination of projects that induce population growth. Individually, the project would result in minimal population growth in the City; however, as previously discussed, this growth projection is consistent with SCAG's growth projections for the City. A list of approved and proposed projects in the project area was provided by the City of Murrieta and the City of Menifee, as shown in Table 4.10-4. The list consists of a combination of retail and residential projects. The most comparable to the project include Walmart (Menifee) and Junction (Menifee), which consist of large retail facilities and are anticipated to employ a combined total of no more than 1,000 people. Other retail projects on the list are much smaller and likely to employ fewer full time employees.

Of the proposed or approved projects in the area, six consist of residential development. These projects would have the most obvious impact on population growth in the area. As previously discussed, these projects are expected to produce 942 dwelling units. Compared to the growth forecast of 10,700 additional units by 2040, this addition is nominal. When considering the project in combination with these projects, it is unlikely that substantial or unplanned population growth would occur.

The region is expected to see continued population growth, and the cumulative projects consist of many retail development projects that would also aid in reducing the jobs-housing imbalance. The cumulative growth induced by the project combined with other approved and proposed projects is unlikely to result in substantial population growth beyond that which the City and region has planned. In combination with the project, cumulative impacts to population growth or housing availability would not be considerable.

Table 4.10-4. Approved/Proposed Projects List

Project Name	Description
Mitchell Crossing	331 Multi-Family Housing dwelling units 50,000 square feet of Specialty Retail
The Orchard	436,735 -square -foot Shopping Center 215,850 square feet remaining to be built; 100,000 square feet assumed to be built by 2020
Vineyard Shopping Center (updated)[1]	78,489 -square -foot Shopping Center
Makena Hills	116,200 -square -foot Medical Office 9,300 -square -foot Restaurant 206-room Hotel
Adobe Springs	287 Single -Family Detached dwelling units 208,500 -square -foot Business Park
Alderwood	10 Single -Family Detached dwelling units
Golden Cities Phase 3	69 Single -Family Detached dwelling units
Golden Cities Phase 4	126 Single -Family Detached dwelling units
Golden Cities Phase 5	119 Single -Family Detached dwelling units
Junction (Menifee)	148,663 -square -foot Discount Club 140,760 -square -foot Home Improvement Store 237,377 -square -foot Retail/Shopping Center
Walmart (Menifee)	205,000 -square -foot Discount Store 6,680 -square -foot Automobile Care Center 13,800 -square -foot Specialty Retail 6,500 -square -foot High-Turnover (sit-down) Restaurant

Table 4.10-4. Approved/Proposed Projects List

Project Name	Description
	6,200 -square -foot Fast-Food with Drive-Through 16,000 -square -foot Gas Station w/ Food Mart & Car wash
Curci	5 positions Lube/Tune 5,000 -square -foot Bank 22,500 -square -foot Shopping Center 2,500 -square -foot Fast-Food with Drive-Through 5,500 -square -foot High-Turnover (sit-down) Restaurant
Clinton Keith Village (Wildomar)	5,940-square-foot Fast-Food with Drive-Through 12,840-square-foot Variety Store 12 fueling position Convenience Market with Gas Pumps 18,250 square feet of Commercial Retail

Source: Appendix I.
Note: The project list was derived from contacting the jurisdictions directly, and then the traffic engineer reviewed the list to include locations that would contribute traffic to the project's study intersections and would be open by 2020.
[1] While the Vineyard Shopping Center traffic study includes a 78,489 square foot shopping center and 91-room hotel, updated plans for the site include an approximately 32,700 square foot shopping center and no hotel.

4.10.8 References Cited

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4.11 Public Services

This section describes the existing setting of the project site, identifies associated regulatory requirements, evaluates potential impacts, and identifies mitigation measures related to implementation of the proposed Costco/Vineyard II Retail Development Project (project).

4.11.1 Existing Conditions

Fire Protection and Emergency Medical Services

The Murrieta Fire and Rescue (MFR) is the primary provider of fire suppression and fire prevention services in the City of Murrieta (City), while the Sphere of Influence is served by the Riverside County (County) Fire Department. However, the MFR participates in an Automatic Aid Agreement with the County Fire Department to expedite service delivery to the eastern portion of the City. The MFR may also provide service to the Sphere of Influence by means of this Automatic Aid Agreement. The MFR participates in the California Master Mutual Aid Agreement. In the event of a major fire, outside resources can be brought into the City as needed (City of Murrieta 2011a).

The MFR currently has five fire stations and is the primary provider of fire suppression, pre-hospital emergency medical care, disaster preparedness coordination, hazard mitigation, and fire prevention services in the City (City of Murrieta 2018a). Table 4.11-1 identifies each of the fire stations and their locations.

Table 4.11-1. Murrieta Fire and Rescue Stations and Locations

Station	Location	Approximate Distance to Project Site (roadway miles)
Fire Department Administration	41825 Juniper Street	4.8
Fire Station No.1	41825 Juniper Street	4.8
Fire Station No.2	40060 California Oaks Road	2.9
Fire Station No.3	39985 Whitewood Road	4.3
Fire Station No.4	28155 Baxter Road	1.6
Fire Station No.5	38391 Vineyard Parkway	5.8

Source: City of Murrieta 2018a.

The project site is located within the primary response area for Fire Station No. 4, located approximately 1.6 miles (driving distance) north of the project site. Fire Station No. 4 would be the first responder for all fire-related incidents at the project site. Fire Station No. 4 apparatus and staffing includes one engine company with three personnel (captain, engineer, firefighter/paramedic), one cross-staffed Type III engine, and one battalion chief (Jensen, pers. comm. 2019a).

In the event of a large fire, the four other fire stations in the City would respond as well, assuming resources are available and not responding to other emergencies. The City participates in the California Master Mutual Aid Agreement, as well as an Automatic Aid Agreement with the California Department of Forestry and Fire Protection (CAL FIRE) and Riverside County Fire Department, which would allow these outside jurisdictions to provide aid and expedite service in an emergency event.

Initial response in the event of a large fire in a residential area would include four engines, a ladder, and the battalion chief; and in a commercial area would include four engines, a ladder, the battalion chief, and two Medic-Patrol Type VI apparatus staffed with two personnel each. It should be noted that simultaneous calls for service and for medical emergencies would impact the resources being sent on any call type and could deplete the response force for any additional calls for service in the City (Jensen, pers. comm. 2019a).

The MFR response time goals are based off the National Fire Protection Association 1710 goal of 6 minutes and 20 seconds, and the Community Risk Assessment-Standards of Cover goal of 10 minutes. The MFR evaluates response times based on the 90th percentile performance mark by considering the overall performance of each station. Station No. 4 currently has a 90th percentile performance response time of 9 minutes 54 seconds. Based on the 90th percentile performance measurement, Station No. 4 met the National Fire Protection Association response time goal 56.1% of the time, and the Community Risk Assessment-Standards of Cover response time goal 90.3% of the time (Jensen, pers. comm. 2019a). Stations in the outlying regions, such as the eastern portion of the City along Winchester Road and in the area between Winchester and Interstate 215 north of Clinton Keith Road, experience longer average response times. A sixth fire station in this area is contemplated to help achieve the target response time (City of Murrieta 2011a). The addition of a sixth station could alleviate some calls to Station No. 4 and result in improved response times for Station No. 4.

Emergency Services

Emergency 911 services are provided by the Murrieta Police Department (MPD) as a joint police/fire dispatch center, dispatching Murrieta fire, police, paramedics, and ambulance services. The dispatch center is interconnected with the fire apparatus via systems that allow for backup forms of communication between the dispatch center, vehicles, and personnel.

Firefighter/paramedics are cross-trained to provide services for medical emergencies. All fire suppression personnel are firefighter/paramedics and those that are not paramedics are National Registry Emergency Medical Technicians. Firefighters, engineers, and captains are trained as paramedics. The MFR's engine companies are equipped for paramedic service.

The MFR maintains an Urban Search and Rescue team of professional firefighter/paramedics that are certified by the Federal Emergency Management Agency. They serve the larger community as part of California Task Force 6, supervised by the Riverside City Fire Department and composed of representatives from several Inland Empire fire agencies. The Urban Search and Rescue team members regularly train with other agencies for rapid deployment to local, regional, and national incidents (City of Murrieta 2011a).

Police Protection

The MPD provides police protection services within the City. Besides responding to incidents involving safety and law enforcement, the MPD actively promotes safety through education programs, community partnerships, and the provision of advice on incorporating Crime Prevention Through Environmental Design (CPTED) principles into development projects (City of Murrieta 2011a).

The built environment can present opportunities for crimes to occur or can discourage crimes. For instance, design can influence the amount of surveillance provided by residents or passersby, and whether there is an easy escape for someone who commits a crime. Design of public spaces and the relationships between buildings and public

space are important considerations in CPTED. CPTED is a set of approaches to the design of the built environment that seek to minimize opportunities for crime.

Led by Chief Sean Hadden, the MPD currently has 93 sworn officers and is anticipated to grow to 103 sworn officers over the next calendar year (Hadden, pers. comm. 2019). The Operations Division consists of the patrol unit, K-9 unit, off-road motorcycle enforcement unit, SWAT unit, armored rescue vehicle, traffic bureau, parole/probation compliance team, homeless outreach team, and field police service technicians. The Support Division consists of the detective bureau, special enforcement team, juvenile investigations team, school resource officers, dispatch records, and code enforcement (City of Murrieta 2018b).

Call priorities are assigned from greatest urgency (Priority 1) through non-emergency (Priority 3) calls. Priority 1 calls are emergency calls that require immediate response in order to preserve life and/or apprehend a felony suspect. Priority 2 calls require immediate response where the need to apprehend suspects is great or apprehension would be imminent. Priority 3 calls require police response in a timely manner. Table 4.11-2 identifies the target response time for each call type and the average response times experienced by the MPD.

Table 4.11-2. Murrieta Police Department Target Response Times

Call Type	Target Response Time	Average Response Time
Priority 1	6 minutes	6 minutes
Priority 2	15 minutes	13 minutes
Priority 3	30 minutes	30 minutes

Source: Hadden, pers. comm. 2019.

As individual projects are proposed within the City, the MPD service levels and staffing requirements would be evaluated to determine if additional staffing and/or facilities would be required.

Schools

The City is served by four public school districts. The primary school district is the Murrieta Valley School District, and residents in the areas east of Interstate 215 and north of Clinton Keith Road are served by the Menifee Union School District, Perris Union High School District, and Hemet Unified School District. As shown in Exhibit 5.19-1 in the Murrieta General Plan Final Environmental Impact Report (EIR), the project site is located in the southern portion of the Menifee Union School District boundary (City of Murrieta 2011a). Table 4.11-3 provides the enrollment capacity and current enrollment at each of the public school districts that serve the City.

Table 4.11-3. City of Murrieta School Districts and Enrollment

School Name	School Address	Capacity	Total Enrolment (2016–2017)
Murrieta Valley School District			
Alta Murrieta Elementary School	39475 Whitewood Road	1,200	810
Antelope Hills Elementary	36105 Murrieta Oaks Ave	1,000	841
Avaxat Elementary School	24300 Las Brisas Road	1,125	753
Daniel L. Buchanan Elementary School	40121 Torrey Pines Road	1,450	943
Cole Canyon Elementary School	23750 Via Alisol	1,200	1,063

Table 4.11-3. City of Murrieta School Districts and Enrollment

School Name	School Address	Capacity	Total Enrolment (2016–2017)
E. Hale Curran Elementary School	40855 Chaco Canyon Road	1,125	563
Lisa J. Mails Elementary	35185 Briggs Road	975	923
Monte Vista Elementary School	37420 Via Mira Mosa	1,325	975
Murrieta Elementary School	24725 Adams Ave.	1,025	807
Rail Ranch Elementary School	25030 Via Santee	925	618
Tovashal Elementary School	23801 Saint Raphael	900	764
Dorothy McElhinney Middle School	35125 Briggs Road	1,701	1,325
Shivela Middle School	24515 Lincoln Avenue	1,674	1,423
Thompson Middle School	24040 Hayes Avenue	1,620	1,671
Warm Springs Middle School	39245 Calle de Fortuna	1,809	877
Murrieta Mesa High School	24801 Monroe	2,214	2,290
Murrieta Valley High School	42200 Nighthawk Way	3,429	2,481
Vista Murrieta High School	28251 Clinton Keith Road	3,564	3,574
Murrieta Canyon Academy	24150 Hayes Ave	Data Unavailable	267
Menifee Union School District			
Oak Meadows Elementary School	28600 Poinsettia Street	1,034	893
Bell Mountain Middle School	28525 La Piedra Road, Menifee	1,546	1,214
Perris Union High School District			
Paloma Valley High School	31375 Bradley Road, Menifee	2,500	3,124
Hemet Unified School District			
Winchester Elementary School	28751 Winchester Road, Winchester	650	480
Rancho Viejo Middle School	985 North Cawston Avenue, Hemet	1,400	1,284
Tahquitz High School	4425 West Commonwealth, Hemet	2,400	1,634

Sources: City of Murrieta 2011a; Ed-Data 2016–2017.

The California State Allocation Board Office of Public School Construction regulates enrollment projections for the state's public school districts. The State Allocation Board defines a number of options to generate student enrollment projections and provides an approved methodology for determining the elementary, middle, and high school students that would be generated by new residential units. This methodology is based on historical student generation rates of new residential units constructed within the school district during the previous 5 years.

When multiple districts with multiple yield factors are analyzed, a region's projected enrollment may be calculated using the statewide average yield factors as provided by the State Allocation Board. These estimates are a result of statewide sampling that incorporates widely varying dwelling unit types, households, and other demographic characteristics across the state. This methodology is appropriate for considering any residential units that may be constructed as a result of increased employment at any of the retail and commercial businesses, as those employees may require varied dwelling unit types ranging from affordable housing to high-end single-family units.

Parks

In June 2009, the City adopted an updated Murrieta Parks and Recreation Master Plan (Parks Master Plan). The purpose of the Parks Master Plan is to provide a realistic guide for the creative, orderly development and management of recreation facilities and programs for the City, now and into the future. The Parks Master Plan is an implementation tool providing strategies for addressing the goals and policies of the City of Murrieta 2035 General Plan (General Plan).

The Parks Master Plan lists six categories of City parks: City-wide parks, community parks, neighborhood parks, neighborhood play areas, special use parks, and nature parks. Private recreation facilities in Murrieta include three homeowners' association parks and recreation facilities in the gated communities of Bear Creek and Warm Springs, including a members-only golf course in Bear Creek. The Parks Master Plan does not count private facilities toward the City's goals for parks and recreation (City of Murrieta 2009). The City has over 465 acres of parkland located in 50 parks and recreational facilities (City of Murrieta 2018c).

Within approximately 6 miles of the City boundaries, Murrieta residents have access to open space in the Santa Ana Mountains and three aquatic recreational areas: Lake Elsinore, a natural freshwater lake in the City of Lake Elsinore, and Lake Skinner and Diamond Valley Lake, reservoirs operated by the Metropolitan Water District of Southern California. All three water bodies and the surrounding areas are open for a variety of recreational uses including fishing, boating, camping, horseback riding, and hiking.

The Parks Master Plan calls out trails as a key issue in the recreation facility recommendations, specifically, the development of an effective, connected, multi-use trail system for walking, jogging, hiking, biking, and equestrian uses. The Parks Master Plan recommends that increased trail connectivity and opportunities should be emphasized, focusing on corridors and links to adjacent natural open space, parks, schools, and commercial areas (City of Murrieta 2009). Adjacent to the City are numerous planned County trails with access to hiking areas such as the Santa Rosa Plateau Ecological Reserve. There are also trails in the nearby Cleveland National Forest (City of Murrieta 2011a).

4.11.2 Relevant Plans, Policies, and Ordinances

Federal

There are no applicable federal plans, policies, or ordinances.

State

California Code of Regulations, Title 24 California Building Standards Code

California Building Code

Part 2 of Title 24 of the California Code of Regulations, the California Building Code (CBC), contains minimum standards for construction and the built environment intended to safeguard public health, safety, and general welfare. The CBC incorporates by adoption the International Building Code but has been modified for California conditions. It is generally adopted on a jurisdiction-by-jurisdiction basis, subject to further modification based on local conditions. Commercial and residential buildings are plan-checked by local city and county building officials for compliance with the CBC.

Typical requirements of the CBC include provisions for building materials, accessibility and means of ingress/egress, energy efficiency, fire protection, and lifesaving systems. The project would be required to comply with the standards set forth in the CBC in order to maintain a safe commercial environment and one that does not hinder the ability of local public services, such as fire and police, to serve the project site and surrounding area.

California Fire Code

Part 9 of Title 24, the California Fire Code (CFC), contains fire safety–related building standards. The CFC incorporates by adoption the International Fire Code with necessary California amendments. The CFC establishes minimum requirements to safeguard the public health, safety, and general welfare from the hazards of fire, explosion, or dangerous conditions in new and existing buildings, structures, and premises, and to provide safety and assistance to fire fighters and emergency responders during emergency operations. The CFC includes general provisions for fire protection features and systems, ingress/egress, and building materials, as well as provisions specific to certain uses and building types.

The CFC and Office of the State Fire Marshal provide regulations and guidance for local agencies in the development and enforcement of fire safety standards. The CFC is updated and published every 3 years by the California Building Standards Commission. The 2016 CFC took effect on January 1, 2017. The City of Murrieta adopted the 2016 CFC with local amendments in August 2018.

State Responsibility Area Fire Safe Regulations

The basic wildland fire protection standards of the California Board of Forestry are found in CAL FIRE's Fire Safe Regulations. They have been prepared and adopted for the purpose of establishing minimum wildfire protection standards in conjunction with building, construction, and development in State Responsibility Areas. Title 14, Natural Resources, regulates that the future design and construction of structures, subdivisions, and developments in a State Responsibility Area shall provide basic emergency access and perimeter wildfire protection measures.

California Health and Safety Code

State fire regulations are set forth in Section 13000 et seq. of the California Health and Safety Code, including regulations for building standards (also set forth in the CBC), fire protection and notification systems, fire protection devices such as extinguishers and smoke alarms, high-rise building and childcare facility standards, and fire suppression training.

California Occupational Safety and Health Administration

In accordance with CCR, Title 8, Sections 1270, Fire Prevention, and 6773, Fire Protection and Fire Equipment, the California Occupational Safety and Health Administration has established minimum standards for fire suppression and emergency medical services. The standards include, but are not limited to, guidelines on the handling of highly combustible materials; fire hose size requirements; restrictions on the use of compressed air; requirements for access roads; and guidelines for testing, maintaining, and using all firefighting and emergency medical equipment.

Mutual Aid Agreements

The California Disaster and Civil Defense Master Mutual Aid Agreement, as provided by the California Disaster Act, provides statewide mutual aid between and among local jurisdictions and the state. The statewide mutual aid system exists to ensure that adequate resources, facilities, and other supports are provided to jurisdictions

whenever resources prove to be inadequate for a given situation. Each jurisdiction controls its own personnel and facilities but can give and receive help whenever needed.

Local

City of Murrieta 2035 General Plan

The General Plan Safety Element includes goals and policies that address fire protection services and identify the need to provide adequate resources to respond to health and fire emergencies with the City, including adequate staffing of fire response personnel and trained medical technicians. The goals and policies from the Safety Element that may be applicable to the proposed project are included below (City of Murrieta 2011b):

Goal SAF-5 Damage from fire hazards is minimized through preventive measures, education, and fire protection services.

- **Policy SAF-5.3** Continue to coordinate fire protection services with Riverside County, CAL FIRE, and all other agencies and districts with fire protection powers.
- **Policy SAF-5.4** Ensure that outlying areas in the City can be served by fire communication systems as new development occurs.

Goal SAF-6 The Murrieta Fire and Rescue provides a timely response to fire and other emergencies.

- **Policy SAF-6.1** Respond to 90 percent of medical and fire incident calls within 6½ minutes from dispatch.
- **Policy SAF-6.2** Ensure that each Paramedic Assessment Engine Company provides the capacity to treat moderate or greater injuries, transport patients to hospitals, advance a hose line for fire control, and to effect a rescue of trapped occupants.
- **Policy SAF-6.3** Provide adequate levels of fire suppression personnel for all areas.
- **Policy SAF-6.5** Locate, staff, and equip Fire Department units to provide service to all areas within the City within a maximum of 12 minutes total response time for 90 percent of all mass casualty incidents or major structure fires.
- **Policy SAF-6.8** Maintain and implement a Fire Department Strategic Plan to address staffing and facility needs, service goals, deployment strategies, and other department goals.
- **Policy SAF-6.9** Strive to achieve an Insurance Services Office (ISO) Public Protection Classification of 3 in areas with fire hydrants and 9 in areas that are not connected to an existing water district supply system.

Goal SAF-9 High-quality and timely police services are provided to all residents and businesses in Murrieta.

Policy SAF-9.1 Seek to reach and maintain police officer and civilian support employee staffing levels to effectively and efficiently address the public safety needs, measured through established response times, crime statistics, crime clearance rates, and community quality of life issues.

Policy SAF-9.2 Endeavor to respond within six minutes for all Priority 1 calls, 15 minutes for Priority 2 calls, and 35 minutes for Priority 3 calls.

Policy SAF-9.3 Consider options for locating field stations throughout the City to improve response times for Priority 1 calls and foster relationships with local residents.

Policy SAF-9.4 Maintain and implement a Police Department Strategic Plan to address staffing and facility needs, service goals, deployment strategies, and other department goals.

Goal SAF-10 The Police Department coordinates with neighborhoods and community members to enhance safety and continually improve services.

Policy SAF-10.1 Collaborate with school districts, businesses, nonprofit organizations, and community members, including neighborhood watch groups, to maintain safety throughout the City.

Goal SAF-11 Design of the physical environment promotes community safety and reduces opportunities for criminal activity.

Policy SAF-11.1 Involve the Police Department in the development review process to address safety concerns, access issues, and potential traffic conflicts, and identify opportunities to apply CPTED principles.

Policy SAF-11.3 Coordinate efforts between the Police Department and Planning Department to develop guidelines for implementation of (Crime Prevention Through Environmental Design) CPTED principles.

Policy SAF-11.4 Continue to ensure that each development or neighborhood in the City has adequate emergency ingress and egress.

City of Murrieta Municipal Code

The City Municipal Code contains many policies governing the safety and security of the City, as carried out by the public services provided by police and fire departments. Title 8 establishes regulations related to health and safety. Title 9 establishes regulations related to public peace, morals, and welfare. Title 15 and Title 16 contain regulations related to buildings, construction, and development, including fire code standards.

City of Murrieta Development Impact Fee

New developments are subject to the payment of a Development Impact Fee (DIF), which would help cover the cost of new or expanded public facilities. The DIF amount is determined through evaluation of the need for new public service facilities as it relates to the level of service demanded by new development (City of Murrieta 2018d). The

current fee schedule for the City indicates the fee for commercial development is $11.49 per square foot, with allocations distributed to law enforcement, fire protection, road infrastructure, storm drainage, and general facilities. Commercial development is not charged a fee for parks, libraries, or the community center.

County of Riverside General Plan

The County General Plan Safety Element provides a framework by which safety considerations are introduced into the land use planning process, identifies hazards mitigation strategies and policies for new and existing development, and strengthens hazard preparedness in the County. The following policy from the Safety Element may be applicable to the proposed project (County of Riverside 2016):

Policy S 1.4 Implement the County of Riverside Multi-Jurisdictional Hazard Mitigation Plan.

The following policies from the County General Plan Multipurpose Open Space Element pertain to open space, parks, and recreation, and may be applicable to the project (County of Riverside 2015):

Policy OS 20.2 Prevent unnecessary extension of public facilities, services, and utilities, for urban uses, into Open Space-Conservation designated areas.

Policy OS 20.3 Discourage the absorption of dedicated park lands by non-recreational uses, public or private. Where absorption is unavoidable, replace park lands that are absorbed by other uses with similar or improved facilities and programs.

Policy OS 20.4 Provide for the needs of all people in the system of the County recreation sites and facilities, regardless of their socioeconomic status, ethnicity, physical capabilities or age.

Policy OS 20.5 Require that development of recreation facilities occurs concurrent with other development in an area.

Policy OS 20.6 Require new development to provide implementation strategies for the funding of both active and passive parks and recreational sites.

4.11.3 Thresholds of Significance

The significance criteria used to evaluate the project impacts to public services are based on Appendix G of the CEQA Guidelines. According to Appendix G of the CEQA Guidelines, a significant impact related to public services would occur if the project would:

1. 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:
    a. Fire protection.
    b. Police protection.
    c. Schools.

d. Parks.
e. Other public facilities.

4.11.4 Impacts Analysis

Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:

Fire protection?

Less-than-Significant Impact. The need for new or expanded public services (such as fire protection facilities) is typically associated with a population increase. The proposed project does not involve construction of new residential development, which is typically associated with a direct increase in population. The project is anticipated to employ a total of 285 full-time employees during operation. Conservatively assuming that all new employees would move to the City, this number is consistent with the growth projections anticipated by the City and the Southern California Association of Governments, as discussed in Section 4.10, Population and Housing. Project employment could result in slight residential population growth within the MFR's jurisdiction; however, the proposed project would not induce substantial unplanned population growth (see Section 4.10 of this EIR for details). Ultimately, the increase in on-site activity and slight population growth could result in increased calls for fire protection services to the project area.

As previously discussed, the City is currently served by five existing fire stations, the closest of which is Fire Station No. 4, located at 28155 Baxter Road, approximately 1.6 miles (driving distance) north of the project site. The annual emergency calls received by MFR as a whole, and specifically by Station No. 4, from 2014 to 2018 are shown in Table 4.11-4.

Table 4.11-4. Annual Call Volume

Year	Call Volume
Murrieta Fire and Rescue – All Stations	
2014	7,734
2015	8,326
2016	8,470
2017	9,072
2018	9,456
Station No. 4 Annual Call Volume	
2014	865
2015	991
2016	1,012
2017	1,224
2018	1,510

Source: Jensen, pers. comm. 2019b.

Total call volume, as documented by MFR, has increased annually as the City's population has also increased. Total annual calls for 2019 are anticipated to reach over 10,000 calls. Given that the potential population growth anticipated

to result from implementation of the project would be well within the expected population and employment growth for the City and the region, it is not expected that the population increase resulting from the project would result in a significant increase in calls to MFR.

As previously discussed, Fire Station No. 4 currently has a measured 90th percentile performance response time of 9 minutes 54 seconds, meeting the National Fire Protection Association response time goal 56.1% of the time, and the Community Risk Assessment-Standards of Cover response time goal 90.3% of the time (Lantzer, pers. comm. 2019). In the event that Fire Station No. 4 could not meet the immediate needs of a call for services independently or does not have capability to address the full extent of a larger incident, the four other fire stations in the City, followed by CAL FIRE and/or the closest available fire stations in neighboring jurisdictions, could respond or provide support through the Mutual Aid Agreements with the City.

The project would result in an increase in the intensity of use on the project site, which could result in increased calls for service to the fire department. However, the proposed project would be designed and constructed in accordance with all applicable provisions of the fire code, which would reduce the likelihood of fire ignition on the project site. Applicable provisions of the fire code include requirements for adequate fire flows, width of emergency access routes, turning radii, automatic sprinkler systems, fire alarms, and floor-to-sky height limits along emergency access routes. The proposed building materials and design features would include would include fire-rated split-face concrete masonry unit and textured insulated metal panel exterior walls, seam metal roofing, plaster, and other fire-resistant materials to be implemented on the Costco warehouse building and the Vineyard II retail buildings; a National Fire Protection Association 13 Commercial Fire Sprinkler System and fire rated exterior doors, along with asphalt roadways and parking; and a fully irrigated landscape with drought-tolerant, fire-resistive plantings. Further, per Section 15.24.290 of the Murrieta Municipal Code (as well as CFC Chapter 49 Section 4906 and 4907; California Public Resources Code, Section 4291; and California Government Code Section 51182), a 100-foot fuel modification zone (FMZ) is required around structures in fire hazard areas, to the extent possible (i.e., not beyond the property line).

Based on the site plan, the majority of the project site achieves 100 feet or more of on-site FMZ in the northern portion of the site, which consists of asphalt roadways and parking stalls and a fully irrigated landscape with City and MFR-approved plant species. However, conceptual building footprints partially protrude into the 100-foot FMZ along the northern boundary. More specifically, the northwestern portion of the Costco warehouse development provides 64 feet of achievable on-site fuel modification. However, as further analyzed in Section 4.17, Wildfire, for the areas of the project site where 100 feet of on-site FMZ is not achievable due to site constraints (i.e. the northwestern portion of the Costco site), the proposed building construction design features would provide adequate separation and radiant heat protection from a wildfire. The MFR is responsible for ensuring that new development complies with the CBC, Chapters 7 and 7A, and the CFC (24 CCR Part 9). Buildings would be required to install fire prevention devices, such as fire alarms and sprinklers, in order to improve emergency-related problems for the proposed development. As part of the standard development practices, the site plan would be reviewed by MFR prior to construction.

The proposed project would be subject to the payment of a DIF. The City's DIF provides funding for capital costs necessary to ensure that MFR is able to continue to provide service at acceptable levels. New development contributes its fair share of the cost for such facilities and equipment through payment of the DIF. The DIF amount is determined through evaluation of the need for new public service facilities as it relates to the level of service demanded by new development, which varies in proportion to specific land uses. A portion of the DIF would be used exclusively toward capital improvements, such as the construction of fire department facilities. According to the City's 2018–2019 fee schedule, the DIF for commercial development is $11.49/square foot, with $0.31/square foot specific to fire services (City of

Murrieta 2018d). Additionally, the proposed project would be consistent with or would not hinder implementation of the City General Plan goals and policies pertaining to fire protection services listed in Section 4.11.2, Relevant Plans, Policies, and Ordinances.

As discussed, the project site is located within the MFR's response area, and the department would provide service to the project site (Jensen, pers. comm. 2019a). As noted above, response times for Fire Station No. 4 are not meeting goals consistently. However, with the nearby services of Fire Station No. 4 and other fire stations in the City and neighboring jurisdictions, it is not anticipated that the project would result in need for a new or physically altered fire station. In addition, the project would implement fire safety measures consistent with the CFC into building design, such as sprinklers, emergency access, and fire alarms. Moreover, the project would pay its fair-share of the City's DIF to cover costs associated with public services, including fire and police protection, and would also generate revenues to the City's General Fund (in the form of property taxes, sales revenue, etc.) that could be applied toward the provision of firefighting resources and related staffing, including capital improvements such as the construction of fire department facilities, as deemed appropriate. In any case, the need for additional fire protection services is not an environmental impact that CEQA requires a project proponent to mitigate. See *City of Hayward v Board of Trustees of The California State University* (2015) 242 CalApp.4th 833. "[T]he obligation to provide adequate fire and emergency medical services is the responsibility of the City. (Cal. Const., art. XIII, § 35, subd. (a)(2) ['The protection of the public safety is the first responsibility of local government and local officials have an obligation to give priority to the provision of adequate public safety services']." Payment of the DIF would ensure the project contributes its fair share towards future facility improvements, expansion, or construction. Therefore, the project would not result in the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts.

Police protection?

Less-than-Significant Impact. As with fire services, increases in activities, visitors, employees, and events at the project site as a result of the proposed project could increase the frequency of emergency and non-emergency calls to the MPD from the project site, as compared with existing conditions. For example, the proposed project would introduce a commercial retail component to the project site, which would create the potential for crimes such as theft and robbery. Increased calls to the MPD and/or increased need for MPD support at the project site would have the potential to increase the need for police services.

A need for new or expanded public services, such as police facilities, is typically associated with a population increase. The proposed project does not include the construction of new homes. While the proposed project would lead to increased employment on the site, it was determined that the proposed project would not induce substantial unplanned population growth (see Section 4.10 of this EIR). Furthermore, the proposed project would incorporate operational practices and design elements to increase on-site safety and to reduce the potential for crime to occur. During construction, the contractor would implement temporary security measures including security fencing, lighting, locked entry, and private security officers. During operation, practices to increase safety could include security lighting, alarms, and security cameras. Project design would also employ defensible design, lighting, landscaping, and open fencing. These techniques would minimize spaces that are hidden from public view, which would help prevent loitering and crime. Building entries, parking areas, and walkways would be sufficiently lit, which would facilitate safe pedestrian movement. These design and operational practices would lessen the demand for police protection services at the project site by reducing the potential for crime to occur.

Police units are continuously mobile, and service calls are responded to by the nearest available mobile unit. As previously discussed, the MPD's average response times are currently at or better than the department's target response times. As discussed in Section 4.10, the City is expected to continue to experience population growth, and the MPD is anticipated to grow accordingly, with an increase of 10 additional sworn officers in 2019. Further, the police service ratio (number of officers per 1,000 residents) is anticipated to increase to 1 by December 2020, up from a service ratio of 0.81 in January 2019 (Hadden, pers. comm. 2019). Therefore, it is not anticipated that the project would hinder the MPD from continuing to meet or exceed target response times and provide adequate service levels.

Additionally, the proposed project would be consistent with or would not hinder implementation of the City General Plan goals and policies pertaining to police protection services listed in Section 4.11.2. As substantiated in this analysis, the proposed project is not anticipated to adversely affect service ratios or response times for police services such that new or expanded police facilities would be required. Therefore, the proposed project would not result in substantial adverse physical impacts associated with the provision of new or physically altered police facilities, or the need for new or physically altered police facilities; impacts would be less than significant.

Schools?

Less-than-Significant Impact. The project involves the development of a Costco Wholesale Warehouse and the Vineyard II retail development. The project does not include a residential component, and therefore would not directly generate new student enrollment. However, the project would generate approximately 285 new employment opportunities, which could indirectly generate population growth in the City and thus student enrollment. As shown in Table 4.11-3, as of 2017 the majority of schools in each school district are currently operating at or under capacity, with the exception of four schools. The four schools operating over capacity are located within the Murrieta Valley Unified School District and the Perris Union School District. As shown in Exhibit 5.19-1 in the Murrieta General Plan Final EIR, the project site is located in the southern portion of the Menifee Union School District boundary (City of Murrieta 2011a), which does not include schools operating over capacity. Further, the area where the project site is located (north of Clinton Keith Road and east of Interstate 215) is served by multiple school districts, including the Menifee Union School District, Perris Union School District, and Hemet Union School District (City of Murrieta 2011a). Each of the school districts that serve the City annually assesses the need for new or expanded school facilities and takes into consideration new development projects and approximate student generation.

Since the project area is served by multiple school districts, the region's projected enrollment may be calculated using the statewide average yield factors as provided by the State Allocation Board. This methodology is appropriate for considering any residential units that may be constructed as a result of increased employment at the project site. The statewide average student yield factor for unified school districts is 0.7 students per dwelling unit. Conservatively assuming all 285 new employees would relocate to the area and occupy 285 additional dwelling units, and using the statewide average student yield factor of 0.7 students per dwelling unit, it is anticipated the project could generate up to approximately 199.5 new students (285 new employees × 0.7 students per dwelling unit = 199.5 new students generated).

Per Senate Bill 50 (1998) and per the California Education Code (Title 1, Chapter 6, Section 17620) the governing board of any school district may charge a development fee on any new construction within the boundaries of the district for the purpose of funding the construction or reconstruction of school facilities. As the project is located within the boundaries of Menifee Unified School District, the Menifee Unified School District charges $0.439 per square foot for new commercial development (Menifee Unified School District 2019). Therefore, with payment by

the developers of school fees, the project would offset any potential increase in school enrollment. Further, as discussed in Section 4.10, the analysis conservatively assumes that all 285 new employees would relocate to the City, which is within the City and Southern California Association of Governments' growth projections for the City and region. However, each residential project occupied would also have been required to pay school fees pursuant to Senate Bill 50, which would constitute full mitigation for any impacts should they occur. As such, impacts related to school facilities would be less than significant, and no mitigation is required.

Parks?

Less-than-Significant Impact. The existing parks closest to the project site include Antelope Hills Park, located 0.7 miles southwest of the project site; Los Alamos Hills Sports Park, located 0.95 miles south of the project site; and Oak Terrace Park, located 1 mile southwest of the project site. Increased park use is typically associated with population growth. As discussed in Section 4.10, the project would not induce substantial unplanned population growth in the area, as the project does not involve a housing component or use that would typically result in substantial population growth. The project would generate new employment opportunities, which could indirectly contribute to increased park usage. However, the anticipated employment is well within the employment growth forecast for the City. Therefore, the local parks in the project area are not expected to experience a substantial increase in use as a result of the project. Likely because park use is generally associated with residential uses, the City's fee schedule does not allocate a portion of the DIF paid by commercial development toward park land facilities, while a portion of the DIF paid by residential development projects is allocated toward park land facilities (City of Murrieta 2018d). Conservatively assuming all 285 new employees would relocate to reside in the City, the residential units they occupy would be required to pay into the City's DIF toward park land facilities. Therefore, it is unlikely that the project would result in the need for additional park space, or increased use of existing parks or recreational facilities such that new or expanded facilities would be required. Therefore, impacts to park facilities and services would be less than significant.

Other public facilities?

Less-than-Significant Impact. The project would provide new employment opportunities, and thus could induce a slight population increase in the area, some of whom may use other public facilities. However, any increased use in public facilities by additional employees is expected to be minimal. As previously discussed, the anticipated slight population increase that could result from the project is well within the growth forecast for the City, and therefore the City is otherwise preparing for such growth. Further, the project would be subject to the City's DIF, which allocates the funds collected from new commercial development to law enforcement, fire protection, streets and bridges, traffic signals, storm drainage, and general public facilities. Therefore, with payment of the City's DIF, impacts to other public facilities would be less than significant.

4.11.5 Mitigation Measures

Impacts related to public services would be less than significant and no mitigation measures are necessary.

4.11.6 Level of Significance after Mitigation

Impacts related to public services would be less than significant and no mitigation measures are necessary.

4.11.7 Cumulative Impacts

As indicated above, the project would have a less-than-significant impact with respect to public services. However, a significant adverse cumulative impact related to public services could occur if the service demands of the proposed project were to combine with those of related projects, triggering a need for new or physically altered public service facilities, the development of which could cause significant environmental impacts. A significant adverse cumulative impact could also occur if the proposed project were to make a considerable contribution to a previously existing deficit in public services in the City.

Fire and Police

As discussed in Section 4.11.1, Existing Conditions, the project site is served by the MFR and MPD for fire and police services. The proposed project alone would not have a significant effect on fire or police protection services, and the project would not cause the need for new or physically altered government facilities in order to maintain acceptable levels of service related to fire and police protection. The 10 related projects located in the City (see Table 3-1, Related Projects) would also be served by the MFR and MPD in the project area. The three related projects located outside of the City (located in the Cities of Menifee and Wildomar) would be served by their respective fire and police departments. Both the Cities of Menifee and Wildomar contract with the Riverside County Sheriff's Department for police services and the Riverside County Fire Department and CAL FIRE for fire services. Because multiple fire and police stations are located within and surrounding the City, a variety of City and County facilities would be available to serve the related projects. It is assumed that the related projects would incorporate security measures, such as nighttime lighting, and fire safety measures consistent with the CFC into their building design, such as sprinklers, emergency access, and fire alarms. Further, new development would also generate revenues (in the form of property taxes, sales revenue, etc.) that could be applied toward the provision of firefighting resources and related staffing, as deemed appropriate. Finally, the City General Plan Safety Element (2035) contemplates a future addition of a sixth fire station to serve the eastern portion of the City; however no plans are in place and no site has been secured for this purpose. Further analysis would therefore be speculative and beyond the scope of this document. As the project would have a less-than-significant impact with respect to police and fire services it would not make a cumulatively considerable contribution to any cumulative police or fire services impacts, and no mitigation is required.

Additionally, consistent with the *City of Hayward v. Board Trustees of California State University* (2015) 242 Cal.App.4th 833 ruling and the requirements stated in the California Constitution, Article XIII, Section 35(a)(2), the obligation to provide adequate fire protection and emergency medical services is the responsibility of the City. Through the City's regular budgeting efforts, MFR and MPD's resource needs, including staffing, equipment, trucks and engines, ambulances, other special apparatuses, and possibly station expansions or new station construction, would be identified and allocated according to the priorities at the time.

Parks, Schools and Other Public Facilities

Cumulative impacts to schools would be offset by the payment of the developer school fee per Senate Bill 50 and per the California Education Code (Title 1, Chapter 6, Section 17620), which allows school districts to charge fees on new development within the district's boundaries. Further, increased use of parks and other public facilities, such as libraries, are generally attributed to residential development, as reflected in the City's fee schedule. As previously discussed, the project does not include residential uses. Cumulative projects in the City would be required to pay into the City's DIF program, which allocates funds to law enforcement, fire protection, streets and

bridges, traffic signals, storm drainage, general facilities, park land facilities, the community center, and the public library. Further, six of the related projects include residential components, and therefore would contribute to parks, schools, libraries, and other public facilities through the DIF program. Therefore, through the payment of development impact fees, which is considered an appropriate means of mitigating impacts, cumulative project impacts to public services would be less than significant.

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4.12 Recreation

This section describes the existing recreation setting of the project site, identifies associated regulatory requirements, evaluates potential impacts, and identifies mitigation measures related to implementation of the proposed Costco and Vineyard II Retail Development Project (project). Information presented in this section was gathered from a variety of publicly available sources, including the Murrieta General Plan 2035, the City of Murrieta Parks and Recreation Master Plan, and the County of Riverside General Plan.

4.12.1 Existing Conditions

The project site is an approximately 26.3 acre, rectangular-shaped site in the City of Murrieta (City). There are no existing recreational opportunities on site. The project site is surrounded by commercial development, residential development, a high school, and vacant land.

Off-Site Recreational Opportunities

County of Riverside Recreational Facilities

There are a wide range of open space areas, parks, and recreational areas within Riverside County, including Joshua Tree National Park and major state parks such as Anza-Borrego, the Salton Sea State Recreation Area, and Chino Hills State Park. A variety of Riverside County parks serve residents and visitors, including in the desert, mountain, and Colorado River regions. Riverside County maintains 35 regional parks encompassing roughly 23,317 acres. Other local parks fall under the jurisdiction of the Riverside County Recreation and Park Districts and serve the following areas: Beaumont-Cherry Valley; Coachella Valley; Jurupa; and the Valleywide area incorporating San Jacinto Valley, Winchester, Menifee Valley, and Anza Valley (County of Riverside 2015). There are no County of Riverside or other regional parks within the City of Murrieta.

City of Murrieta Recreational Facilities

The City encompasses approximately 1,350 acres of trails, open space, streetscape, slope, and park land (City of Murrieta 2018a). This includes 489.68 acres of parkland within 50 parks as well as additional recreational facilities such as the Senior Center, Youth Center, Community Center, Community Pool, Skate Park, and Equestrian Park (City of Murrieta 2011a; City of Murrieta 2018a). There are six types of parks in the City, including City-Wide Parks, Community Parks, Neighborhood Parks, Special Use Parks, and Native Parks (described in Table 4.12-1, Parks and Recreation Facility Types). The City has also established a Joint Use Agreement with 10 schools in the Murrieta Valley Unified School District, giving the City and the School District first priority to use each other's facilities. Some of the schools function as parks when school is not in session, and others are used by sports organizations (City of Murrieta 2009).

Table 4.12-1. Parks and Recreation Facility Types

Facility Type	Typical Size	Typical Features
City-Wide Parks	More than 50 acres	City-Wide Parks serve larger community populations and provide recreation facilities or open space in significant numbers or sizes. Los Alamos Hills Sports Park is currently the only City-Wide Park.
Community Parks	Up to 50 acres	Community Parks can provide a broad range of both passive and active recreational opportunities, but their primary purpose is to provide active recreational opportunities for use by a larger segment of the population

Table 4.12-1. Parks and Recreation Facility Types

Facility Type	Typical Size	Typical Features
		than neighborhood parks. Community Parks are generally considered to serve several neighborhoods within a 2-mile radius. If a Community Park is located within a residential area, it can also serve a neighborhood park function, and, therefore, is included in the service area analysis for Neighborhood Parks. Recreation centers are important features in some Community Parks. These are building facilities that may contain features such as gymnasiums, multi-purpose rooms, classrooms, and offices for recreation staff. Other facilities often found at Community Parks might include sports fields, sports courts, amphitheaters, and group picnic areas. Large special events such as concerts and festivals might also be held in larger Community Parks. There are seven Community Parks in Murrieta: Alta Murrieta Sports Park, California Oaks Sports Park, Copper Canyon Park, Glen Arbor Park, Hunt Park, Mira Mesa Park, and Pond Park.
Neighborhood Parks	Up to 15 acres	Neighborhood Parks are intended to serve City residents who live close by, but they also contribute to the overall park system available to the entire community. Ideally, everyone in the City would live within convenient walking distance (typically 0.5 miles) of a Neighborhood Park. This is defined as the "service radius" or "service area" of a Neighborhood Park. Neighborhood Parks should address daily recreation needs of the surrounding neighborhood; features of neighborhood parks might include playgrounds, multi-purpose open turf areas, practice sports fields, picnic tables and/or picnic shelters, walking paths, attractive landscaping, and recreation features such as basketball courts. A size of 5 acres or more is considered appropriate to serve a neighborhood of approximately 5,000 within its service area.
Neighborhood Play Areas	Up to 5 acres	Neighborhood Play Areas are intended to serve City residents who live close by, but they also contribute to the overall park system available to the entire community. Ideally, everyone in the City would live within convenient walking distance (typically 0.5 miles) of a Neighborhood Park or Neighborhood Play Area. Neighborhood Play Areas are included in the service radius analysis of Section Three. Neighborhood Play Areas should address daily recreation needs of the surrounding neighborhood; features of neighborhood parks might include playgrounds, vista points, multi-purpose open turf areas, picnic tables and/or picnic shelters, walking paths, attractive landscaping, and recreation features such as basketball courts.
Special Use Facilities	No size specification	Special Use Facilities generally possess a unique character or function focused on a single type of activity. An equestrian facility, disc golf course, off-road cycling course, museum, vista points, or community buildings (without an associated park) might be considered Special Use Facilities. Special Use Facilities are not usually included in the service area analysis for Neighborhood Parks. The 1999 Parks and Recreation Master Plan included joint-use school sites under the Special Use Facility category.

Table 4.12-1. Parks and Recreation Facility Types

Facility Type	Typical Size	Typical Features
Nature Parks	No size specification	Nature Parks are mostly undeveloped, and the undeveloped portions contain vegetation, topography, or features that are important to retain in their natural state. Physical public access to natural areas via trails should be encouraged where feasible and appropriate. For the purposes of defining this park type, "natural" refers to vegetation and land forms indigenous to the area; turf, irrigated manufactured slopes, detention basins, weedy disturbed areas, and areas landscaped with ornamental vegetation would be considered part of the developed portion of a Nature Park. Nature Park is a new category of park facility that was previously included under Special Use Facilities.

Source: City of Murrieta 2009

The City has adopted a standard of 5 acres of local parkland per 1,000 residents. According to the City of Murrieta's Parks and Recreation Master Plan (Parks Master Plan), based on the City's standard of 5 acres of parkland per 1,000 residents, in June 2009 the City had a deficit of 34 acres and an anticipated deficit of 133 acres at build out of the City if no new parkland is added and the City continues to grow as anticipated. Further, based on resident surveys, the Parks Master Plan estimated a need for an additional 240.3 acres at build-out of the City to accommodate the City's identified needs for recreational facilities such as sports fields and courts (City of Murrieta 2009). However, the Parks Master Plan does not identify these as significant shortages (City of Murrieta 2009). Further, since the adoption of the Parks Master Plan in 2009, additional parks have been added, are in the design phase, or have been constructed (City of Murrieta 2011a). Nonetheless, the Environmental Impact Report (EIR) for the City's General Plan identifies this deficit as a significant and unavoidable impact to recreational resources (City of Murrieta 2011b). However, the City charges a Parkland Facilities Development Impact Fee (DIF) for residential units, as allowed by the Quimby Act (California Government Code Section 66477), which is used for park and recreational facility improvements. Thus, it is anticipated that more parkland and recreational facility areas would become available within the City, and as new residential developments are built and constructed in the City, such projects would be subject to all provisions of the Quimby Act to set aside land or pay in-lieu fees to provide park and recreation facilities (City of Murrieta 2011b).

Recreational Facilities Near the Project Site

The nearest parks and recreational facilities to the project site are Antelope Hills Park, Oak Terrace Park, and Los Alamos Hills Sports Park (City of Murrieta 2018b).

Antelope Hills Park

Antelope Hills Park is a 1.5-acre park located at 27385 Carlton Oaks Street. The park is 0.70 miles southwest of the project site. Existing recreational facilities and amenities at the park include an amphitheater, barbeques, open grass areas, picnic tables, shelter/shade areas, a playground, water fountains, and basketball courts (City of Murrieta 2011a).

Oak Terrace Park

Oak Terrace Park is a 7.5-acre park located at 27301 Sweetspire Terrace. The park is approximately 1 mile southwest of the project site. Existing recreational facilities and amenities include open grass areas, playground, picnic tables, and water fountains (City of Murrieta 2011a).

Los Alamos Hills Sports Park

Los Alamos Hills Sports Park is Murrieta's only City-Wide Park, with 47 acres of parkland. Located at 37000 Ruth Ellen Way, it is 0.95 miles south of the project site. Existing recreational facilities and park amenities include barbeques, athletic fields (baseball, football, soccer), bike/walking paths, picnic tables, open grass areas, a parking lot, restrooms, shelter/shade areas, multi-purpose trails, water fountains, a concession building, and play areas. Future plans for the park call for a community center and may include a gymnasium and outdoor facilities including a swimming pool and tennis courts (City of Murrieta 2011a).

4.12.2 Relevant Plans, Policies, and Ordinances

Federal

There are no federal plans, policies, or ordinances related to recreation that are applicable to the proposed project.

State

California Government Code Section 66477 (Quimby Act)

Section 66477 of the California Government Code (the Quimby Act) provides cities and counties with the authority to require, by ordinance, land dedications, fee payments, or a combination thereof, for recreation facilities as a condition to the approval of Tentative Maps and Parcel Maps. Section 66477 outlines a number of items that must be contained in the local ordinance, including standards from which calculations can be made for the amount of land or fee that must be given for recreation purposes. In addition, the dedications and fees can only be used for creating or rehabilitating recreational facilities, and the city/county must develop a timeline for the construction of facilities.

Local

City of Murrieta 2035 General Plan

The Murrieta General Plan Recreation and Open Space Element identifies the following Community Priorities related to parkland (City of Murrieta 2011a):

- Protect the natural beauty of the mountains, hills, and waterways.
- Provide abundant parks and facilities for recreational activities, and cultural amenities.
- Provide ample activities for all ages of youth, and jobs for teens.

The following General Plan policies may be applicable to the proposed project (City of Murrieta 2011a):

Policy ROS-1.1 Maintain a minimum standard of 5 acres of local parkland per 1,000 population.

Policy ROS-8.4 When reviewing new development or redevelopment projects, refer to the Trails Plan to determine whether right-of-way is needed for trails on the project site.

Policy ROS-9.2 Encourage new and existing commercial, office, and industrial development to provide outdoor green spaces that may be used by employees.

Policy ROS-9.3 Encourage new development and redevelopment projects to incorporate gardens and green spaces with various cultural influences throughout the community to bridge cultures and provide education opportunities.

Policy ROS-9.4 Encourage green spaces planted with a diverse plant palette in order to promote natural variety, ecosystem services, and enhance the well-being of community residents.

Policy ROS-9.5 Review and modify as necessary, open space requirements for different types of development projects.

The City of Murrieta Parks and Recreation Master Plan

The City of Murrieta Parks and Recreation Master Plan guides the planning for parks, recreation facilities, and programs in the City. The Parks Master Plan provides information about the park and recreation facilities in the City, including a needs assessments and gap analysis, recommendations for meeting current and future park needs, and a financial implementation plan. The Parks Master Plan is drawn from the objectives and policies within the General Plan (City of Murrieta 2009).

County of Riverside General Plan

The County of Riverside General Plan Multipurpose Open Space Element addresses providing recreational opportunities for the residents of Riverside County, as well as protecting and preserving natural resources, agriculture, and open space areas; managing mineral resources; and preserving and enhancing cultural resources (County of Riverside 2015). The following policies related to open space, parks, and recreation may be applicable to the proposed project.

The following policies pertain to open space (County of Riverside 2015):

Policy OS 20.1 Preserve and maintain open space that protects County environmental and other nonrenewable resources and maximizes public health and safety in areas where significant environmental hazards and resources exist.

Policy OS 20.2 Prevent unnecessary extension of public facilities, services, and utilities, for urban uses, into Open Space-Conservation designated areas.

The following policies pertain to parks and recreation (County of Riverside 2015):

Policy OS 20.3 Discourage the absorption of dedicated park lands by non-recreational uses, public or private. Where absorption is unavoidable, replace park lands that are absorbed by other uses with similar or improved facilities and programs.

Policy OS 20.4 Provide for the needs of all people in the system of the County recreation sites and facilities, regardless of their socioeconomic status, ethnicity, physical capabilities or age.

Policy OS 20.5 Require that development of recreation facilities occurs concurrent with other development in an area.

Policy OS 20.6 Require new development to provide implementation strategies for the funding of both active and passive parks and recreational sites.

4.12.3 Thresholds of Significance

The significance criteria used to evaluate the project impacts to recreation are based on Appendix G of the California Environmental Quality Act (CEQA) Guidelines. According to Appendix G of the CEQA Guidelines, a significant impact related to recreation would occur if the project would:

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.

Include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment.

4.12.4 Impacts Analysis

Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?

Less-than-Significant Impact. The project involves the construction and operation of a Costco warehouse and gas station and the Vineyard II Retail Development. As discussed in Section 4.10, Population and Housing, of this EIR, the project is anticipated to employ approximately 285 full-time employees. This EIR conservatively assumes that all 285 employees would be new residents who would relocate to the City and use existing parks and recreational facilities. It is likely that some of these future employees currently reside in the City and are already using City parks and recreational facilities. Nonetheless, the conservative analysis in Section 4.10 found that the project would not induce substantial unplanned population growth, and that growth as a result of the project would be consistent with Southern California Association of Governments (SCAG) overall growth projections for the City. The anticipated population increase as a result of project employees moving to the City represents 3% of the 9,500 employees anticipated to be added to the City's labor force between 2020 and 2040, and 4.6% of the expected population growth in the City during the same time period. As such, it can be expected that the City's plans for the addition of parkland and recreation facilities should be consistent with the demand of an increasing population.

The analysis in the 2009 Parks Master Plan identified a deficit of 133 acres of parkland at build-out of the City if no new parks are added and the City continues to grow as anticipated (City of Murrieta 2009). Table 9-1 of the Murrieta General Plan Recreation and Open Space Element reflects several new parks and recreational facilities that have been added since the 2009 Parks Master Plan. The City has continued to add parkland and has a total of 489.68 acres of parkland in 50 parks (City of Murrieta 2011a), an increase from 467.24 acres in 48 parks in 2009 (City of Murrieta 2009). Given the City's population of 118,125 as of 2019 (see Section 4.10, Population and

Housing), the City should have a total of 590.6 acres of parkland in order to meet its goal of 5 acres of parkland per 1,000 residents. Therefore, the City is currently experiencing a parkland deficit of approximately 100.9 acres. As previously discussed, the EIR prepared for the City's General Plan identified a significant and unavoidable impact to recreational resources (City of Murrieta 2011b). As such, the City is in need of additional parkland regardless of the proposed project. Additionally, according to the City Parks and Recreation Department, existing parkland is supplemented by facilities that are not included in this analysis. The City Parks and Recreation Department identifies 1,350 acres of trails, open space, streetscape, slope, and parkland in the City (City of Murrieta 2018a).

Although the City is currently experiencing a deficit in the desired parkland ratio, this does not indicate that existing facilities have reached capacity for use, and does not suggest that increased use associated with projected project employees would result in substantial physical deterioration of the facilities. If new employees elect to reside in the City, available and proposed housing stock is subject to the payment of DIFs, including local park development fees (i.e., Quimby Act fees). These fees are used by the City for the acquisition and construction of new parklands or maintenance and improvement of existing facilities. Therefore, the housing supply in the City (new or existing) that would support the new residents resulting from the project would be expected to contribute to the City's Quimby Act fees. If all 285 new employees move to the City, the DIF paid by the residential developments in which they reside would contribute to park and recreational facility development and improvements.

Further, the General Plan Recreation and Open Space Element identifies park site opportunities in Exhibit 9-3. There are no park site opportunities identified within or immediately adjacent to the project site (City of Murrieta 2011a).

Therefore, the City's current and ongoing plans for additional parkland, as funded by the City's DIF, would help to offset any increased use of parkland and recreational facilities as a result of the project. Nonetheless, the City has identified a deficit in parkland that would occur regardless of the project. As such, the potential population increase associated with the project and increased use of parks and recreational facilities by project employees is not expected to result in substantial physical deterioration of any one park or recreational facility in the City. Therefore, the project would not contribute to substantial deterioration of existing facilities, and impacts to recreational facilities would be less than significant.

Would the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?

Less-than-Significant Impact. The proposed project would not include recreational facilities. As previously discussed, the project would not require the construction or expansion of recreational facilities beyond which the City is already planning. As discussed in Section 4.12.1, Existing Conditions, the parks nearest to the project site are Antelope Hills Park, Oak Terrace Park, and Los Alamos Hills Sports Park (City of Murrieta 2018). Los Alamos Hills Sports Park is Murrieta's largest park (45 acres), with plans for expansion in two additional phases of development. This expansion is planned in accordance with the City's goals to increase parkland acreage, regardless of the proposed project. The project would not include recreational facilities or require the construction or expansion of recreational facilities. Impacts would be less than significant.

4.12.5 Mitigation Measures

The project would result in less-than-significant impacts to recreation, and no mitigation measures are necessary.

4.12.6 Level of Significance After Mitigation

The project would result in less-than-significant impacts to recreation, and no mitigation measures are necessary.

4.12.7 Cumulative Impacts

Cumulative impacts to recreation would result from a combination of projects that induce a substantial and detrimental increased use of parks and recreational facilities. Individually, the project would result in a slight population growth in the City; however, as previously discussed, this growth projection is consistent with SCAG's growth projections for the City and would not result in substantial physical deterioration of existing facilities. A list of approved and proposed projects in the project area was provided by the City of Murrieta and the City of Menifee, as shown in Table 3-2. The list consists of a combination of retail and residential projects.

Of the proposed or approved projects in the area, six consist of residential development. These projects would have the most obvious growth-inducing impacts, and would also be subject to the City's Parkland Facilities DIF for residential units, as allowed by the Quimby Act (California Government Code Section 66477), which is used for park and recreational facility improvements. These contributions would aid the City in creating or improving recreational facilities.

As discussed in Section 4.10, Population and Housing, of this EIR, the cumulative growth induced by these projects would be within the growth projections for the City. The cumulative growth induced by the project combined with other approved and proposed projects is unlikely to result in substantial impacts to recreational facilities or require the construction or expansion of recreational facilities beyond what the City and region are already planning for. In combination with related projects, cumulative impacts to recreation would not be considerable.

4.12.8 References Cited

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4.13 Transportation

This section describes the existing transportation/circulation setting of the project site, identifies associated regulatory requirements, evaluates potential impacts, and identifies mitigation measures related to implementation of the proposed Costco/Vineyard II Retail Development Project (project). Transportation impacts associated with the project were derived from the project-specific Traffic Impact Analysis (TIA) prepared by Kittelson and Associates Inc. and provided as Appendix I.

4.13.1 Existing Conditions

Regional Setting

The City of Murrieta (City) is located in southwestern Riverside County (County) and is composed of 21,511 acres (33.61 square miles). Surrounding cities include the City of Menifee to the north; the City of Temecula to the south and east; the City of Wildomar to the west; and unincorporated Riverside County to the north, south, and east. The San Diego County border is south of Temecula, and Orange County lies to the west of the Santa Ana Mountains. Regional access to the City is provided by Interstate (I) 15 and I-215.

Much of the transportation system, such as the local, collector, and arterial street system, and most of the traffic signals, in the City is owned and controlled by the City. However, some of the facilities are owned and controlled by other agencies, including the California Department of Transportation (Caltrans) and the County, or shared with other jurisdictions, such as the Cities of Temecula and Wildomar. Similarly, while much of the funding for the transportation system is local, significant funds for improvement and maintenance also come from other sources, including state, federal, and County-level funding sources. Finally, transportation planning and programming is the responsibility of a number of agencies, including the City, the County, the Riverside County Transportation Commission (RCTC), and the Southern California Association of Governments (SCAG). At the state level, Caltrans is the agency responsible for funding and maintaining the State Highway System and Interstate Highway System.

The regional planning agencies of the RCTC and SCAG are responsible for regional transportation planning, traffic forecasting, developing regional plans, and distributing regional transportation funds. At the County level, the County operates some County facilities and also administers Measure A, the local county half-cent sales tax for transportation. Several transportation plans and project lists are prepared by the various agencies, including the Regional Transportation Plan (RTP) by SCAG, with input from other agencies, and the State and Regional Transportation Improvement Programs (STIP and RTIP). The Western Riverside Council of Governments (WRCOG) developed and administers the Transportation Uniform Mitigation Fee (TUMF) program (City of Murrieta 2011a).

Project Setting

The approximately 26.3-acre project site is located in the northern portion of the City in the County. Specifically, the project site is located on a vacant lot, north of Clinton Keith Road and east of vacated Antelope Road, northeast of the intersection of I-215 and Clinton Keith Road. The City's General Plan Land Use Map designates the project site as Commercial (C) (City of Murrieta 2011a). The City's Zoning Map shows the site as being zoned Regional Commercial (RC) (City of Murrieta 2017). Land uses adjacent to the site include a vacant lot to the north, residential development to the east, and vacant land and the I-215 to the west; to the south, there is land currently being developed with the Vineyard I project, and further south, Vista Murrieta High School. The vacant sites to the west of

the project site are proposed for commercial development. The project does not propose any changes to existing zoning. Primary access to the project site would be provided through Clinton Keith Road and a new north–south roadway, Warm Springs Parkway, that would be constructed from the southern site boundary to the northern site boundary. Secondary access to the project site would be provided by Creighton Avenue; however, this access is not guaranteed to be in operation by opening day. Therefore, two access alternatives were analyzed, with and without Creighton Avenue access.

Surrounding Roadway Facilities

I-215: I-215 is a north–south interstate highway that provides regional access to the City of Menifee and connects to I-15 to the south and State Route (SR) 60 to the north. Interchanges along I-215 near the project site are provided at Clinton Keith Road (just south of the site) and Scott Road (approximately 3 miles north of the site). In the study area, I-215 provides three travel lanes in each direction.

I-15: I-15 is a north–south interstate highway that provides regional access to the Cities of Corona and Temecula. Interchanges along I-15 near the project site are provided at Clinton Keith Road and the interchange with I-215. In the study area, I-15 provides three travel lanes in each direction.

Clinton Keith Road: Clinton Keith Road is an east–west roadway providing primary access to the project site. This roadway is classified as an arterial to the west of the project site. Clinton Keith Road was designed and constructed at its ultimate width, which accommodate three travel lanes in each direction. At some locations it is striped as two lanes in each direction with the intent to restripe the roadway to add the additional lanes as traffic volumes increase. Currently there are two eastbound through lanes at all locations and two westbound through lanes at all locations except at Mitchell Road/Murrieta Oaks Avenue, where there are three westbound lanes. An extension of Clinton Keith Road to connect Whitewood Road to Leon Road was recently completed and opened to the public in August 2018. In the future, the roadway will be further extended to SR-79 when funding is available.

Whitewood Road: Whitewood Road is a four-lane major north–south roadway located east of the project site. Whitewood Road serves several residential neighborhoods to the north and south of Clinton Keith Road and an extension of Whitewood Road from Baxter Road to Keller Road has recently been completed and allows access to Scott Road to the north.

Antelope Road: Antelope Road is a north–south local roadway without access to Clinton Keith Road. It is a two-lane roadway without sidewalks. The portion of Antelope Road between Clinton Keith Road and the northern boundary of the site has been vacated, with the proposed development of the Vineyard III project on the site just to the east, and Antelope Road would become a cul-de-sac north of the site.

Warm Springs Parkway: Warm Spring Parkway is a planned north–south roadway, providing direct access to the project site. The roadway would be completed to the northern edge of the project boundary. In the future, Warm Springs Parkway is planned to continue north to tie into the existing Antelope Road south of Scott Road, depending on future development.

Figure 4.13-1 shows the selected study intersections in the project's study area. The study intersections were identified through the City scoping process, and are as follows:

1. I-15 Southbound (SB) Ramps and Clinton Keith Road
2. I-15 Northbound (NB) Ramps and Clinton Keith Road

3. George Avenue and Clinton Keith Road
4. Inland Valley Drive and Clinton Keith Road
5. Salida Del Sol and Clinton Keith Road
6. Elizabeth Lane and Clinton Keith Road
7. Smith Ranch Road and Clinton Keith Road
8. Nutmeg Street and Clinton Keith Road
9. California Oaks Road and Clinton Keith Road
10. Greer Road/Murrieta Oaks Avenue West and Clinton Keith Road
11. Mitchell Road/Murrieta Oaks Avenue East and Clinton Keith Road
12. McElwain Road and Clinton Keith Road
13. I-215 SB Ramps and Clinton Keith Road
14. I-215 NB Ramps and Clinton Keith Road
15. Creighton Avenue and Clinton Keith Road
16. High School West Driveway/Warm Springs Parkway and Clinton Keith Road
17. Bronco Way and Clinton Keith Road
18. Whitewood Road and Clinton Keith Road
19. Whitewood Road and Linnel Lane
20. Whitewood Road and Baxter Road
21. Whitewood Road and Keller Road
22. Max Gillis Blvd/Briggs Road and Leon Road
23. Max Gillis Blvd/Thompson Road and SR-79

A. Warm Springs Parkway and Project Driveway A (future)
B. Warm Springs Parkway and Project Driveway B (future)
C. Warm Springs Parkway and Project Driveway C (future)
D. Warm Springs Parkway and Project Driveway D (future)

In addition to these intersections, the following roadway segments were analyzed:

1. Clinton Keith Road, between I-215 northbound ramps and Warm Springs Parkway
2. Whitewood Road, north of Clinton Keith Road
3. Warm Springs Parkway, north of Clinton Keith Road (future scenarios)

In accordance with the request of Caltrans District 8 staff, freeway mainline segments along I-215 were also evaluated between the Scott Road interchange north and Murrieta Hot Springs Road interchange south of the project site.

Analysis Methodologies

Level of Service Analysis

The City of Murrieta Traffic Impact Preparation Guide provides the following methodologies for LOS analysis. The Highway Capacity Manual 2010 (HCM 2010) (TRB 2010) analysis methodology was applied to the study area intersections. The study area intersection operational analyses in this EIR were prepared using the Synchro 9 software, which implements the HCM 2010 methodology. Due to limitations in the application of the HCM 2010 analysis methodology with Synchro 9, the HCM 2000 methodology would apply in several cases, including intersections with U-turn movements and exclusive pedestrian phases. For this study, U-turn movements were coded as left turns where possible and intersections with exclusive pedestrian phases (intersection of California Oaks Road and Clinton Keith Road) were evaluated with HCM 2000.

The intersections were analyzed using the existing signal timing. In some cases, signalized intersections have cycle lengths of more than 120 seconds, which is the maximum cycle length cited for use by the City. In some cases, cycle lengths are longer due to the time needed for pedestrian crossing movements or exclusive pedestrian phases. To most accurately model field conditions and represent what operations are occurring, the signal timing currently in place was used.

At intersections, LOS is defined based on the delay experienced per vehicle. The LOS methodology for signalized intersections accounts for several variables, including but not limited to the effects of signal type, timing, phasing, and progression on average delay. Unsignalized intersections include two-way stop-controlled (TWSC) and all-way stop-controlled intersections. At a TWSC intersection, LOS is based on the delay for the worst operating movement. The LOS for an all-way stop-controlled intersection is defined by average delay for movements at the intersection. Table 4.13-1 and Table 4.13-2 define average delay per vehicle and LOS for signalized and unsignalized intersections, respectively.

Table 4.13-1. Level of Service and Average Vehicular Delay Definition for Signalized Intersections

LOS	Delay per Vehicle (seconds)	Definition
A	≤10	LOS A describes operations with a control delay of 10 s/veh or less and a v/c ratio no greater than 1.0. This level is typically assigned when the v/c ratio is low, and either progression is exceptionally favorable, or the cycle length is very short. If it is due to favorable progression, most vehicles arrive during the green indication and travel through the intersection without stopping.
B	>10 and ≤20	LOS B describes operations with control delay between 10 and 20 s/veh and a v/c ratio no greater than 1.0. This level is typically assigned when the v/c ratio is low and either progression is highly favorable or the cycle length is short. More vehicles stop than with LOS A.
C	>20 and ≤35	LOS C describes operations with control delay between 20 and 35 s/veh and a v/c ratio no greater than 1.0. This level is typically assigned when progression is favorable or the cycle length is moderate. Individual cycle failures (i.e., one or more queued vehicles are not able to depart as a result of insufficient capacity during the cycle) may begin to appear at this level. The number of vehicles stopping is significant, although many vehicles still pass through the intersection without stopping.

Table 4.13-1. Level of Service and Average Vehicular Delay Definition for Signalized Intersections

LOS	Delay per Vehicle (seconds)	Definition
D	>35 and ≤55	LOS D describes operations with control delay between 35 and 55 s/veh and a v/c ratio no greater than 1.0. This level is typically assigned when the v/c ratio is high, and either progression is ineffective, or the cycle length is long. Many vehicles stop and individual cycle failures are noticeable.
E	>55 and ≤80	LOS F describes operations with control delay exceeding 80 s/veh or a v/c ratio greater than 1.0. This level is typically assigned when the v/c ratio is very high, progression is very poor, and the cycle length is long. Most cycles fail to clear the queue.
F	>80	LOS F describes operations with control delay exceeding 80 s/veh or a v/c ratio greater than 1.0. This level is typically assigned when the v/c ratio is very high, progression is very poor, and the cycle length is long. Most cycles fail to clear the queue.

Source: Appendix I.
Notes: LOS = level of service; s/veh: seconds of delay per vehicle; v/c = volume to capacity

Table 4.13-2. Level of Service and Average Vehicular Delay Definition for Unsignalized Intersections

Level of Service	Delay per Vehicle (seconds)
A	≤10
B	>10 and ≤15
C	>15 and ≤25
D	>25 and ≤35
E	>35 and ≤50
F	>50

Source: Appendix I.

Intersection Queuing Analysis

Intersection queuing analysis was conducted for the study intersections. Expected intersection queues and how they compare to intersection geometry and available queue storage has influence on traffic operations. The average and 95th percentile queues as reported by Synchro 9 HCM methodology were used to assess queuing at all study intersections. The queue storage was estimated based on the striped queue storage shown in Google Earth and field verification.

Roadway Segment Analysis

For the roadway ADT analysis, weekday and Saturday daily volumes were compared to roadway capacities to determine the volume-to-capacity (v/c) ratio of the segment. Table 5-2 of the City's General Plan provides capacities based on roadway classification, as well as LOS based on ADT. The observed volumes were compared to the capacities corresponding to LOS E. The General Plan provides the maximum two-way ADT volume for each LOS grade C through E, as shown in Table 4.13-3.

Table 4.13-3. Level of Service

Facility	Number of Lanes	Maximum Two-Way Volume (ADT)		
		LOS C	*LOS D*	*LOS E*
Urban Arterial	6	43,100	48,500	53,900
Major	4	27,300	30,700	34,100

Source: Table 5-2 from the City of Murrieta's General Plan.
Note: ADT = average daily traffic; LOS = level of service.

Freeway Analysis

The mainline basic freeway segment, weaving, and merge/diverge analyses were assessed using the HCM 2010 methodology. This methodology correlates measured density for the four types of freeway facilities to a standard LOS measure.

Basic Freeway Segments

Peak hour freeway mainline analysis was conducted using the Basic Freeway Segments methodology (Chapter 11, HCM 2010), with calculations performed using the Highway Capacity Software (HCS 2010, Version 6.8). For mainline segments, LOS is measured in terms of density, as shown in Table 4.13-4. Density describes the proximity to other vehicles, is related to the freedom to maneuver within the traffic stream, and is defined as the number of passenger cars per mile per lane.

Table 4.13-4. Level of Service and Density Definition for Basic Freeway Segments

LOS	Density (passenger cars per mile per lane)
A	≤11
B	>11 and ≤18
C	>18 and ≤26
D	>26 and ≤35
E	>35 and ≤45
F	>45 (demand exceeds capacity)

Source: Appendix I.
Note: LOS = level of service.

Merge and Diverge Segments

Peak hour ramp operations analysis was conducted using the Freeway Merge Diverge Segments methodology (Chapter 13, HCM 2010), with calculations performed using the Highway Capacity Software (HCS 2010, Version 6.8). For merge/diverge segments, the methodology evaluates the effects of merging traffic onto the freeway on-ramps and diverging traffic from the freeway for off-ramps. LOS is measured in terms of density (the number of passenger cars per mile per lane), as shown in Table 4.13-5.

Table 4.13-5. Level of Service and Density Definition for Merge/Diverge Segments

LOS	Density (passenger cars per mile per lane)
A	≤10
B	>10 and ≤20

Table 4.13-5. Level of Service and Density Definition for Merge/Diverge Segments

LOS	Density (passenger cars per mile per lane)
C	>20 and ≤28
D	>28 and ≤35
E	>35
F	demand exceeds capacity

Source: Appendix I.
Note: LOS = level of service.

Freeway Weaving Segments

Peak hour weaving segment operations analysis is conducted using the Freeway Weaving Segments methodology (Chapter 12, HCM 2010), with calculations performed using the Highway Capacity Software (HCS 2010, Version 6.8). For weaving segments, the methodology evaluates the effects of lane-changing maneuvers between closely spaced ramps. LOS is measured in terms of density (the number of passenger cars per mile per lane), as shown in Table 4.13-6.

Table 4.13-6. Level of Service and Density Definition for Weaving Segments

LOS	Density (passenger cars per mile per lane)
A	≤10
B	>10 and ≤20
C	>20 and ≤28
D	>28 and ≤35
E	>35
F	demand exceeds capacity

Source: Appendix I.
Note: LOS = level of service.

Vehicle Miles Traveled

Under CEQA Guidelines Section 15064.3, each lead agency is granted discretion to choose "the most appropriate methodology to evaluate a project's vehicle miles traveled, including whether to express the change in absolute terms, per capita, per household or in any other measure. A lead agency may use models to estimate a project's vehicle miles traveled and may revise those estimates to reflect professional judgment based on substantial evidence. Any assumptions used to estimate vehicle miles traveled and any revisions to model outputs should be documented and explained in the environmental document prepared for the project." Further, "if existing models or methods are not available to estimate the vehicle miles traveled for the particular project being considered, a lead agency may analyze the project's vehicle miles traveled qualitatively. Such a qualitative analysis would evaluate factors such as the availability of transit, proximity to other destinations, etc. For many projects, a qualitative analysis of construction traffic may be appropriate." Although this analysis is not required by CEQA, In order to provide information to the decision makers who may consider this project after July 1, 2020, a qualitative analysis of vehicle miles traveled (VMT) impacts of the proposed project is provided utilizing the VMT calculations incorporated in the Air Quality analysis and guidance from OPR and the WRCOG.

Existing Traffic Volumes

Existing and future traffic operating conditions were evaluated at each study intersection and roadway segment. Project-related traffic would pass through these intersections and roadway segments, and each intersection and roadway segment was analyzed to determine the impact of the project.

Existing weekday PM peak hour and Saturday midday peak hour traffic volumes for the study intersections were obtained through manual turning-movement counts in November and December 2017 and October 2018. The counts were conducted on a typical weekday during the evening (4:00 p.m. to 6:00 p.m.) peak period and on a typical Saturday during the midday peak period (12:00 p.m. to 2:00 p.m.). Intersection peak hour volumes were used to provide a conservative analysis.

Figure 4.13-2 and Figure 4.13-3 show the existing weekday PM peak hour and Saturday midday peak hour traffic volumes at the key study intersections evaluated in the TIA, respectively. Roadway daily tube counts were also conducted in November and December 2017 and 2018 alongside intersection data collection. Freeway mainline data were collected using Caltrans Performance Measurement System for I-215 where available.

Existing Level of Service

Intersections

Level of service (LOS) is based on the delay experienced per vehicle at signalized and unsignalized intersections. The LOS analysis was conducted for weekday PM peak hour and Saturday midday peak hour using existing turning movement volumes. Table 4.13-7 summarizes the existing peak hour LOS calculations for the key study intersections based on existing traffic volumes and current street geometrics. The City's General Plan Circulation Element establishes a minimum LOS standard during peak hours of LOS D for intersections, LOS C for roadway segments, and LOS E at freeway interchanges. As an exception, LOS D for roadway segments may be allowed in certain areas, including the North Murrieta Business Corridor and Multiple Use 3 Focus Area, which encompass the proposed site and study roadways.

Table 4.13-7. Existing Conditions Intersection Level of Service Analysis

ID	Intersection	Traffic Control	Weekday PM Peak		Saturday Midday Peak	
			Delay (s)	*LOS*	*Delay (s)*	*LOS*
1	I-15 SB Ramps and Clinton Keith Road	Signal	21.5	C	18.4	B
2	I-15 NB Ramps and Clinton Keith Road	Signal	21.7	C	19.0	B
3	George Avenue and Clinton Keith Road	Signal	23.5	C	21.9	C
4	Inland Valley Drive and Clinton Keith Road	Signal	24.8	C	10.9	B
5	Salida Del Sol and Clinton Keith Road	TWSC[1]	**59.1 (SBL/R)**	**F**	24.6 (SBL/R)	C
6	Elizabeth Lane and Clinton Keith Road	TWSC[1]	**91.1 (NBL/T/R)**	**F**	29.7 (NBL/T/R)	D
7	Smith Ranch Road and Clinton Keith Road	Signal	13.1	B	12.4	B
8	Nutmeg St and Clinton Keith Rd	Signal	34.0	C	16.5	B
9	California Oaks Rd and Clinton Keith Rd	Signal	44.3	D	21.2	C
10	Greer Rd/Murrieta Ave West and Clinton Keith Rd	Signal	15.5	B	10.8	B

Table 4.13-7. Existing Conditions Intersection Level of Service Analysis

ID	Intersection	Traffic Control	Weekday PM Peak		Saturday Midday Peak	
			Delay (s)	*LOS*	*Delay (s)*	*LOS*
11	Mitchell Rd/Murrieta Oaks Ave East and Clinton Keith Rd	Signal	28.9	C	15.7	B
12	McElwain Rd and Clinton Keith Rd	Signal	32.3	C	25.0	C
13	I-215 SB Ramps and Clinton Keith Rd	Signal	16.3	B	13.7	B
14	I-215 NB Ramps and Clinton Keith Rd	Signal	20.0	B	16.3	B
15	Creighton Ave and Clinton Keith Rd	Signal	6.4	A	5.4	A
16	High School West Dwy/Warm Springs Parkway and Clinton Keith Rd	TWSC[1]	20.8 (NBR)	C	NA[2]	NA
17	Bronco Way and Clinton Keith Rd	Signal	10.9	B	5.9	A
18	Whitewood Rd and Clinton Keith Rd	Signal	46.7	D	26.8	C
19	Whitewood Rd and Linnel Ln	Signal	12.8	B	13.9	B
20	Whitewood Rd and Baxter Rd	Signal	18.6	B	13.4	B
21	Whitewood Rd and Keller Rd	Signal	14.9	B	12.8	B
22	Max Gillis Blvd/Briggs Rd and Leon Rd	Signal	35.9	D	24.9	C
23	Max Gillis Blvd/Thompson Rd and SR-79	Signal	**89.4**	**F**	**62.8**	**E**

Source: Appendix I.
Notes: LOS = level of service; I = Interstate; SB = southbound; NB = northbound; TWSC = two-way stop-controlled; L = left; R = right; T = through; HS = high school; SR = State Route.
1 TWSC: Two-way stop control - delay reported reflects the critical movement, shown in parentheses.
2 No vehicles were recorded on the northbound approach, so delay could not be calculated.
Boldface type indicates the intersection does not meet the applicable agency standards.

As indicated in Table 4.13-7, all study intersections currently operate at a satisfactory LOS, except for the following:

- Salida Del Sol and Clinton Keith Road: The southbound approach to the intersection operates at LOS F during the weekday PM peak hour.
- Elizabeth Lane and Clinton Keith Road: The northbound approach to the intersection operates at LOS F during the weekday PM peak hour.
- Max Gillis Boulevard/Thompson Road and SR-79: This signalized intersection operates at LOS F during the weekday PM peak hour and LOS E during the Saturday midday peak hour.

Queuing Analysis

- Intersection queuing analysis was conducted for the study intersections. Expected intersection queues and how they compare to intersection geometry and available queue storage has influence on traffic operations. The average and 95th percentile queues as reported by Synchro 9 HCM methodology were used to assess queuing at all study intersections. The queue storage was estimated based on the striped queue storage shown in Google Earth and field verification. Available queue storage and 95th percentile queue lengths for turning lanes at each study intersection are shown in Table 4.13-8.

Table 4.13-8. Existing Queues

ID	Intersection	Movement	Available Storage (feet)	Average|95th Percentile Queue	
				Weekday PM	*Saturday Midday*
8	Nutmeg St and Clinton Keith Rd	EBL	125	20|70	10|49
		WBL	225	158|**532**	61|198
		NBL	175	28|72	20|62
		NBR	360[2]	0|67	0|48
		SBL	50	47|**110**	21|65
9	California Oaks Rd and Clinton Keith Rd	WBL	220[3]	332|**797**	158|301
		NBL	100[4]	116|**227**[4]	29|81
		NBR	485[2]	0|120	0|78
10	Greer Rd/Murrieta Oaks Ave and Clinton Keith Rd	EBL	260	40|88	18|59
		WBL	150	23|59	13|46
		WBR	150	13|47	9|38
		NBL	150	19|50	12|42
		NBR	150	0|5	0|0
		SBL	150	70|134	46|118
11	Mitchell Rd/Murrieta Oaks Ave and Clinton Keith Rd	EBL	150	7|37	8|38
		WBL	150	75|**199**	58|162
		WBR	160	0|0	0|0
		NBL	190[2]	12|52	11|47
		SBL	150	1|10	1|7
		SBR	150	0|0	0|0
12	McElwain Rd and Clinton Keith Rd	EBL	200 (x2)	123|222	74|146
		EBR	100	0|0	0|0
		WBL	175	17|55	13|47
		WBR	160	14|58	0|38
		NBL	50	11|40	6|27
		SBL	235 (x2)	124|225	106|208
13	I-215 SB Ramps and Clinton Keith Rd	EBR	385	124|212	76|155
		WBR	380	57|79	20|60
		SBR	1,100[1]	155|221	50|103
14	I-215 NB Ramps and Clinton Keith Rd	NBL	960[1]	284|473	210|278
		NBR	960[1]	244|425	59|124
15	Creighton Ave and Clinton Keith Rd	EBU	250	3|16	2|13
		EBR	200	0|17	0|14
		WBL	235	14|45	2|12
		NBL	100	19|56	14|42
		NBR	390[2]	0|21	0|12
17	Bronco Way and Clinton Keith Rd	EBU	200	8|30	0|4
		WBL	315	82|169	7|38
		NBL	355[2]	27|62	5|26
		NBR	355[2]	0|42	0|12
18	Whitewood Rd and Clinton Keith Rd	EBL	250 (x2)	188|359	69|164
		EBR	250	3|69	0|56
		WBL	200 (x2)	45|95	25|74

Table 4.13-8. Existing Queues

ID	Intersection	Movement	Available Storage (feet)	Average|95th Percentile Queue	
				Weekday PM	*Saturday Midday*
		WBR	350	0|0	0|0
		NBL	300	152|304	50|147
		SBL	100	64|**147**	24|84
19	Whitewood Rd and Linnel Ln	EBL	130	13|65	9|50
		EBR	500[2]	0|0	0|32
		NBL	200	8|45	7|40
		SBL	200	0|7	0|7
20	Whitewood Rd and Baxter Rd	EBL	215	5|37	1|14
		EBR	>500[2]	0|50	0|13
		WBL	125	2|23	2|21
		NBL	215	54|**232**	14|80
		NBR	500[2]	0|0	0|0
		SBL	200	0|7	2|22
21	Whitewood Rd and Keller Rd	EBL	175	8|79	2|41
		EBR	545[2]	0|7	0|0
		WBL	200	2|25	2|31
		NBL	225	7|68	3|46
		SBL	115	2|28	1|21

Source: Appendix I.
Notes: EB = eastbound; L = left; WB = westbound; NB = northbound; R = right; SB = southbound; I = Interstate; U = U-turn.
Where the table indicates (x2) it means there are two lanes with the indicated feet of storage.
1 Distance to development of separate turn lanes from highway off-ramp.
2 Approximate distance to adjacent intersection.
3 Two-way left turn lanes provide additional storage up to 730 feet.
4 The City has recently completed a project that has extended this left turn storage to 250 feet.
Boldface type indicates the 95th percentile queue exceeds the available storage by 25 feet or more.

As shown in the table, queues currently exceed storage capacity for one or more movements at the following study locations:

- Nutmeg Street and Clinton Keith Road (westbound left [WBL], southbound left [SBL])
- California Oaks Road and Clinton Keith Road (WBL, northbound left [NBL])
  - Note that the northbound left turn storage has recently been extended to 250 feet and therefore, the NBL queue does not exceed the storage in place today.
- Mitchell Road/Murrieta Oaks Avenue and Clinton Keith Road (WBL)
- Whitewood Road and Clinton Keith Road (SBL)

Roadway Segment Analysis

An assessment of average daily traffic (ADT) was conducted for the two roadway segments listed below for existing conditions:

1. Clinton Keith Road, between I-215 northbound ramps and Warm Springs Parkway
2. Whitewood Road, north of Clinton Keith Road

Daily counts were collected on a midweek day in November 2017 and on a Saturday in December 2017. Table 4.13-9 summarizes the existing conditions and LOS for the roadway segments using the methodology described in Section 4.13.2. The counts were adjusted up to 2018 volumes using the additional intersection turning movement counts collected in 2018. As indicated in Table 4.13-9, both roadway segments operate under capacity at LOS C under existing conditions on both a weekday and Saturday.

Table 4.13-9. Existing Conditions Average Daily Traffic Analysis

Segment	Metric	Weekday	Saturday
Clinton Keith Road, between Interstate 215 northbound ramps and Warm Springs Pkwy	Volume (daily)	25,264	20,276
	Capacity (daily, LOS E)	53,900	53,900
	LOS	C	C
	v/c ratio	0.47	0.38
Whitewood Road, north of Clinton Keith Road	Volume (daily)	12,504	10,668
	Capacity (daily, LOS E)	34,100	34,100
	LOS	C	C
	v/c Ratio	0.37	0.31

Source: Appendix I.
Notes: LOS = level of service; v/c = volume-to-capacity
The capacities shown are based on roadway classification and taken from the Circulation Element of the City's General Plan, Table 5-2, for roadways operating at LOS E. The LOS is based on the City's General Plan maximum two-way ADT volume for each LOS grade. The table provides maximum ADT volumes for LOS C, D, and E. Clinton Keith Road is an urban arterial, and Whitewood Road a major roadway.

Freeway Analysis

The existing conditions analysis for both northbound and southbound segments of the I-215 freeway were conducted during weekday AM and PM and Saturday midday peak hours. Tables 4.13-10 and 4.13-11 show the results of this analysis. As shown in the tables below, the freeway study segments operate with an acceptable LOS during the analysis time periods.

Table 4.13-10. Existing Conditions Freeway Analysis – Northbound

I-215 Northbound Segment			Weekday AM Peak Hour		Weekday PM Peak Hour		Saturday Midday Peak Hour	
Segment ID	*Segment Type[1]*	*Segment Location*	*Density[2]*	*LOS[3]*	*Density[2]*	*LOS[3]*	*Density[2]*	*LOS[3]*
NB-1	Basic	North of Scott Road	14.1	B	24.1	C	_[3]	_[3]
NB-2	Merge	Scott Road On Ramp	18.3	B	26.8	C	_[3]	_[3]
NB-3	Diverge	Scott Road Off Ramp	24.3	C	31.1	D	_[3]	_[3]
NB-4	Basic	Between Scott Road and Clinton Keith On Ramp	15.6	B	24.7	C	18.7	C
NB-5	Merge	Clinton Keith On Ramp	19.4	B	26.8	C	22.2	C
NB-6	Merge	Clinton Keith On Ramp Loop	18.9	B	26.3	C	21.2	C
NB-7	Diverge	Clinton Keith Off Ramp	22.8	C	32.9	D	27.2	C
NB-8	Basic	Between Clinton Keith Off Ramp and Los Alamos On Ramp	14.5	B	26.2	D	19.0	C
NB-9	Merge	Los Alamos On Ramp	18.6	B	28.8	D	22.6	C
NB-10	Diverge	Los Alamos Off Ramp	22.5	C	32.3	D	26.8	C

Table 4.13-10. Existing Conditions Freeway Analysis – Northbound

I-215 Northbound Segment			Weekday AM Peak Hour		Weekday PM Peak Hour		Saturday Midday Peak Hour	
Segment ID	*Segment Type[1]*	*Segment Location*	*Density[2]*	*LOS[3]*	*Density[2]*	*LOS[3]*	*Density[2]*	*LOS[3]*
NB-11	Basic	Between Los Alamos Off Ramp and Murrieta Hot Springs Off Ramp	14.3	B	25.9	C	18.8	B
NB-12	Merge	Murrieta Hot Springs On Ramp	19.1	B	29.4	D	23.1	C
NB-13	Merge	Murrieta Hot Springs On Ramp (Loop)	11.6	B	21.2	C	16.6	B
NB-14	Diverge	Murrieta Hot Springs Off Ramp	11.5	B	25.9	C	19.2	B
NB-15	Basic	South of Murrieta Hot Springs Road	16.4	B	32.9	D	23.9	C

Source: Appendix I.
Notes: I = Interstate; LOS = level of service; NB = northbound.
[1] HCM 2010 definition, Basic Freeway Segment, Weaving Segment, Merge Segment, or Diverge Segment.
[2] Density expressed in pc/mi/ln, passenger cars per mile per lane.
[3] No data available for Saturday peak hour conditions.

Table 4.13-11. Existing Conditions Freeway Analysis – Southbound

I-215 Northbound Segment			Weekday AM Peak Hour		Weekday PM Peak Hour		Saturday Midday Peak Hour	
Segment ID	*Segment Type[1]*	*Segment Location*	*Density[2]*	*LOS[3]*	*Density[2]*	*LOS[3]*	*Density[2]*	*LOS[3]*
SB-1	Basic	North of Scott Road	19.2	B	20.3	C	_[3]	_[3]
SB-2	Diverge	Scott Road Off Ramp	27	C	28.1	D	_[3]	_[3]
SB-3	Merge	Scott Road On Ramp	27.2	C	24.8	C	_[3]	_[3]
SB-4	Basic	Between Scott Road and Clinton Keith Off Ramp	22.4	C	20.9	C	23.1	C
SB-5	Diverge	Clinton Keith Off Ramp	29.3	D	28.5	D	29.7	D
SB-6	Merge	Clinton Keith On Ramp Loop	22.2	C	20.1	C	22.6	C
SB-7	Merge	Clinton Keith On Ramp	25.4	C	23.0	C	25.6	C
SB-8	Basic	Between Clinton Keith Off Ramp and Los Alamos On Ramp	22.7	C	19.9	C	23.2	C
SB-9	Diverge	Los Alamos Off Ramp	30.7	D	29.0	D	31.4	D
SB-10	Weave	Between Los Alamos On Ramp and Murrieta Hot Springs	20	C	16.4	B	19.6	B
SB-11	Merge	Murrieta Hot Springs On Ramp (Loop)	31.1	D	24.7	C	29.7	D
SB-12	Merge	Murrieta Hot Springs On Ramp	32.6	D	26.3	C	31.4	D
SB-13	Basic	South of Murrieta Hot Springs Road	30.9	D	22.1	C	28.9	D

Source: Appendix I

Notes: I = Interstate; LOS = level of service; NB = northbound.
[1] HCM 2010 definition, Basic Freeway Segment, Weaving Segment, Merge Segment, or Diverge Segment.
[2] Density expressed in pc/mi/ln, passenger cars per mile per lane.
[3] No data available for Saturday peak hour conditions.

Alternative Transportation Facilities

Transit Service

Public transit service in and around the City is provided by the Riverside Transit Agency. The Riverside Transit Agency currently offers five fixed bus routes in the City. Of these, Riverside Transit Route 61 provides service on Clinton Keith Road through a bus stop at the intersection of Clinton Keith Road and the main entrance to the Vista Murrieta High School. This bus line operates from Sunday to Saturday from approximately 7:00 a.m. to 7:00 p.m. and provides connections to Menifee and Temecula. During the weekday morning, headways are approximately 30 minutes in the northbound direction and 60 minutes in the southbound direction. During the weekday evening, headways are approximately 60 to 70 minutes in both directions. On the weekend, headways are approximately 85 minutes. Route 23 also offers service to the project site. Normal operation of Route 23 does not include direct access to the project site; however, an alternate route has a stop at Vista Murrieta High School and operates twice daily at 2:45 p.m. and 3:10 p.m. when school is in session.

Bicycle and Pedestrian Facilities

In the immediate vicinity of the site, pedestrian facilities include sidewalks and crosswalks. Roadways near the project site that currently have sidewalks include Whitewood Road and portions of Clinton Keith Road. No sidewalks are provided west of the project site over I-215 on the north side, but sidewalks are on the south side, and the on-ramps are designed to accommodate pedestrians. Dedicated crosswalks to cross Clinton Keith Road are limited and are only provided at the signalized intersections of Bronco Way (Vista Murrieta High School entrance) and Whitewood Road.

Class II bike lanes are provided along Clinton Keith Road from Copper Craft Drive to Whitewood Road and on Whitewood Road south of Clinton Keith Road within the study area. The City's General Plan Circulation Element identifies the need for complete streets that promote bicycle and pedestrian connectivity and safety. Under existing conditions, the City's circulation system aims to provide connections between neighborhoods and commercial corridors, providing an enhanced network of sidewalks and bicycle lanes and trails that improve accessibility and encourage people to opt for alternative modes of transportation.

4.13.2 Relevant Plans, Policies, and Ordinances

Federal

There are no applicable federal regulations related to traffic that would apply to the project.

State

California Department of Transportation

As a general rule, Caltrans "endeavors to maintain a target LOS at the transition between LOS 'C' and LOS 'D' on State highway facilities" (Caltrans 2002); however, Caltrans does not require that LOS D be maintained and acknowledges that this LOS goal may not always be feasible. Instead, Caltrans recommends that the lead agency consult with the agency to determine the appropriate target LOS for a particular state highway facility.

California State Senate Bill 375

California State Senate Bill 375 became law effective January 1, 2009, as implementing legislation of Assembly Bill 32, which requires the state to reduce greenhouse gas emissions across all industry sectors back to 1990 levels by the year 2020. Both laws are administered and enforced through the California Air Resources Board.

Given that the transportation sector is the largest contributor to greenhouse gas pollution throughout California, Senate Bill 375 targets reduction of greenhouse gas emissions specific to cars and light trucks. The law requires each of the state's 18 metropolitan planning organizations (MPOs) to develop a Sustainable Communities Strategy, which would include specific strategies for improving land use and transportation efficiency. SCAG is the metropolitan planning organization for six counties (Los Angeles, Orange, San Bernardino, Riverside, Ventura, and Imperial) and includes 184 cities. The primary strategy includes the identification and development of higher density mixed-use projects around public transportation system stations. Other supported strategies relate to the integration of intelligent transportation systems to improve circulation on freeways and arterials.

Every Sustainable Communities Strategy to be developed under Senate Bill 375 is required to be integrated into each metropolitan planning organization's RTP, encouraging local jurisdictions to comply. Transportation improvement projects not listed in the RTP become ineligible to receive funding from some state and federal programs (City of Murrieta 2011a).

State Transportation Improvement Program

STIP is a multi-year capital improvement program for transportation projects on and off the State Highway System, funded with revenues from the Transportation Investment Fund and other funding sources. STIP programming generally occurs every 2 years. The programming cycle begins with the release of a proposed fund estimate in July of odd-numbered years, followed by California Transportation Commission adoption of the fund estimate in August (odd years). The fund estimate serves to identify the amount of new funds available for the programming of transportation projects. Once the fund estimate is adopted, Caltrans and the regional planning agencies prepare transportation improvement plans for submittal to the California Transportation Commission by December 15 (odd years). Caltrans prepares the Interregional Transportation Improvement Program, and regional agencies prepare the RTIPs. Public hearings are held in January (even years) in both Northern and Southern California. The STIP is adopted by the California Transportation Commission by April (even years). Cities and other local agencies work through their Regional Transportation Planning Agency to nominate projects for inclusion in the STIP. Once projects are programmed, agencies may begin the project implementation process. Regional Transportation Agencies such as the RCTC are allocated 75% of STIP funding for regional transportation projects in their Regional Improvement Program, and Caltrans is allocated 25% for interregional transportation projects in the Interregional Improvement Program (City of Murrieta 2011a).

Regional Transportation Plan

The Regional Transportation Plan (RTP) is developed, maintained, and updated by SCAG, Southern California's metropolitan planning organization. SCAG encompasses the six counties in Southern California including Los Angeles, Orange, San Bernardino, Riverside, Ventura and Imperial. On May 8, 2008, the *2008 Regional Transportation Plan: Making the Connections* was adopted by the Regional Council of SCAG.

The RTP is divided into three sections. At the center is the RTIP (discussed above), which forms the foundation of the RTP project investment strategy and represents the first 6 years of already-committed funding. The RTP also contains an additional financially constrained set of transportation projects above and beyond the RTIP. Finally, the RTP contains an unconstrained, illustrative list of potential projects that the region would pursue given additional funding.

SB 743

On September 27, 2013, Governor Brown signed Senate Bill (SB) 743, effective January 2014, directing the Governor's Office of Planning and Research (OPR) to develop revisions to the California Environmental Quality Act (CEQA) Guidelines by July 1, 2014, to establish new criteria for determining the significance of transportation impacts and to define alternative metrics for traffic LOS. This started a process that changes transportation impact analysis under CEQA. These changes include elimination of automobile delay, level of service (LOS), and other similar measures of vehicular capacity or traffic congestion as a basis for determining significant impacts for land use projects and plans in California. Additionally, as part of SB 743, parking impacts for particular types of development projects in areas well served by transit are not considered significant impacts on the environment. According to the legislative intent contained in SB 743, these changes to current practice were necessary to "more appropriately balance the needs of congestion management with statewide goals related to infill development, promotion of public health through active transportation, and reduction of greenhouse gas emissions."

Commencing July 1, 2020, State law mandates that in determining the environmental impact of a proposed project with respect to transportation, lead agency must utilize methodologies that analyze "vehicle miles traveled" or "VMT," rather than level of service or other measures of transportation impacts. Section 15064.3 of the CEQA Guidelines describes specific considerations for evaluating a project's transportation impacts and concludes that vehicle miles traveled is generally the most appropriate measure of transportation impacts. "Vehicle miles traveled" is defined by the CEQA Guidelines as "the amount and distance of automobile travel attributable to a project" and may take into account "the effects of the project on transit and non-motorized travel."[1] Guidelines Section 15064.3 also indicates that for development projects, "a project's effect on automobile delay shall not constitute a significant environmental impact."

The requirement to analyze VMT is prospective only and does not apply to environmental review documents released prior to July 1, 2020. Accordingly, this Draft EIR continues to utilize the level of service methodology adopted by the lead agency based on the City's General Plan.

Local

Riverside County Measure A

Regional transportation in the City is overseen by the RCTC, the transportation planning agency responsible for regional planning in the County. As the County transportation authority, the RCTC administers Measures A, the voter

[1] CEQA Guidelines Section 15064.3(a).

approved half-cent transportation sales tax adopted by County voters in 1976 and extended to the year 2039 by voters in 2002. Since its implementation, Measure A has provided a steady source of revenue for transportation improvements in the County, raising nearly $1 billion from 1989 through 2009.

Western Riverside Council of Governments (WRCOG) Transportation Uniform Mitigation Fee

The City is a member of WRCOG. WRCOG is a voluntary association that represents member local governments in order to provide cooperative planning, coordination, and technical assistance for issues of mutual concern that cross jurisdictional lines. WRCOG addresses issues of regional importance in the area of goods movement, rail crossings, and growth. WRCOG also developed and administers the TUMF program, which ensures that new development pays its fair share for the increased traffic that it creates. The TUMF program will provide significant additional funds from new development to make improvements to the regional system, complementing funds generated by Measure A, local transportation fee programs, and other potential funding sources. The establishment of this fee on new development creates a manner by which developers contribute their fair share to the regional transportation system. TUMF fees are allocated as follows (City of Murrieta 2011a):

- Regional Transit Improvements – 2.6% of TUMF funds are allocated to the Riverside Transit Agency for regional transit improvements.
- Regionally Significant Transportation Improvements – 48.7% of TUMF funds are allocated to the RCTC for programming improvements to arterials of regional significance.
- Zones – The WRCOG area is split into five zones; the City is located in the Southwest TUMF Zone, along with unincorporated County area and the Cities of Temecula, Wildomar, Canyon Lake, Menifee, and Lake Elsinore. 48.7% of TUMF funds are allocated to the five zones for improvements to the Regional System of Highways and Arterials. The amount of TUMF funds allocated to each zone is proportionate to the amount of TUMF revenue generated from each zone.

Riverside County Congestion Management Program

The passing of Proposition 111 in June 1990 established a process for each metropolitan county in California with an urbanized area of more than 50,000 population, including the County, to prepare a Congestion Management Plan (CMP). The CMP, which was prepared by the RCTC in consultation with the County and cities within the County, is an effort to more directly align land use, transportation, and air quality management efforts and to promote reasonable growth management programs that effectively use statewide transportation funds while ensuring that new development pays its fair share of needed transportation improvements. Additionally, the passing of Proposition 111 provided additional transportation funding through an increase in the state gas tax of $0.09 per gallon.

Although implementation of the CMP was made voluntary by the passage of Assembly Bill 2419, the CMP requirement has been retained in all five urbanized counties within the SCAG region. In addition to its value as a transportation management tool, CMPs have been retained in these counties because of the Federal Congestion Management System requirement that applies to large urban areas that are not in attainment of federal air quality standards. These counties recognize that the CMP provides a mechanism through which locally implemented programs can fulfill most aspects of a regional requirement that would otherwise have to be addressed by the regional agency (SCAG).

The focus of the CMP is the development of an enhanced traffic monitoring system in which real-time traffic count data can be accessed by the RCTC to evaluate the condition of the congestion management system and meet other monitoring requirements at the state and federal levels. Per the CMP-adopted LOS standard of E, when a congestion

management system segment falls to F, a deficiency plan is required. Preparation of a deficiency plan is the responsibility of the local agency where the deficiency is located. Other agencies identified as contributors to the deficiency are also required to coordinate with the development of the plan. The plan must contain mitigation measures, including transportation demand management strategies and transit alternatives, and a schedule of mitigating the deficiency. To ensure that the congestion management system is appropriately monitored to reduce the occurrence of CMP deficiencies, it is the responsibility of local agencies, when reviewing and approving development proposals, to consider the traffic impacts on the congestion management system. CMP facilities within the City are I-15, I-215, and State Route 79.

County of Riverside General Plan

The County General Plan Circulation Element includes a range of objectives and policies that address various aspects of circulation, including but not limited to roadways, public transportation, trucking, and non-motorized facilities. The following policies from General Plan Circulation Element may be applicable to the project (Riverside County 2015):

Policy C 1.4 Utilize existing infrastructure and utilities to the maximum extent practicable and provide for the logical, timely, and economically efficient extension of infrastructure and services.

Policy C 1.7 Encourage and support the development of projects that facilitate and enhance the use of alternative modes of transportation, including pedestrian-oriented retail and activity centers, dedicated bicycle lanes and paths, and mixed-use community centers.

Policy C 1.8 Ensure that all development applications comply with the California Complete Streets Act of 2008 as set forth in California Government Code Sections 65040.2 and 65302.

Policy C 2.2 Require that new development prepare a traffic impact analysis as warranted by the Riverside County Traffic Impact Analysis Preparation Guidelines or as approved by the Director of Transportation. Apply level of service targets to new development per the Riverside County Traffic Impact Analysis Preparation Guidelines to evaluate traffic impacts and identify appropriate mitigation measures for new development.

Policy C 2.3 Traffic studies prepared for development entitlements (tracts, public use permits, conditional use permits, etc.) shall identify project related traffic impacts and determine the significance of such impacts in compliance with CEQA [California Environmental Quality Act] and the Riverside County Congestion Management Program Requirements.

Policy C 2.4 The direct project related traffic impacts of new development proposals shall be mitigated via conditions of approval requiring the construction of any improvements identified as necessary to meet level of service targets.

Policy C 2.5 The cumulative and indirect traffic impacts of development may be mitigated through the payment of various impact mitigation fees such as County of Riverside Development Impact Fees, Road and Bridge Benefit District Fees, and Transportation Uniform Mitigation Fees to the extent that these programs provide funding for the improvement of facilities impacted by development.

Policy C 3.2 Maintain the existing transportation network, while providing for future expansion and improvement based on travel demand, and the development of alternative travel modes.

Policy C 3.4 Allow roundabouts or other innovative design solutions such as triple left turn lanes, continuous flow intersections, or other capacity improvements, when a thorough traffic impact assessment has been conducted demonstrating that such an intersection design alternative would manage traffic flow, and improve safety, if it is physically and economically feasible.

Policy C 3.6 Require private developers to be primarily responsible for the improvement of streets and highways that serve as access to developing commercial, industrial, and residential areas. These may include road construction or widening, installation of turning lanes and traffic signals, and the improvement of any drainage facility or other auxiliary facility necessary for the safe and efficient movement of traffic or the protection of road facilities.

Policy C 3.7 Design interior collector street systems for commercial and industrial subdivisions to accommodate the movement of heavy trucks.

Policy C 3.9 Design off-street loading facilities for all new commercial and industrial developments so that they do not face surrounding roadways or residential neighborhoods. Truck backing and maneuvering to access loading areas shall not be permitted on the public road system, except when specifically permitted by the Transportation Department.

Policy C 3.10 Require private and public land developments to provide all on-site auxiliary facility improvements necessary to mitigate any development-generated circulation impacts. A review of each proposed land development project shall be undertaken to identify project impacts to the circulation system and its auxiliary facilities. The Transportation Department may require developers and/or subdividers to provide traffic impact studies prepared by qualified professionals to identify the impacts of a development.

Policy C 3.11 Generally locate commercial and industrial land uses so that they take driveway access from General Plan roadways with a classification of Secondary Highway or greater, consistent with design criteria limiting the number of such commercial access points and encouraging shared access. Exceptions to the requirement for access to a Secondary Highway or greater would be considered for isolated convenience commercial uses, such as standalone convenience stores or gas stations at an isolated off ramp in a

remote area. Industrial park type developments may be provided individual parcel access via an internal network of Industrial Collector streets.

Policy C 3.13 Design street intersections, where appropriate, to assure the safe, efficient passage of through traffic and the negotiation of turning movements.

Policy C 3.14 Design curves and grades to permit safe movement of vehicular traffic at the road's design speed. Design speed should be consistent with and complement the character of the adjacent area.

Policy C 3.15 Provide adequate sight distances for safe vehicular movement at a road's design speed and at all intersections.

Policy C 3.16 Dedicate necessary rights-of-way as part of the land division and land use review processes.

Policy C 3.24 Provide a street network with quick and efficient routes for emergency vehicles, meeting necessary street widths, turn-around radius, secondary access, and other factors as determined by the Transportation Department in consultation with the Fire Department and other emergency service providers.

Policy C 3.28 Reduce transportation noise through proper roadway design and coordination of truck and vehicle routing.

Policy C 3.29 Include noise mitigation measures in the design of new roadway projects in the County of Riverside.

Policy C 4.1 Provide facilities for the safe movement of pedestrians within developments, as specified in the Riverside County Ordinances Regulating the Division of Land of the County of Riverside.

Policy C 4.2 Maximize visibility and access for pedestrians and encourage the removal of barriers (walls, easements, and fences) for safe and convenient movement of pedestrians. Special emphasis should be placed on the needs of disabled persons considering Americans with Disabilities Act (ADA) regulations.

Policy C 4.6 Consult the Riverside County Transportation Department as part of the development review process regarding any development proposals where pedestrian facilities may be warranted. The County of Riverside may require both the dedication and improvement of the pedestrian facilities as a condition of development approval.

Policy C 4.7 Make reasonable accommodation for safe pedestrian walkways that comply with the Americans with Disabilities Act (ADA) requirements within commercial, office, industrial, mixed use, residential, and recreational developments.

Policy C 5.3 Require parking areas of all commercial and industrial land uses that abut residential areas to be buffered and shielded by adequate landscaping.

Policy C 6.1	Provide dedicated and recorded public access to all parcels of land, except as provided for under the statutes of the State of California.
Policy C 6.2	Require all-weather access to all new development.
Policy C 6.3	Limit access points and intersections of streets and highways based upon the road's General Plan classification and function. Require that access points be located so that they comply with Riverside County's minimum intersection spacing standards. Under special circumstances the Transportation Department may consider exceptions to this requirement.
Policy C 6.7	Require that the automobile and truck access of commercial and industrial land uses abutting residential parcels be located at the maximum practical distance from the nearest residential parcels to minimize noise impacts.
Policy C 8.2	Distribute the costs of transportation system improvements equitably among those who will benefit.
Policy C 8.3	Use annexations, development agreements, revenue-sharing agreements, tax allocation agreements and the CEQA process as tools to ensure that new development pays a fair share of costs to provide local and regional transportation improvements and to mitigate cumulative traffic impacts.
Policy C 21.4	Construct and improve traffic signals at appropriate intersections. Whenever possible, traffic signals should be spaced and operated as part of coordinated systems to optimize traffic operation and reduce congestion.
Policy C 21.5	Consider roadway expansion at public expense to relieve congestion only after the determination has been made that TSM [Transportation System Management] measures will not be effective.
Policy C 21.6	Install special turning lanes whenever necessary to relieve congestion and improve safety.

City of Murrieta General Plan

The City's General Plan Circulation Element represents the City's overall transportation plan to accommodate the movement of people and goods within and through the City. It establishes goals and policies to achieve a balanced transportation system that adequately serves the growth and development anticipated in the Land Use Element. The transportation plan consists not only of the physical transportation system itself, such as streets, highways, bicycle routes, trails, and sidewalks, but also the various modes of transportation, such as cars, rail, buses, trucks (goods movement), bicycles, and walking. The Circulation Element acknowledges the heavy use of the road and highway system by single-occupant automobiles, and promotes efforts to provide additional transportation choices and to use the system more efficiently through increased transit use, carpooling, walking, and bicycling. The City's circulation system contributes to the form and character of the community by providing connections between neighborhoods and commercial corridors, an enhanced network of sidewalks and trails that take advantage of the natural environment and recreational opportunities, and a pedestrian-friendly streetscape environment that encourages people to walk (City of Murrieta 2011b).

The Circulation Element establishes minimum LOS standards for streets and intersections within the City. The City's current LOS standard for intersections is LOS D for peak hour intersection operations and LOS E at freeway interchanges. An intersection is considered significantly impacted under the following circumstances:

- If the existing traffic conditions exceed the General Plan target LOS
- If project traffic, when added to existing traffic, will deteriorate the LOS to below the target LOS, and impacts cannot be mitigated through project conditions of approval
- If cumulative traffic exceeds the target LOS, and impacts cannot be mitigated through existing infrastructure funding mechanisms

The City's current LOS standard for roadway segments is LOS C. As an exception, LOS D may be allowed in certain areas, including the North Murrieta Business Corridor and Multiple Use 3 Focus Area, which encompass the proposed site and study roadways. It should be noted that the City Council can also approve a project that would not meet minimum LOS standards if it determines that the project has overriding benefits.

The following Circulation Element policies may be applicable to the project (City of Murrieta 2011b):

Policy CIR-1.2 Maintain a Level of Service "D" or better at all intersections during peak hours. Maintain a Level of Service "E" or better at freeway interchanges during peak hours.

Policy CIR-1.3 Maintain an average daily traffic (ADT) Level of Service "C" or better for all roadway segments. As an exception, LOS "D" may be allowed in the North Murrieta Business Corridor, Clinton Keith/Mitchell, Golden Triangle North (Central Murrieta), South Murrieta Business Corridor, or the Multiple Use 3 Focus Areas, or other employment centers. LOS "D" may be allowed only at intersections of any combination of Secondary roadways, Major roadways, Urban Arterial roadways, Expressways, conventional state highways, or freeway ramps.

Policy CIR-1.4 Continue to improve signal coordination and advanced traffic management systems at major intersections and along roadway corridors in order to optimize traffic flow through the City and reduce traffic queuing.

Policy CIR-1.5 Maintain a set of street standards and require that all new road facilities be constructed or upgraded, where feasible, to meet City standards.

Policy CIR-1.6 Coordinate with Caltrans to implement necessary improvements at intersections where the agencies have joint jurisdiction.

Policy CIR-1.8 Identify and evaluate the major intersections requiring special design treatment to increase their vehicular capacity.

Policy CIR-1.11 Support the implementation of complete streets through a multi-modal transportation network that balances the needs of pedestrians, bicyclists, transit riders, mobility-challenged persons, older people, children, and vehicles while providing sufficient mobility and abundant access options for existing and future users of the street system.

Policy CIR-2.8 Encourage driveway consolidation and the use of shared driveways in commercial areas.

Policy CIR-2.9 Ensure new roadways and intersections provide adequate sight distances for safe vehicular movement.

Policy CIR-2.14 Ensure that efficient and safe access for emergency vehicles is provided to all development.

Policy CIR-5.14 Encourage new large residential, commercial, or employment developments to locate on existing and planned transit routes.

Policy CIR-7.1 Encourage future developments to provide an internal system of sidewalks/pathways linking schools, shopping centers, and other public facilities with residences.

Policy CIR-8.3 Consider roadway design guidelines for new development and for capital improvement plans that enhance bicycle and pedestrian connectivity and safety.

Policy CIR-8.8 When different uses are developed adjacent to each other – such as new commercial adjacent to new residential – require them to provide high-quality pedestrian amenities and connections between each other to the greatest degree possible.

As indicated in General Plan Policy CIR-1.4, as part of its regulatory functions, the City routinely implements signal coordination and signal timing optimization in order to respond to traffic pattern changes and optimize traffic flow and queuing along major roadways in the City, including Clinton Keith Road.

4.13.3 Thresholds of Significance

The significance criteria used to evaluate the project impacts to traffic and circulation are based on Appendix G of the CEQA Guidelines. According to Appendix G of the CEQA Guidelines, a significant impact related to traffic and circulation would occur if the project would:

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

[2] Threshold question 2 has been analyzed in this EIR for informational purposes only, since the new significance criteria with regard to CEQA Guidelines Section 15064.3(b) have not been adopted by the City of Murrieta nor the County of Riverside. This threshold is not required until new significance criteria have been adopted or July 1, 2020, whichever is sooner.

City of Murrieta Significance Criteria

The City's General Plan Circulation Element establishes minimum LOS standards for streets and intersections within the City. The City's current LOS standard for intersections is LOS D for peak hour intersection operations and LOS E at freeway interchanges. The City's current LOS standard for roadway segments is LOS C. As an exception, LOS D may be allowed in certain areas, including the North Murrieta Business Corridor and Multiple Use 3 Focus Area, which encompass the project site and study area roadways.

The following traffic impacts are considered "significant" under CEQA based on the City's Traffic Impact Analysis Preparation Guide[3]:

- If existing traffic conditions exceed the General Plan target LOS.
- If project traffic, when added to existing traffic, will deteriorate the LOS to below the target LOS, and impacts cannot be mitigated through project conditions of approval.
- If cumulative traffic exceeds the target LOS, and impacts cannot be mitigated through existing infrastructure funding mechanisms.

Given intersection queuing influence on traffic operations, a queuing deficiency is identified in the no-project condition if the calculated 95th-percentile queue length exceeds the storage length by more than 25 feet (the average storage length for one additional vehicle) since an additional vehicle can be stored within the transition taper without impacting traffic flow. Similarly, a significant queuing impact is determined if the project causes the calculated 95th-percentile queue length to exceed the existing or planned storage capacity at a signalized intersection by more than 25 feet. For storage lanes that are already deficient without the project, a significant queuing impact is determined if the project increases the calculated 95th-percentile queue length by more than 25 feet. Where left turn lanes connect to two-way left turn lanes, although the calculated queue may exceed the length of the painted left turn pocket, the presence of the two-way left turn lane provides additional storage and allows the queue to avoid spilling into through lanes. Therefore, queues exceeding the painted storage length in these situations are not highlighted as existing deficiencies because they do not contribute to operational problems.

Riverside County Significance Criteria

Per the County of Riverside General Plan (Riverside County 2015):

Policy C 2.1 The following minimum target levels of service have been designated for the review of development proposals in the unincorporated areas of Riverside County with respect to transportation impacts on roadways designated in the Riverside County Circulation Plan which are currently County maintained, or are intended to be accepted into the County maintained roadway system:

LOS C shall apply to all development proposals in any area of the Riverside County not located within the boundaries of an Area Plan, as well those areas located within the following Area Plans: REMAP, Eastern Coachella Valley, Desert Center, Palo Verde Valley, and those non-Community Development areas of the Elsinore, Lake Mathews/Woodcrest, Mead Valley and Temescal Canyon Area Plans.

[3] The City Council can approve development projects if target LOS is not met, if the project has overriding benefits.

> LOS D shall apply to all development proposals located within any of the following Area Plans: Eastvale, Jurupa, Highgrove, Reche Canyon/Badlands, Lakeview/Nuevo, Sun City/Menifee Valley, Harvest Valley/Winchester, Southwest Area, The Pass, San Jacinto Valley, Western Coachella Valley and those Community Development Areas of the Elsinore, Lake Mathews/Woodcrest, Mead Valley and Temescal Canyon Area Plans.
>
> LOS E may be allowed by the Board of Supervisors within designated areas where transit-oriented development and walkable communities are proposed.

Based on the criteria above, the LOS service standard in the study area is LOS D.

Riverside County does not have established requirements or standards for queuing analysis and does not require said analysis for CEQA compliance. Supplemental queuing analysis for intersections in the County was provided for information purposes only and is not part of the CEQA significance criteria for impact evaluation.

The County of Riverside significance criteria was applied to assess impacts at various intersections in the City of Wildomar. The City of Wildomar defines intersection performance standards consistent with those in the County of Riverside General Plan Circulation Element. Therefore, Riverside County criteria was applied at the following intersections outside the City of Murrieta:

- George Avenue and Clinton Keith Road (Elsinore Area Plan)
- Inland Valley Drive and Clinton Keith Road (Elsinore Area Plan)
- Salida Del Sol and Clinton Keith Road (Elsinore Area Plan)
- Elizabeth Lane and Clinton Keith Road (Elsinore Area Plan)
- Smith Ranch Road and Clinton Keith Road (Elsinore Area Plan)
- Max Gillis Boulevard/Briggs Road and Leon Road (Southwest Area Plan)
- Max Gillis Boulevard/Thompson Road and SR-79 (Southwest Area Plan)

Caltrans Significance Criteria

Per the Guide for the Preparation of Traffic Impact Studies (December 2002), Caltrans endeavors to maintain a target LOS at the transition between LOS C and LOS D (see Appendix C-3 of the Guide for the Preparation of Traffic Impact Studies) on state highway facilities; however, Caltrans acknowledges that this may not always be feasible and recommends that the lead agency consult with Caltrans to determine the appropriate target LOS. If an existing state highway facility is operating at less than the appropriate target LOS, the existing measures of effectives should be maintained. In accordance with the I-215 Transportation Concept Report (Caltrans 2012), acceptable LOS for the project study area is LOS D.

Vehicle Miles Traveled Significance Criteria

Project Impacts

Section 15064.3(b)(1) of the CEQA Guidelines provides that for land use projects:

> VMT traveled exceeding an applicable threshold of significance may indicate a significant impact. Generally, projects within one-half mile of either an existing major transit stop or a stop along an

> existing high quality transit corridor should be presumed to cause a less than significant transportation impact. Projects that decrease vehicle miles traveled in the project area compared to existing conditions should be presumed to have a less than significant transportation impact.

In December 2018, the Governor's Office of Planning and Research for the State of California issued a Technical Advisory on Evaluating Transportation Impacts in CEQA ("OPR Technical Advisory"). For retail projects, the OPR Technical Advisory recommended that "[g]enerally, lead agencies should analyze the effects of a retail project by assessing the change in total VMT because retail projects typically re-route travel from other retail destinations. A retail project might lead to increases or decreases in VMT, depending on previously existing retail travel patterns."[4] The OPR Technical Advisory indicates:

> "[b]ecause new retail development typically redistributes shopping trips rather than creating new trips, estimating the total change in VMT (i.e., the difference in total VMT in the area affected with and without the project) is the best way to analyze a retail project's transportation impacts. By adding retail opportunities into the urban fabric and thereby improving retail destination proximity, local-serving retail development tends to shorten trips and reduce VMT. Thus, lead agencies generally may presume such development creates a less-than-significant transportation impact. Regional-serving retail development, on the other hand, which can lead to substitution of longer trips for shorter ones, may tend to have a significant impact. Where such development decreases VMT, lead agencies should consider the impact to be less-than-significant."[5]

The Western Riverside County COG ("WRCOG") also recommends that retail land uses be screened based on whether the project is local serving, which could be based on size (e.g., less than 50,000 square feet).[6] The WRCOG Analysis recommends several options for VMT analysis. However, these options have not been evaluated or adopted by the City. In addition, the WRCOG analysis states that a project would have a significant impact with respect to VMT if it is inconsistent with the applicable regional transportation plan/sustainable communities strategy (RTP/SCS).

Cumulative Impacts

With respect to cumulative impacts, the WRCOG analysis concludes that "[u]nder cumulative conditions . . . a significant impact would occur if the project increased the jurisdiction's total daily VMT per service population above the baseline level (or locally adopted threshold) [or if] . . . the project is inconsistent with the applicable regional transportation plan/sustainable communities strategy (RTP/SCS). Inconsistencies could include increasing land supply beyond areas designated for growth in the RTP/SCS, proposing land use densities and intensities below those identified in the RTP/SCS for the project site, or other actions that would result in higher levels of VMT growth compared to the cumulative no project scenario."[7]

City Threshold

Consistent with CEQA and the CEQA Guidelines, as of the date of circulation of this Draft EIR, the City of Murrieta retains a level of service significance criteria for evaluation of transportation impacts and has not adopted VMT thresholds of significance. Nonetheless, for informational purposes only, the lead agency is providing an evaluation of VMT impacts of the proposed project. For purposes of this informational analysis, the OPR Technical Advisory recommendation for retail

4 OPR Technical Advisory, page 5.
5 ORP Technical Advisory, p. 16. at p. 44.
6 See WRCOG SB 743 Implementation Pathway Document Package, Fehr & Peers, March 2019 ("WRCOG Analysis") https://www.fehrandpeers.com/wp-content/uploads/2019/12/WRCOG-SB743-Document-Package.pdf
7 WRCOG Analysis at p. 56.

projects is utilized in this DEIR as a threshold of significance. Accordingly, the proposed project would have a significant impact with respect to VMT if: (a) it is a retail project of greater than 50,000 square feet and (b) results in a net increase in VMT above existing conditions during operation. In addition, the project would have a significant impact with respect to transportation if it is inconsistent with the applicable regional transportation plan/sustainable communities strategy (RTP/SCS). With respect to cumulative impacts, a project could have a significant cumulative impact on VMT if the project has a significant project-level impact as determined above or is not consistent with the 2016-2040 RTP/SCS in terms of development location, density, and intensity.

4.13.4 Impacts Analysis

Would the project conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?

Significant and Unavoidable Impact. The project site is located in the City, north of Clinton Keith Road and east of vacated Antelope Road, immediately northeast of the intersection of I-215 and Clinton Keith Road. The project is expected to be completed by 2021. As shown in Figure 3-2, Site Plan, primary access to the site would be provided from Clinton Keith Road and the new north/south roadway, Warm Springs Parkway. Access to the Costco warehouse and gas station would be provided through two driveways along the perimeter of the project site (Project Driveways C and D) and may include a third access from Clinton Keith Road via a single left turn lane onto Creighton Avenue, which would lead to the project site at Creighton Avenue. The main entrance to the Costco would be located along Warm Springs Parkway on the central portion of the site at Project Driveway C. The main entrance to the Vineyard II development would be through the proposed signalized intersection at Warm Springs Parkway (Project Driveway C), with secondary entrances located on the southern (Project Driveway B) and northern (Project Driveway D) end of Warm Springs Parkway. If access is provided across private property, an alternative access to the Costco portion of the project site would be available from Clinton Keith Road via an existing single left turn lane onto Creighton Avenue, which would lead to the project site.

Project implementation would include construction of Warm Springs Parkway with four vehicle travel lanes (plus turn lanes at intersections) from Clinton Keith Road to the north project boundary. Warm Springs Parkway would be designed to provide bike lanes and sidewalks. The roadway would be stubbed at the north site boundary for future extension.

At the intersection of High School West Driveway/Warm Springs Parkway and Clinton Keith Road, the design would consist of installing a traffic signal and providing the following in addition to the existing lanes:

- Dual northbound left turn lanes;
- A northbound through lane;
- Dual southbound left turn lanes;
- A southbound through lane;
- Dual southbound right turn lanes ;
- A westbound right turn lane; and
- Dual eastbound left turn lanes.

A right-in/right-out access would be provided at the southern access driveway (Warm Springs Parkway/Project Driveway A) with two northbound through lanes, a northbound right turn lane, four southbound through lanes

(feeding the southbound approach at Clinton Keith Road), a southbound shared through/right turn lane, an eastbound right turn lane, and a westbound right turn lane.

A right-in/right-out access to serve the Vineyard II development (Warm Springs Parkway/Project Driveway B) would be provided with three northbound through lanes, a northbound through/right turn lane, two southbound through lanes, and a westbound right turn lane.

A traffic signal would be provided at the main Costco access driveway at Warm Springs Road and Project Driveway C. The traffic signal would have the following:

- Dual northbound left turn lanes with 250 feet of storage for each lane;
- Northbound through lane and shared through/right turn lane;
- Dual southbound left turn lanes with 200 feet of storage for each lane;
- Two southbound through lanes;
- Southbound right turn lane with 100 feet of storage;
- Westbound exclusive left turn, through, and right turn lanes; and
- Two eastbound exiting lanes, one shared through/left turn lane and an exclusive right turn lane.

A full-movement access driveway at the north Costco access (Warm Springs Parkway/Project Driveway D) would be provided in the near term, with a northbound shared left turn through lane, one northbound through lane, a northbound right turn lane, a southbound shared left turn/through lane, one southbound through lane, a southbound right turn lane, an eastbound shared left/through/right turn lane, and a westbound shared left/through/right turn lane. The access will be limited to right-in/right-out when Warm Springs Parkway is extended further north.

In addition to these main access points, the site would be accessible from Antelope Road, including delivery truck access at the northwest corner of the site from Antelope Road to the truck loading bays behind Costco. Delivery trucks for the Vineyard II retail would access stores through Project Driveways B and D.

The following improvements to transportation network around the project site would also be implemented in conjunction with other development projects, including at the intersections of Creighton Avenue and Clinton Keith Road and Bronco Way and Clinton Keith Road:

- A north leg at the intersection of Creighton Avenue and Clinton Keith Road, including an exclusive eastbound left turn, westbound right turn, exclusive southbound left turn, and shared southbound through/right turn lane would be provided. If the Vineyard III project is approved and reaches more than 13,000 square feet of retail development, that project would be conditioned to add the second northbound left turn lane. Until that time, access to Costco would be restricted from Creighton Avenue.
- A north leg at the intersection of Bronco Way and Clinton Keith Road, including an exclusive eastbound left turn, westbound right turn, exclusive southbound left turn, shared southbound through/right turn lane, and northbound through lane.

As previously discussed, the City's General Plan sets minimum LOS standards for roadways and intersections in the City. The minimum LOS standards for intersections, freeway interchanges, and roadway segments are shown in Table 4.13-12.

Table 4.13-12. Minimum Level of Service Standards

Facility Type	Minimum LOS
Intersections	LOS D
Freeway interchanges	LOS E
Roadway segments	LOS C[1]

Source: Appendix I.
Notes: LOS = level of service.
1 As an exception, LOS D may be allowed in certain areas, including the North Murrieta Business Corridor and Multiple Use 3 Focus Area, which encompass the proposed site and study roadways.

A TIA was prepared to evaluate the traffic impacts associated with the project. Per the City's Traffic Impact Analysis Preparation Guide, the TIA analyzed the following conditions:

- Existing Traffic – This scenario is based on traffic counts collected in late 2017 and updated in 2018 and has been included in Section 4.13.1, Existing Conditions.
- Project Completion (Existing + Ambient Growth + Project) – This scenario is based on existing volumes, background growth, and traffic associated with the project. The project is expected to be complete in year 2021, so 3 years of background growth were assumed. This scenario serves as the basis for determining project-specific impacts, mitigation, and conditions of approval.
- Cumulative (Existing + Ambient Growth + Project + Cumulative) – This scenario includes other approved projects in the study area expected to be built out by year 2021. This scenario is used to determine whether funded improvements can accommodate the cumulative traffic at the target LOS identified in the City's General Plan.
- 2035 General Plan Build-Out Conditions (For informational purposes only) – The 2035 scenario was evaluated for information purposes for a portion of the study area based on the request from the City and Caltrans. This scenario assesses 2035 operations and roadway sizing for Warm Springs Parkway and at the I-215 interchange. Because the project does not propose a zone change, a long-range analysis is not required per the City's Traffic Impact Analysis Preparation Guide or for CEQA. The analysis below was conducted for the weekday PM peak hour to ensure that adequate capacity was provided along Warms Springs Parkway and for information requested by Caltrans. Signal timing was assumed to be coordinated along Clinton Keith Road and was optimized based on projected volumes. In addition, roadway segment analysis is provided per the direction of City staff and evaluation of the freeway corridor is provided per direction from Caltrans staff. Project access on Creighton Avenue was assumed for this analysis.

A project-specific impact would occur if the project-related traffic causes an intersection, freeway interchange, or roadway segment to become deficient or worsens an already deficient road facility under 2021 Project Completion Conditions (Existing Conditions plus Ambient Growth plus Project conditions). A cumulative impact would occur under the same circumstances but with the addition of cumulative traffic as analyzed under the 2021 Cumulative Conditions (Existing Conditions plus Ambient Growth plus Project Conditions plus Cumulative Traffic Conditions) and the 2035 Build-Out scenarios.

Project Trip Generation

Table 4.13-13 presents trip generation estimates for the proposed Costco and gas station and Vineyard II retail development. The analysis is conservative because adjustments for transportation demand management or other reductions were not made, and diverted trips are not included in Table 4.13-13 because these trips are expected

to come from I-215 and are counted as new trips at the study intersections for the purposes of this project's traffic analysis. However, it should be noted that the diverted trips do not create similar system capacity or environmental impacts to the regional system because these are not new trips.

The trip generation for the Costco warehouse and gas station is based on Costco-specific data collected at locations throughout California. The data includes information about pass-by trips, which are existing trips that are on roadways adjacent to the site that stop at the Costco development and then continue on to their ultimate destination when their shopping is concluded. The number of trips expected to be generated by Vineyard II were estimated using rates in Trip Generation Manual, 9th Edition, published by the Institute of Transportation Engineers. The Shopping Center land-use (ITE Code 820) was used, since this use accounts for "an integrated group of commercial establishments," as is proposed for the site. The pass-by rate applied for the shopping center is based on ITE data as well.

Table 4.13-13. Project Trip Generation

Land Use (size)/Trip Type	Weekday Daily	Weekday PM Peak Hour			Saturday Middy Peak Hour		
		Total	*In*	*Out*	*Total*	*In*	*Out*
Costco Warehouse with Fuel Center (153,362 square feet)	12,560	1,107	537	570	1,518	773	745
Pass-By Trips (33.3% Weekday PM, 29.0% Sat Mid)[1]	*–4,182*[2]	*–368*	*–184*	*–184*	*–440*	*–220*	*–220*
Net New Costco Trips	**8,378**[2]	**739**	**353**	**386**	**1,078**	**553**	**525**
Vineyard II (Institute of Transportation Engineers Code 820; 79,900 square feet)	5,870	515	247	268	756	393	363
Pass-By Trips (25.0%)	*–1,468*	*–128*	*–64*	*–64*	*–188*	*–94*	*–94*
Net New Vineyard II Trips	**4,402**	**387**	**183**	**204**	**568**	**299**	**269**

Source: Appendix I.
Notes:
1 Although not accounted for in the trip generation for the traffic study, it is expected that 31.5% of weekday PM and 20.7% of Saturday midday peak hour trips to/from Costco will be diverted trips.
2 The number of weekday daily primary and pass-by trips were estimated using weekday PM peak hour trip type percentages.

Adjustments for transportation demand management (TDM) or other reductions are not made in the travel demand estimates. In addition, diverted trips are not included in the estimates, since these trips are expected to come from I-215 and would function as new trips at many of the study area intersections. However, these trips would not create similar system capacity or environmental impacts to the regional system, since they are not new trips.

Project Trip Distribution and Assignment

Trip distribution and assignment for the proposed Costco is based on Costco membership data and review of existing travel patterns in the study area.[8] The trip distribution for the Vineyard II site matches the pattern used in the Vineyard Shopping Center Traffic Impact Analysis (Trames Solutions Inc. 2016). The same trip distribution patterns were used for the weekday PM peak hour and Saturday midday peak hour. The trip distribution patterns were provided in the scoping memorandum approved by the City. Figure 4.13-4 presents the Costco project trip

8 Trip patterns for Costco took into consideration that the Costco in the City of Temecula would attract many of the residents who live south of the proposed site. Trip patterns also took into consideration the new travel patterns with the Clinton Keith Road extension, providing an east–west connection to Winchester Road and the extension of Whitewood Road to Scott Road.

distribution patterns for the weekday PM and Saturday midday peak hours. Figures 4.13-5 and 4.13-6 illustrate the Costco trip distribution at the site access points with and without Creighton Avenue access. Figure 4.13-7 presents the Vineyard II project trip distribution patterns for the weekday PM and Saturday midday peak hours. Figure 4.13-8 illustrates the Vineyard II trip distribution at the site accesses points. Figures 4.13-9 through 4.13-12 present the total project trip assignment within the study area during the weekday PM and Saturday midday peak hours with and without Creighton Avenue access, respectively.

Year 2021 Project Completion Conditions

Traffic volumes for year 2021 conditions reflect expected conditions in the year 2021 with 2% ambient growth rate per year of existing traffic, and the addition of project trips. Figures 4.13-13 through 4.13-16 show the projected traffic volumes at the key study area locations for weekday PM peak hour and Saturday midday peak hour with and without Creighton Avenue access, respectively.

Year 2021 Traffic Controls and Intersection Geometries

The following infrastructure changes are anticipated to be in place when the proposed project opens and were accounted for in the project trip assignment:

- Development of Warm Springs Parkway from Clinton Keith Road to the north edge of the project boundary. The intersection of High School West Driveway/Warm Springs Parkway and Clinton Keith Road would align with the existing high school driveway on the south side of Warm Springs Parkway and be signalized. A signal would be provided on Warm Springs Parkway to serve Costco and the Vineyard retail center to the east. In addition, right-in/right-out access driveways are proposed along Warm Springs Parkway, as illustrated in Figure 3-2, Proposed Site Plan, in Chapter 3.
- Provision of a north leg at the intersections of Creighton Avenue/Clinton Keith Road and Bronco Way/Clinton Keith Road.
- Widening of Clinton Keith Road from the eastern Wildomar city limit to Inland Valley Drive (it is already two lanes in each direction from Inland Valley Drive to Arya Road) to provide two eastbound vehicle lanes and two westbound vehicle lanes. This project was recently completed.

In addition, Project Driveway C would operate with the geometric configuration assumed in this study until Warm Springs Parkway is extended north. At that time, its configuration could be reassessed.

Year 2021 Project Completion Traffic Analysis

Intersections

Analyses of intersection operations at the study intersections and queues were assessed under year 2021 conditions. Per the City's direction, signal timing was adjusted to reflect coordination on Clinton Keith Road for future conditions. Table 4.13-14 shows the project completion delays and LOS for the study intersections during weekday PM and Saturday midday peak hours.

Table 4.13-14. Year 2021 Project Completion Intersection Level of Service Analysis – with Creighton Avenue Access

ID	Intersection	Traffic Control	Weekday PM Peak		Saturday Midday Peak	
			Delay (sec)	*LOS*	*Delay (sec)*	*LOS*
1	I-15 SB Ramps and Clinton Keith Road	Signal	24.9	C	18.1	B
2	I-15 NB Ramps and Clinton Keith Road	Signal	27.8	C	20.9	C
3	George Avenue and Clinton Keith Road	Signal	24.7	C	18.0	B
4	Inland Valley Drive and Clinton Keith Road	Signal	20.5	C	9.1	A
5	Salida Del Sol and Clinton Keith Road	TWSC[1]	**37.1 (SBL/R)**	**E**	21.7 (SBL/R)	C
6	Elizabeth Lane and Clinton Keith Road	TWSC[1]	**70.8 (NBL/T/R)**	F	24.1 (NBL/T/R)	C
7	Smith Ranch Road and Clinton Keith Road	Signal	13.2	B	13.9	B
8	Nutmeg St and Clinton Keith Rd	Signal	39.8	D	20.6	C
9	California Oaks Rd and Clinton Keith Rd	Signal	**54.4**	**E**	25.4	C
10	Greer Rd/Murrieta Ave and Clinton Keith Rd	Signal	21.9	C	18.9	B
11	Mitchell Rd/Murrieta Oaks Ave and Clinton Keith Rd	Signal	38.5	D	25.9	C
12	Clinton Keith Rd and McElwain Rd	Signal	29.9	C	20.2	C
13	I-215 SB Ramps and Clinton Keith Rd	Signal	13.6	B	11.3	B
14	I-215 NB Ramps and Clinton Keith Rd	Signal	14.5	B	15.1	B
15	Creighton Ave and Clinton Keith Rd	Signal	16.9	B	9.1	A
16	High School West Dwy/Warm Springs Rd and Clinton Keith Rd	Signal	24.3	C	41.7	D
17	Bronco Way and Clinton Keith Rd	Signal	48.4	D	11.8	B
18	Whitewood Rd and Clinton Keith Rd	Signal	54.8	D	34.6	C
19	Whitewood Rd and Linnel Ln/Lee Ln	Signal	13.3	B	14.5	B
20	Whitewood Rd and Baxter Rd	Signal	19.4	B	14.1	B
21	Whitewood Rd and Keller Rd	Signal	15.3	B	13.3	B
22	Max Gillis Blvd/Briggs Rd and Leon Rd	Signal	47.8	D	43.0	D
23	Max Gillis Blvd/Thompson Rd and SR-79	Signal	**77.1**	**E**	**77.4**	**E**
A	Warm Springs Rd/Project Driveway A	TWSC[1]	NA	NA	NA	NA
B	Warm Springs Rd/Project Driveway B	TWSC[1]	NA	NA	NA	NA
C	Warm Springs Rd/Project Driveway C	Signal	12.0	B	18.6	B
D	Warm Springs Rd/Project Driveway D	TWSC	7.5 (NBL)	A	7.6 (NBL)	A

Source: Appendix I.
Notes: sec = seconds; LOS = level of service; I = Interstate; SB = southbound; NB = northbound; L = left; R = right; T= Through; HS = high school; SR = State Route; TWSC = two-way stop controlled; NA = not applicable.
TWSC: Two-way stop control - delay reported reflects the critical movement, shown in parentheses.
1. No east/west turning movements are forecast at this intersection so delay cannot be estimated.
Boldface type indicates locations performing at LOS that does not meet standards.

As shown in Table 4.13-14, all intersections are projected to operate with an acceptable LOS in 2021 except for the following:

- Salida Del Sol and Clinton Keith Road: With the additional through lanes on Clinton Keith Road as part of the widening of Clinton Keith Road from the eastern Wildomar city limit to Inland Valley Drive, which recently completed construction, the LOS for the southbound approach to the intersection is projected to improve from LOS F under existing conditions to LOS E under 2021 Project Completion Conditions during the weekday PM peak hour.
- Elizabeth Lane and Clinton Keith Road: As in existing conditions, the northbound approach to the intersection is projected to operate at LOS F during the weekday PM peak hour.
- California Oaks Road and Clinton Keith Road: The intersection is projected to operate at LOS E during the weekday PM peak hour.
- Max Gillis Boulevard/Thompson Road and SR-79: As in existing conditions, this signalized intersection is projected to operate at LOS F during the weekday PM peak hour and LOS E during the Saturday midday peak hour.

Without Creighton Avenue Access

In the event that the northern leg of Creighton Avenue and signal are not constructed when the project site is developed, the access locations on Warm Springs Parkway are sufficient to serve the site. Trips that were assumed to use Creighton Avenue would instead utilize Warm Springs Parkway and the signalized access (Project Driveway C) or stop-controlled northern access (Project Driveway D). The alternative access plan would affect operations at the High School West Driveway/Warm Springs Parkway and Clinton Keith Road intersection as well as at the Project Driveways along Warm Springs Parkway. As shown in Table 4.13-15 below, all affected intersections continue to operate at an acceptable LOS.

Table 4.13-15. Year 2021 Project Completion Intersection Level of Service Analysis – without Creighton Avenue Access

ID	Intersection	Traffic Control	Weekday PM Peak		Saturday Midday Peak	
			Delay (sec)	*LOS*	*Delay (sec)*	*LOS*
15	Creighton Ave and Clinton Keith Rd	Signal	2.4	A	2.8	A
16	High School West Dwy/Warm Springs Rd and Clinton Keith Rd	Signal	33.3	C	53.7	D
A	Warm Springs Rd/Project Driveway A	TWSC[1]	NA	NA	NA	NA
B	Warm Springs Rd/Project Driveway B	TWSC[1]	NA	NA	NA	NA
C	Warm Springs Rd/Project Driveway C	Signal	12.5	B	20.5	C
D	Warm Springs Rd/Project Driveway D	TWSC	7.5 (NBL)	A	7.6 (NBL)	A

Source: Appendix I.
Notes: sec = seconds; LOS = level of service; TWSC = two-way stop controlled; NA = not applicable; NBL = northbound left.
TWSC: Two-way stop control - delay reported reflects the critical movement, shown in parentheses.
[1] No east/west turning movements are forecast at this intersection so delay cannot be estimated.

As shown in Table 4.13-15, all intersections without Creighton access are projected to operate with an acceptable LOS in 2021.

Queuing Analysis

Per the request of the City, the following queuing analysis was provided in the vicinity of the project site. Table 4.13-16 shows the available queue storage and the 95th percentile queue lengths at the turn lanes for each study intersection with Creighton access.

Table 4.13-16. Year 2021 Project Completion 95th Percentile Queues – with Creighton Access

ID	Intersection	Movement	Available Storage (feet)	Average|95th Percentile Queue		Project Impact*	
				Weekday PM	*Saturday Midday*	*Weekday PM*	*Saturday Midday*
8	Nutmeg St and Clinton Keith Rd	EBL	125	28|81	13|61	—	—
		WBL	225	246|**506**	95|**274**	No[5]	Yes
		NBL	175	40|89	26|82	—	—
		NBR	360[2]	0|82	0|62	—	—
		SBL	50	77|**148**	36|**106**	Yes	Yes
9	California Oaks Rd and Clinton Keith Rd	WBL	220	441|**959**	239|412	Yes	—
		NBL	100[6]	152|**279**	42|102	Yes	—
		NBR	485[2]	0|135	0|92	—	—
10	Greer Rd/Murrieta Oaks Ave and Clinton Keith Rd	EBL	260	51|130	44|86	—	—
		WBL	150	40|107	46|95	—	—
		WBR	150	17|51	0|0	—	—
		NBL	150	24|55	28|59	—	—
		NBR	150	0|0	0|0	—	—
		SBL	150	98|**167**	132|**198**	—	Yes
11	Mitchell Road/Murrieta Oaks Ave and Clinton Keith Rd	EBL	150	12|45	15|26	—	—
		WBL	150	150|**406**	150|**297**	Yes	Yes
		WBR	160	0|0	0|0	—	—
		NBL	190[2]	19|63	18|51	—	—
		SBL	150	3|14	2|8	—	—
		SBR	150	0|0	0|0	—	—
12	McElwain Rd and Clinton Keith Rd	EBL	200 (x2)	172|230	137|157	—	—
		EBR	100	0|0	0|0	—	—
		WBL	175	22|50	25|51	—	—
		WBR	160	0|55	7|14	—	—
		NBL	50	15|42	11|33	—	—
		SBL	235 (x2)	185|225	226|274	—	—
13	I-215 SB Ramps and Clinton Keith Rd	EBR	385	83|108	125|127	—	—
		WBR	380	95|124	195|161[4]	—	—
		SBR	1,100[1]	295|340	97|135	—	—

Table 4.13-16. Year 2021 Project Completion 95th Percentile Queues – with Creighton Access

ID	Intersection	Movement	Available Storage (feet)	Average|95th Percentile Queue		Project Impact*	
				Weekday PM	*Saturday Midday*	*Weekday PM*	*Saturday Midday*
14	I-215 NB Ramps and Clinton Keith Rd	NBL/R	960[1]	435|544	373|443	—	—
		NBR	960[1]	427|552	331|413	—	—
15	Creighton Ave and Clinton Keith Rd	EBL/U	250	40|62	63|112	—	—
		EBR	250	0|1	0|0	—	—
		WBL/U	235	38|87	6|23	—	—
		WBR	150	0|0	0|0	—	—
		NBL	100	50|98	50|94	—	—
		NBT/R	390[2]	0|0	0|0	—	—
		SBL	*230*[2]	0|0	0|0	—	—
16	High School West Dwy/ Warm Springs Rd and Clinton Keith Rd	*EBL*	205 (x2)	321|**415**	210|**535**	—	Yes
		WBR	250	0|7	0|50	—	—
		NBL	100	0|0	0|0	—	—
		NBR	390[2]	0|0	0|0	—	—
		SBL	350 (x2)	149|262	142|366	—	—
		SBR	350	0|0	0|0	—	—
17	Bronco Way and Clinton Keith Rd	EBL/U	200	25|44	7|42	—	—
		WBL/U	315	167|320	13|62	—	—
		WBR	85	0|0	0|0	—	—
		NBL	355[2]	57|112	10|44	—	—
		NBT/R	355[2]	0|0	0|0	—	—
		SBL	60[2]	22|54	11|56	—	—
18	Whitewood Rd and Clinton Keith Rd	EBL	250 (x2)	226|423	96|218	—	—
		EBR	250	30|120	0|70	—	—
		WBL	200 (x2)	54|101	34|89	—	—
		WBR	350	0|0	0|0	—	—
		NBL	300	235|**477**	114|265	Yes	—
		SBL	100	77|**178**	32|100	Yes	—
19	Whitewood Rd and Linnel Ln	EBL	130	72	54	—	—
		EBR	>500[2]	0|0	0|13	—	—
		NBL	200	14|54	9|51	—	—
		SBL	200	1|7	0|7	—	—

Table 4.13-16. Year 2021 Project Completion 95th Percentile Queues – with Creighton Access

ID	Intersection	Movement	Available Storage (feet)	Average|95th Percentile Queue		Project Impact*	
				Weekday PM	*Saturday Midday*	*Weekday PM*	*Saturday Midday*
20	Whitewood Rd and Baxter Rd	EBL	215	6|40	1|14	—	—
		EBR	>500[2]	0|55	0|2	—	—
		WBL	125	3|24	2|20	—	—
		NBL	215	66|**255**	17|113	No[5]	—
		NBR	>500[2]	0|0	0|0	—	—
		SBL	200	0|7	2|22	—	—
21	Whitewood Rd and Keller Rd	EBL	175	12|83	2|43	—	—
		EBR	545[1]	0|0	0|0	—	—
		WBL	200	3|29	2|36	—	—
		NBL	225	13|77	3|54	—	—
		SBL	115	3|29	1|20	—	—
C	Warm Springs Rd/Project Driveway C	*EBR*	155	1|26	38|126	—	—
		WBL	100	60|**168**	117|**279**	No[4]	No[4]
		NBL	250 (x2)	51|147	100|223	—	—
		SBL	100	0	0	—	—
		SBR	100	0	0	—	—

Source: Appendix I.
Notes: EB = eastbound; L = left; WB = westbound; NB = northbound; R = right; SB = southbound; U = U-turn; I = Interstate.
*Impacts determined using 95th percentile queues. A queuing impact is determined if the project causes the calculated 95th percentile queue length on public streets to exceed the existing or planned storage capacity by more than 25 feet. For storage lanes that are already deficient without the project, a significant queuing impact is determined if the project increases the calculated 95th percentile queue length by more than 25 feet. Average queues provided for information.
Where the table indicates (x2) it means there are two lanes with the indicated feet of storage.
1 Distance to development of separate turn lanes from highway off-ramp.
2 Approximate distance to adjacent intersection.
3 Two-way left turn lanes provides additional storage up to 730 feet.
4 Queues onto private property, not on City streets.
5 Project contribution to queue is less than 25 feet as compared to existing conditions.
6 The City recently completed a project to extend the storage for this left turn lane to 250 feet.
Boldface type indicates the 95th percentile queue exceeds the available storage.
Italic type indicates the movement does not currently exist.

As shown in Table 4.14-16, queues are projected to exceed storage capacity by more than 25 feet (or by more than 25 feet beyond existing conditions for locations that already exceed capacity) under 2021 project conditions for one or more movements at the following study locations:

- Nutmeg Street and Clinton Keith Road (WBL, SBL)
- California Oaks Road and Clinton Keith Road (WBL, NBL)
- Greer Road/Murrieta Oaks Avenue and Clinton Keith Road (SBL)
- Mitchell Road/Murrieta Oaks Avenue and Clinton Keith Road (WBL)

- High School West Driveway/Warm Springs Road and Clinton Keith Road (eastbound lane [EBL])
- Whitewood Road and Clinton Keith Road (NBL, SBL)

The alternative access plan would affect operations at the High School West Driveway/Warm Springs Parkway and Clinton Keith Road intersection as well as the project driveways along Warm Springs Parkway. Table 4.13-17 illustrates the available queue storage, average queue length, and 95th percentile queue length at the turn lanes for each study intersection.

Table 4.13-17. Year 2021 Project Completion 95th Percentile Queues- without Creighton Access

ID	Intersection	Movement	Available Storage (feet)	Average|95th Percentile Queue		Project Impact*	
				Weekday PM	*Saturday Midday*	*Weekday PM*	*Saturday Midday*
15	Creighton Ave and Clinton Keith Rd	EBL/U	250	7|12	8|21	–	–
		EBR	250	0|2	0|4	–	–
		WBL/U	235	37|79	6|23	–	–
						–	–
		NBL	100	61|114	54|103	**–**	**–**
		NBT/R	390	0|0	0|0	–	–
16	High School West Dwy/ Warm Springs Rd and Clinton Keith Rd	*EBL*	205 (x2)	359|**464**	232|**602**	Yes	Yes
		WBR	250	0|7	0|50	–	–
		NBL	100	0|0	0|0	–	–
		NBR	390[1]	0|0	0|0	–	–
		SBL	350 (x2)	149|262	142|366	**–**	**–**
		SBR	350	0|0	0|0	–	–
C	Warm Springs Rd/Project Driveway C	*EBR*	155	6|39	52|163	–	–
		WBL	100	62|**174**	122|**293**	No[2]	No[2]
		NBL	250 (x2)	56|157	112|244	**–**	**–**
		SBL	100	0	0	–	–
		SBR	100	0	0	–	–

Source: Appendix I.
Notes: EB = eastbound; L = left; U = U-turn; R = right; WB = westbound; NB = northbound; T = through; SB = southbound.
*Impacts determined using 95th percentile queues. A queuing impact is determined if the project causes the calculated 95th percentile queue length on public streets to exceed the existing or planned storage capacity by more than 25 feet. For storage lanes that are already deficient without the project, a significant queuing impact is determined if the project increases the calculated 95th percentile queue length by more than 25 feet. Average queues provided for information.
1 Approximate distance to adjacent intersection.
2 Queues onto private property, not on City streets.
Boldface type indicates the 95th percentile queue exceeds the available storage.
Italic type indicates the movement does not currently exist.

As shown in the table, the without Creighton access scenario increases the expected queues at the High School West Driveway/Warm Springs Parkway and Clinton Keith Road intersection, particularly for the eastbound left turn

lane, and results in a new queuing impact for the eastbound left turn during the weekday PM peak (that does not occur within the with Creighton access scenario.

Roadway Segment Analysis

An assessment of ADT was conducted for the following three roadway segments for year 2021 project completion conditions:

- Clinton Keith Road, between I-215 northbound ramps and Warm Springs Parkway
- Whitewood Road, north of Clinton Keith Road
- Warm Springs Parkway, north of Clinton Keith Road

Average daily volumes were developed by assuming the same ratio between peak hour and daily counts observed under existing conditions. This accounts for background growth and the project trips. As shown in Table 4.13-18, all three roadway segments operate within capacity and at an acceptable LOS under year 2021 project completion conditions during both weekday and Saturday peak hours.

Table 4.13-18. Year 2021 Project Completion Average Daily Traffic Analysis – with Creighton Access

Segment	Metric	Weekday	Saturday[1]
Clinton Keith Road, between I-215 northbound ramps and Warm Springs Parkway	Volume (daily)	34,697	32,024
	Capacity (daily, LOS E)	53,900	53,900
	LOS	C	C
	v/c ratio	0.64	0.59
Warm Springs Parkway Road, north of Clinton Keith Road	Volume (daily)	16,586	21,723
	Capacity (daily, LOS E)	34,100	34,100
	LOS	C	C
	v/c ratio	0.49	0.64
Whitewood Road, north of Clinton Keith Road	Volume (daily)	14,609	12,968
	Capacity (daily, LOS E)	34,100	34,100
	LOS	C	C
	v/c ratio	0.43	0.38

Source: Appendix I.
Notes: I = Interstate; LOS = level of service; v/c = vehicle to capacity.
The capacities shown are based on roadway classification and taken from the City's General Plan for roadways operating at LOS E. The LOS is based on the City's General Plan maximum two-way ADT volume for each LOS grade. The table provides maximum ADT volumes for LOS C, D, and E. Clinton Keith Road is an urban arterial, Warm Springs Parkway is a major roadway, and Whitewood Road a major roadway.
[1] The Saturday daily trip generation for the development was generated based on applying the ratio between Saturday midday peak hour and Saturday daily trip generation in the manual *Trip Generation, 9th Edition* to the Costco Saturday midday peak hour trips as the Costco database does not contain Saturday daily trip generation.

The resulting v/c ratios on each roadway are shown in Table 4.13-19. As shown in Table 4.13-19, all three roadway segments are projected to operate under capacity and at LOS C under year 2021 Project Completion conditions on both weekdays and Saturdays.

Table 4.13-19. Year 2021 Project Completion Average Daily Traffic Analysis – without Creighton Access

Segment	Metric	Weekday	Saturday[1]
Clinton Keith Road, between I-215 northbound ramps and Warm Springs Parkway	Volume (daily)	35,975	33,770
	Capacity (daily, LOS E)	53,900	53,900
	LOS	C	C
	v/c ratio	0.67	0.71
Warm Springs Parkway Road, north of Clinton Keith Road	Volume (daily)	18,429	24,137
	Capacity (daily, LOS E)	34,100	34,100
	LOS	C	C
	v/c ratio	0.54	0.71
Whitewood Road, north of Clinton Keith Road	Volume (daily)	14,609	12,968
	Capacity (daily, LOS E)	34,100	34,100
	LOS	C	C
	v/c ratio	0.43	0.38

Source: Appendix I.
Notes: I = Interstate; LOS = level of service; v/c = vehicle to capacity.
The capacities shown are based on roadway classification and taken from the City's General Plan for roadways operating at LOS E. The LOS is based on the City's General Plan maximum two-way ADT volume for each LOS grade. The table provides maximum ADT volumes for LOS C, D, and E. Clinton Keith Road is an urban arterial, Warm Springs Parkway is a major roadway, and Whitewood Road a major roadway.
[1] The Saturday daily trip generation for the development was generated based on applying the ratio between Saturday midday peak hour and Saturday daily trip generation in the manual *Trip Generation, 9th Edition* to the Costco Saturday midday peak hour trips as the Costco database does not contain Saturday daily trip generation.

Year 2021 Cumulative Conditions

The cumulative traffic conditions analysis forecasts how the transportation system would operate with existing traffic volumes plus the traffic generated by the project and other approved/proposed projects in the area. The same ambient growth rate (2%) is applied to traffic volumes. The Cities of Murrieta, Menifee and Wildomar provided a list of approved/proposed projects that would affect traffic volumes in the study area under year 2021 conditions (shown in Table 4.13-20).

Table 4.13-20. Trip Generation for Approved/Proposed Projects

ID	Project Name	Weekday PM Peak Hour			Saturday Midday Peak Hour[1]		
		Total	*In*	*Out*	*Total*	*In*	*Out*
1	Mitchell Crossing	341	192	149	382	191	191
2	The Orchard[2]	300	143	157	385	202	183
3	Vineyard I	531	258	273	775	406	369
4	Makena Hills	607	256	351	671	383	288
5	Adobe Springs	537	244	293	320	171	149
6	Alderwood[3]	10	6	4	9	5	4
7	Golden Cities Phase 3	70	44	26	64	35	29
8	Golden Cities Phase 4	127	80	47	117	63	54
9	Golden Cities Phase 5	119	75	44	111	60	51
10	Junction	1,563	757	806	2,044	1,037	1,007
11	Walmart	1,335	677	658	1,350	689	661
12	Vineyard III	456	230	226	430	221	209

Table 4.13-20. Trip Generation for Approved/Proposed Projects

ID	Project Name	Weekday PM Peak Hour			Saturday Midday Peak Hour[1]		
		Total	*In*	*Out*	*Total*	*In*	*Out*
13	Clinton Keith Village	307	155	152	395	201	194
	Total	**6,303**	**3,117**	**3,186**	**7,053**	**3,664**	**3,389**

Source: Traffic studies and data provided by the City of Murrieta, Menifee, and Wildomar.
Notes:
1 The original traffic studies did not include a Saturday midday trip generation. The same approach taken in the original study was utilized to develop a Saturday midday trip generation assessment using the 9th Edition of the Trip Generation Manual (Reference 8).
2 The Orchard project includes 436,735 square feet of shopping center development. A portion of the site is already developed, so a total of 215,850 square feet of the shopping center remains to be built. An additional 100,000 SF of development is anticipated by 2020. Therefore, the trips shown are associated with 100,000 square feet of development.
3 A traffic study was not conducted for Alderwood so trip generation was assessed based on the development type and unit count.

Figures 4.13-17 through 4.13-20 show the year 2021 cumulative traffic volumes for existing traffic with ambient growth, trips from approved/proposed projects, and project-associated traffic for weekday PM peak hour and Saturday midday peak hour moving traffic volumes with and without Creighton Avenue access, respectively.

Year 2021 Cumulative Traffic Analysis

Intersections

Intersection operations at all study area intersections were assessed under year 2021 conditions with completion of the proposed project plus approved/proposed projects. Table 4.13-21 shows the Year 2021 Cumulative Conditions delays and LOS for the study intersections during weekday PM and Saturday midday peak hours.

Table 4.13-21. Year 2021 Cumulative Conditions Intersection Level of Service Analysis – with Creighton Avenue Access

ID	Intersection	Traffic Control	Weekday PM Peak		Saturday Midday Peak	
			Delay (sec)	*LOS*	*Delay (sec)*	*LOS*
1	I-15 SB Ramps and Clinton Keith Road	Signal	25.8	C	18.8	B
2	I-15 NB Ramps and Clinton Keith Road	Signal	30.0	C	21.0	B
3	George Avenue and Clinton Keith Road	Signal	31.2	C	28.7	C
4	Inland Valley Drive and Clinton Keith Road	Signal	22.2	C	10.0	B
5	Salida Del Sol and Clinton Keith Road	TWSC	**52.2 (SBL/R)**	**F**	29.0 (SBL/R)	D
6	Elizabeth Lane and Clinton Keith Road	TWSC	**95.4 (NBL/T/R)**	**F**	31.7 (NBL/T/R)	D
7	Smith Ranch Road and Clinton Keith Road	Signal	14.0	B	13.2	B
8	Nutmeg St and Clinton Keith Rd	Signal	52.0	D	25.7	C
9	California Oaks Rd and Clinton Keith Rd	Signal	**67.7**	**E**	29.7	C
10	Greer Rd/Murrieta Oaks Ave and Clinton Keith Rd	Signal	35.8	D	22.0	C
11	Mitchell Road/Murrieta Oaks Ave and Clinton Keith Rd	Signal	**79.0**	**E**	**69.7**	**E**

Table 4.13-21. Year 2021 Cumulative Conditions Intersection Level of Service Analysis – with Creighton Avenue Access

ID	Intersection	Traffic Control	Weekday PM Peak		Saturday Midday Peak	
			Delay (sec)	*LOS*	*Delay (sec)*	*LOS*
12	Clinton Keith Rd and McElwain Rd	Signal	42.8	D	24.8	C
13	I-215 SB Ramps and Clinton Keith Rd	Signal	15.5	B	10.1	B
14	I-215 NB Ramps and Clinton Keith Rd	Signal	15.9	B	14.6	B
15	Creighton Ave and Clinton Keith Rd	Signal	**89.7**	**F**	**117.6**	**F**
16	High School West Dwy/Warm Springs Rd and Clinton Keith Rd	Signal	21.6	C	35.0	D
17	Bronco Way and Clinton Keith Rd	Signal	**87.3**	**F**	18.8	B
18	Whitewood Rd and Clinton Keith Rd	Signal	**77.2**	**E**	**58.5**	**E**
19	Whitewood Rd and Linnel Ln/Lee Ln	Signal	15.7	B	15.6	B
20	Whitewood Rd and Baxter Rd	Signal	33.6	C	21.1	C
21	Whitewood Rd and Keller Rd	Signal	19.1	B	18.4	B
22	Max Gillis Blvd/Briggs Rd and Leon Rd	Signal	**80.7**	**F**	51.0	D
23	Max Gillis Blvd/Thompson Rd and Hwy 79	Signal	**115.5**	**F**	**82.0**	**F**
A	Warm Springs Rd/Project Driveway A	TWSC[1]	133 (EBR)	B	15.6 (EBR)	C
B	Warm Springs Rd/Project Driveway B3	TWSC[2]	NA	NA	NA	NA
C	Warm Springs Rd/Project Driveway C	Signal	14.1	B	25.7	C
D	Warm Springs Rd/Project Driveway D	TWSC	7.5 (NBL)	A	7.6 (NBL)	A

Source: Appendix I.
Notes: sec = seconds; LOS = level of service; I = Interstate; SB = southbound; NB = northbound; L = left; R = right; T=Through; HS = high school; EB = eastbound; NA = not applicable.
TWSC: Two-way stop control - delay reported reflects the critical movement, shown in parentheses.
1 The HCM methodology is designed to analyze TWSC intersections with up to three lanes. Therefore, this RIRO intersection was modeled assuming no more than three north/south through lanes.
2 No east/west turning movements are forecast at this intersection so delay cannot be estimated.
Boldface type indicates locations performing at LOS that does not meet standards.

As shown in Table 4.13-21, the following intersections are projected to operate at unacceptable LOS under Year 2021 Cumulative Conditions:

- Salida Del Sol and Clinton Keith Road: As under existing conditions, the southbound approach to the intersection is projected to operate at LOS F during the weekday PM peak hour.
- Elizabeth Lane and Clinton Keith Road: As under existing and year 2021 Project Completion Conditions, the northbound approach to the intersection is projected to operate at LOS F during the weekday PM peak hour.
- California Oaks Road and Clinton Keith Road: The intersection is projected to operate at LOS E during the weekday PM peak hour.
- Mitchell Road/Murrieta Oaks Avenue and Clinton Keith Road: The intersection is projected to operate at LOS E during the weekday and Saturday PM peak hours.
- Creighton Avenue and Clinton Keith Road: The intersection is projected to operate at LOS F during the weekday PM and Saturday midday peak hours.
- Bronco Way and Clinton Keith Road: The intersection is projected to operate at LOS F during the weekday PM peak hour.

- Whitewood Road and Clinton Keith Road: The intersection is projected to operate at LOS E during the weekday PM and Saturday midday peak hours.
- Max Gillis Boulevard/Briggs Road and Leon Road: The intersection is projected to operate at LOS F during the weekday PM peak hour.
- Max Gillis Boulevard/Thompson Road and SR-79: The intersection is projected to operate at LOS F during the weekday PM peak hour and Saturday midday peak hour.

In the event that the northern leg of Creighton Avenue and signal are not constructed when the site opens, the access locations on Warm Springs Parkway are sufficient to serve the site. Trips that were assumed to use Creighton Avenue would instead use Warm Springs Parkway and the signalized access (Project Driveway C) or stop-controlled northern access (Project Driveway D). The alternative access plan would affect operations at the High School West Driveway/Warm Springs Parkway and Clinton Keith Road intersection and at the project driveways along Warm Springs Parkway.

As shown in Table 4.13-22, all intersections are projected to operate with an acceptable LOS except for the following:

- Creighton Avenue and Clinton Keith Road: The intersection is projected to operate at LOS F during the weekday PM and Saturday midday peak hours.

Table 4.13-22. Year 2021 Cumulative Conditions Intersection Level of Service Analysis – without Creighton Avenue Access

ID	Intersection	Traffic Control	Weekday PM Peak		Saturday Midday Peak	
			Delay (sec)	*LOS*	*Delay (sec)*	*LOS*
15	Creighton Ave and Clinton Keith Rd	Signal	**81.4**	**F**	**126.4**	**F**
16	High School West Dwy/Warm Springs Rd and Clinton Keith Rd	Signal	22.0	C	41.9	D
A	Warm Springs Rd/Project Driveway A	TWSC	13.5 (EBR)	B	16.2 (EBR)	C
B	Warm Springs Rd/Project Driveway B3	TWSC[1]	0.0	A	0.0	A
C	Warm Springs Rd/Project Driveway C	Signal	14.5	B	27.3	C
D	Warm Springs Rd/Project Driveway D	TWSC	7.5 (NBL)	A	7.6 (NBL)	A

Source: Appendix I.
Notes: sec = seconds; LOS = level of service; TWSC = two-way stop control; EB = eastbound; R = right; NB = northbound; L = left.
TWSC: Two-way stop control - delay reported reflects the critical movement, shown in parentheses.
[1] No east/west turning movements are forecast at this intersection so delay cannot be estimated.
Boldface type indicates locations performing at LOS that does not meet standards.

Queuing Analysis

Table 4.13-23 illustrates the available queue storage and 95th percentile queue lengths at the turn lanes for each study intersection under 2021 cumulative conditions with Creighton access.

Table 4.13-23. Year 2021 Cumulative Conditions Queues – with Creighton Avenue Access

ID	Intersection	Movement	Available Storage (feet)	Average|95th Percentile Queue		Project Impact*	
				Weekday PM	*Saturday Midday*	*Weekday PM*	*Saturday Midday*
8	Nutmeg St and Clinton Keith Rd	EBL	125	36|88	18|71	—	—
		WBL	225	304|**602**	136|**332**	**Yes**	**Yes**
		NBL	175	53|98	36|99	—	—
		NBR	360[2]	0|86	0|69	—	—
		SBL	50	100|**166**	52|**132**	No[5]	**Yes**
9	California Oaks Rd and Clinton Keith Rd	WBL	220[3]	542|**1047**	316|472	**Yes**	—
		NBL	100[6]	162|**294**	58|113	No[5]	—
		NBR	485[2]	0|137	0|95	—	—
10	Greer Rd/Murrieta Oaks Ave and Clinton Keith Rd	EBL	260	53|145	44|86	—	—
		WBL	150	66|**179**	84|173	Yes	—
		WBR	150	24|64	0|0	—	—
		NBL	150	24|55	28|58	—	—
		NBR	150	0|15	0|18	—	—
		SBL	150	113|**188**	149|**217**	No[5]	No[5]
11	Mitchell Road/Murrieta Oaks Ave and Clinton Keith Rd	EBL	150	89|170	89|**180**	—	**Yes**
		WBL	150	263|**533**	251|**423**	**Yes**	**Yes**
		WBR	160	10|51	0|8	—	—
		NBL	190[2]	21|63	18|51	—	—
		SBL	150	50|85	55|96	—	—
		SBR	150	0|41	0|14	—	—
12	McElwain Rd and Clinton Keith Rd	EBL	200 (x2)	208|303	200|225	—	—
		EBR	100	0|0	0|0	—	—
		WBL	175	23|38	24|39	—	—
		WBR	160	37|97	13|21	—	—
		NBL	50	15|42	11|33	—	—
		SBL	235 (x2)	248|315	304|368	—	—
13	I-215 SB Ramps and Clinton Keith Rd	EBR	385	226|369	**443|631**	—	**Yes**
		WBR	380	183|347	146|283	—	—
		SBR	1,100[1]	317|396	129|192	—	—
14	I-215 NB Ramps and Clinton Keith Rd	NBL/R	960[1]	526|769	511|561	—	—
		NBR	960[1]	512|774	478|631	—	—

Table 4.13-23. Year 2021 Cumulative Conditions Queues – with Creighton Avenue Access

ID	Intersection	Movement	Available Storage (feet)	Average|95th Percentile Queue		Project Impact*	
				Weekday PM	*Saturday Midday*	*Weekday PM*	*Saturday Midday*
15	Creighton Ave and Clinton Keith Rd	EBL/U	250	257|**564**	**439|627**	**Yes**	**Yes**
		EBR	200	0|5	0|0	—	—
		WBL/U	235	37|59	7|26	—	—
		WBR	150	3|9	9|68	—	—
		NBL	100	49|96	53|99	—	—
		NBT/R	390[2]	0|0	0|0	—	—
		SBL	230[2]	193|**331**	220|**364**	No[4]	No[4]
16	High School West Dwy/ Warm Springs Rd and Clinton Keith Rd	EBL	205 (x2)	378|**473**	306|**625**	**Yes**	**Yes**
		WBR	250	2|45	37|134	—	—
		NBL	100	0|0	0|0	—	—
		NBR	390[2]	0|0	0|0	—	—
		SBL	350	158|286	184|396	—	—
		SBR	350	0|6	0|0	—	—
17	Bronco Way and Clinton Keith Rd	EBL/U	200	135|**258**	76|**306**	**Yes**	**Yes**
		WBL/U	315	176|**325**	19|70	—	—
		WBR	85	0|11	5|56	—	—
		NBL	355[2]	58|89	15|43	—	—
		NBT/R	355[2]	0|0	0|0	—	—
		SBL	60[2]	127|**244**	62|**178**	No[4]	No[4]
18	Whitewood Rd and Clinton Keith Rd	EBL	250 (x 2)	354|**576**	236|344	**Yes**	—
		EBR	250	73|180	23|111	—	—
		WBL	250(x2)	65|111	57|101	—	—
		WBR	350	0|14	0|0	—	—
		NBL	300	421|**624**	258|**408**	**Yes**	**Yes**
		SBL	100	119|**217**	91|**165**	**Yes**	**Yes**
19	Whitewood Rd and Linnel Ln	EBL	130	47|135	35|106	—	—
		EBR	>500[2]	0|0	0|40	—	—
		NBL	200	19|68	17|61	—	—
		SBL	200	3|19	4|23	—	—
20	Whitewood Rd and Baxter Rd	EBL	215	27|100	26|111	—	—
		EBR	>500[2]	0|65	0|51	—	—
		WBL	125	16|60	14|59	—	—

Table 4.13-23. Year 2021 Cumulative Conditions Queues – with Creighton Avenue Access

ID	Intersection	Movement	Available Storage (feet)	Average|95th Percentile Queue		Project Impact*	
				Weekday PM	*Saturday Midday*	*Weekday PM*	*Saturday Midday*
		NBL	215	148|**469**	81|**263**	**Yes**	**Yes**
		NBR	>500[2]	0|12	0|1	—	—
		SBL	200	1|7	4|26	—	—
21	Whitewood Rd and Keller Rd	EBL	175	43|143	34|109	—	—
		EBR	545[2]	0|49	0|42	—	—
		WBL	200	5|31	8|38	—	—
		NBL	225	48|155	43|131	—	—
		SBL	115	5|33	4|24	—	—
C	Warm Springs Rd/Project Driveway C	*EBR*	155	1|25	35|112	—	—
		WBL	100	77|**208**	**155|221**	—	No[4]
		NBL	250 (x2)	57|152	119|252	—	—
		SBL	100	0|0	0|0	—	—
		SBR	100	0|0	0|0	—	—

Source: Appendix I.
Notes: EB = eastbound; L = left; WB = westbound; NB = northbound; R = right; SB = southbound; I = Interstate; U = U-turn; T = through.
*Impacts determined using 95th percentile queues and a queuing impact is identified if the calculated 95th percentile queue length on public streets to exceed the existing or planned storage capacity by more than 25 feet. For storage lanes that are already deficient in existing conditions, a significant queuing impact is determined if the future traffic increases the calculated 95th percentile queue length by more than 25 feet. Average queues provided for information.

1 Distance to development of separate turn lanes from highway off-ramp.
2 Approximate distance to adjacent intersection.
3 Two-way left turn lanes provide additional storage up to 730 feet.
4 Queues onto private property, not on City streets.
5 Project contribution to queue is less than 25 feet as compared to 2021 Project Completion conditions.
6 The City recently completed a project to extend this left turn lane storage to 250 feet.

Boldface type indicates the 95th percentile queue exceeds the available storage.
Italic type indicates the movement does not currently exist.

As shown in Table 4.14-23, queues are projected to exceed storage capacity by more than 25 feet (or by more than 25 feet beyond existing conditions for locations that already exceed capacity) under 2021 cumulative conditions for one or more movements at the following study locations:

- Nutmeg Street and Clinton Keith Road (WBL, SBL)
- California Oaks Road and Clinton Keith Road (WBL)
- Greer Road/Murrieta Oaks Avenue and Clinton Keith Road (WBL)
- Mitchell Road/Murrieta Oaks Avenue and Clinton Keith Road (EBL, WBL)
- I-215 SB Ramps and Clinton Keith Road (EBR)
- Creighton Avenue and Clinton Keith Road (EBL)
- High School West Driveway/Warm Springs Road and Clinton Keith Road (EBL)

- Bronco Way and Clinton Keith Road (EBL)
- Whitewood Road and Clinton Keith Road (EBL, NBL, SBL)
- Whitewood Road and Baxter Road (NBL)

The alternative access plan would affect operations at the High School West Driveway/Warm Springs Parkway and Clinton Keith Road intersection as well as at the Project Driveways along Warm Springs Parkway. As shown in Table 4.13-24, 95th percentile queues are projected to exceed storage capacity under 2021 cumulative conditions without Creighton access, for one or more movements at the following study locations:

- Creighton Avenue and Clinton Keith Road (EBL/U-turn)
- High School West Driveway/Warm Springs Parkway and Clinton Keith Road (EBL)

Table 4.13-24. Year 2021 Cumulative Conditions Queues – without Creighton Avenue Access

ID	Intersection	Movement	Available Storage (feet)	Average|95th Percentile Queue		Project Impact*	
				Weekday PM	*Saturday Midday*	*Weekday PM*	*Saturday Midday*
15	Creighton Ave and Clinton Keith Rd	EBL/U	250	223|**479**	**319|494**	**Yes**	**Yes**
		EBR	200	0|5	0|0	—	—
		WBL/U	235	36|60	7|26	—	—
		WBR	150	0|9	9|68	—	—
		NBL	100	49|96	53|99	—	—
		NBT/R	390[1]	0|0	0|0	—	—
		SBL	230[1]	193|**331**	220|**364**	No[2]	No[2]
16	High School West Dwy/ Warm Springs Rd and Clinton Keith Rd	EBL	205	**418|513**	336|**690**	**Yes**	**Yes**
		WBR	250	2|45	37|134	—	—
		NBL	100	0|0	0|0	—	—
		NBR	390[1]	0|0	0|0	—	—
		SBL	350	158|286	184|396	—	—
		SBR	350	0|18	0|0	—	—
C	Warm Springs Rd/Project Driveway C	*EBR*	155	6|39	50|152	—	No[2]
		WBL	100	78|**210**	162|**337**	—	No[2]
		NBL	250 (x2)	60|157	**132|275**	—	
		SBL	100	0	0	—	—
		SBR	100	0	0	—	—

Source: Appendix I.
Notes: EB = eastbound; L = left; U = U-turn; R = right; WB = westbound; NB = northbound; T = through; SB = southbound.
*Impacts determined using 95th percentile queues. A queuing impact is determined if the project causes the calculated 95th percentile queue length on public streets to exceed the existing or planned storage capacity by more than 25 feet. For storage lanes that are already deficient without the project, a significant queuing impact is determined if the project increases the calculated 95th percentile queue length by more than 25 feet. Average queues provided for information.
[1] Approximate distance to adjacent intersection.

[2] Queues onto private property, not on City streets.
Boldface type indicates the 95th percentile queue exceeds the available storage.
Italic type indicates the movement does not currently exist.

Roadway Segment Analysis

An assessment of ADT was conducted for the three roadway segments listed below for Year 2021 Cumulative Conditions:

- Clinton Keith Road, between I-215 Northbound Ramps and Warm Springs Parkway
- Whitewood Road, north of Clinton Keith Road
- Warm Springs Parkway, north of Clinton Keith Road

Average daily volumes were developed by adding the daily trips associated with the approved/proposed projects (developed by factoring up the peak hour volumes based on the ratio of daily to peak hour volumes observed in existing counts) to the year 2021 project completion volumes. This accounts for background growth and the project trips. As shown in the Table 4.13-25, with Creighton Avenue access, the segment of Clinton Keith Road between I-215 northbound ramps and Warm Spring Parkway is projected to operate at LOS D under year 2021 Cumulative Conditions on a Saturday, in excess of the City's LOS C standard. However, the City's General Plan indicates that LOS D is allowed in certain areas, including the North Murrieta Business Corridor and Multiple Use 3 Focus Area, which encompass the project site and study area roadways.

Table 4.13-25. Year 2021 Cumulative Conditions Average Daily Traffic Analysis – with Creighton Avenue access

Segment	Metric	Weekday	Saturday
Clinton Keith Road, between I-215 Northbound Ramps and Warm Springs Parkway	Volume (Daily)	43,782	43,672
	Capacity (Daily, LOS E)	53,900	53,900
	LOS	D	D
	v/c Ratio	0.81	0.81
Warm Springs Parkway Road, north of Clinton Keith Road	Volume (Daily)	17,764	23,694
	Capacity (Daily, LOS E)	34,100	34,100
	LOS	C	C
	v/c Ratio	0.52	0.69
Whitewood Road, north of Clinton Keith Road	Volume (Daily)	17,726	17,695
	Capacity (Daily, LOS E)	34,100	34,100
	LOS	C	C
	v/c Ratio	0.52	0.52

Source: Appendix I.
Notes: I = Interstate; LOS = level of service; v/c = volume to capacity.
The capacities shown are based on roadway classification and taken from the City's General Plan (Reference 2) for roadways operating at an LOS E. The level of service is based on the City's General Plan maximum two-way ADT volume for each LOS grade. The table provides maximum ADT volumes for LOS C, D and E. Clinton Keith Road is an urban arterial, Warm Springs Parkway is a major roadway, and Whitewood Road a major roadway.

The resulting v/c ratios on each roadway without Creighton Avenue access are shown in Table 4.3-26. As shown in Table 4.3-26, the segment of Clinton Keith Road between I-215 Northbound Ramps and Warm Spring Parkways is projected to operate at LOS D under year 2021 Cumulative Conditions, in excess of the City's LOS C standard. However, the City's General Plan indicates that LOS D is allowed in certain areas, including the North Murrieta Business Corridor and Multiple Use 3 Focus Area, which encompass the proposed site and study roadways.

Table 4.13-26. Year 2021 Cumulative Conditions Average Daily Traffic Analysis – without Creighton Avenue access

Segment	Metric	Weekday	Saturday
Clinton Keith Road, between I-215 Northbound Ramps and Warm Springs Parkway	Volume (Daily)	45,060	45,418
	Capacity (Daily, LOS E)	53,900	53,900
	LOS	D	D
	v/c Ratio	0.81	0.81
Warm Springs Parkway Road, north of Clinton Keith Road	Volume (Daily)	19,607	26,107
	Capacity (Daily, LOS E)	34,100	34,100
	LOS	C	C
	v/c Ratio	0.57	0.77
Whitewood Road, north of Clinton Keith Road	Volume (Daily)	17,726	17,695
	Capacity (Daily, LOS E)	34,100	34,100
	LOS	C	C
	v/c Ratio	0.52	0.52

Source: Appendix I.
Notes: I = Interstate; LOS = level of service; v/c = volume to capacity.
The capacities shown are based on roadway classification and taken from the City's General Plan (Reference 2) for roadways operating at an LOS E. The level of service is based on the City's General Plan maximum two-way ADT volume for each LOS grade. The table provides maximum ADT volumes for LOS C, D and E. Clinton Keith Road is an urban arterial, Warm Springs Parkway is a major roadway, and Whitewood Road a major roadway.

2035 Build-Out Traffic Conditions

The year 2035 Build-Out Conditions analysis was conducted to assess operations along Warm Springs Parkway and the I-215 interchange. Traffic volumes were developed for the weekday PM peak hour under 2035 conditions at intersections along Warm Springs Parkway and the I-215 ramps on Clinton Keith Road. Per the City's request, the analysis was conducted for the weekday PM peak hour to ensure that adequate capacity was provided along Warms Springs Parkway. Signal timing was assumed to be coordinated along Clinton Keith Road and was optimized based on projected volumes. In addition, roadway segment analysis is provided per the direction of City staff, and evaluation of the freeway corridor is provided per direction from Caltrans staff. The 2035 volumes include the project and anticipated background growth associated with other developments and planned roadway changes. The 2035 Build-Out Conditions traffic volumes for weekday PM traffic volumes are shown in Figure 4.13-21.

2035 Build-Out Traffic Analysis

Intersections

Table 4.13-27 shows the Year 2035 Build-Out Conditions delays and LOS for the study intersections during weekday PM peak hour. As shown in Table 4.13-27, all study locations operate at a satisfactory LOS D or better during the weekday PM peak hour. The proposed five lane cross-section of Warm Springs Parkway (with additional turn lanes at intersections) will provide adequate capacity through the 2035 General Plan build-out.

Table 4.13-27. 2035 Build-Out Conditions Intersection Level of Service Analysis

ID	Intersection	Traffic Control	Weekday PM Peak	
			Delay (sec)	*LOS*
13	I-215 SB Ramps and Clinton Keith Rd	Signal	18.0	B
14	I-215 NB Ramps and Clinton Keith Rd	Signal	22.6	C
15	Creighton Ave and Clinton Keith Rd	Signal	45.8	D
16	High School West Dwy/Warm Springs Road and Clinton Keith Rd	Signal	52.2	D
17	Bronco Way and Clinton Keith Rd	Signal	44.4	D
A	Warm Springs Rd/Project Driveway A	TWSC[1]	16.6 (EBR)	C
B	Warm Springs Rd/Project Driveway B	TWSC[1]	15.3 (WBR)	C
C	Warm Springs Rd/Project Driveway C	Signal	25.4	C
D	Warm Springs Rd/Project Driveway D	TWSC	10.9 (EBR)	B

Source: Appendix I.
Notes: sec = seconds; LOS = level of service; I = Interstate; SB = southbound; NB = northbound; HS = high school; TWCS = two-way stop control; EB = eastbound; R = right; WB = westbound.
TWSC: Two-way stop control - delay reported reflects the critical movement, shown in parentheses.
[1] The HCM methodology is designed to analyze TWSC intersections with up to three lanes. Therefore, this RIRO intersection was modeled assuming no more than three north/south through lanes.

Queuing Analysis

Table 4.13-28 illustrates the available queue storage and 95th percentile queue lengths at the turn-lanes for each study intersection. As shown in Table 4.13-28, queues are projected to exceed storage capacity under 2035 General Plan Build-Out for one or more movements at the following study locations:

- I-215 southbound ramps and Clinton Keith Road
- Creighton Avenue and Clinton Keith Road
- Warm Springs Road and Clinton Keith Road
- Bronco Way and Clinton Keith Road

Table 4.13-28. Year 2035 Project Completion 95th Percentile Queues

ID	Intersection	Movement	Available Storage (feet)	Average|95th Percentile Queue Weekday PM
13	I-215 SB Ramps and Clinton Keith Rd	EBR	385	**701|1027**
		WBR	380	131|130[4]
		SBR	1,100[2]	668|821
14	I-215 NB Ramps and Clinton Keith Rd	NBL/R	960[2]	660|925
		NBR	960[2]	668|957
15	Creighton Ave and Clinton Keith Rd	EBL/U	250	**422|536**
		EBR	200	3|4
		WBL/U	235	34|43
		WBR	150	9|11
		NBL	100	**70|126**
		NBT/R	390[2]	0|0
		SBL	230[1]	**150|326**
16	Warm Springs Rd and Clinton Keith Rd	*EBL*	205	**577|689**
		WBR	250	2|9
		NBL	100	0|0
		NBR	390[1]	0|0
		SBL	350	202|354
		SBR	350	315|275[4]
17	Bronco Way and Clinton Keith Rd	EBL/U	200	138|**261**
		WBL/U	315	208|116[4]
		WBR	85	0|0
		NBL	355[1]	71|105
		NBT/R	355[1]	0|0
		SBL	60[1]	113|229
C	Warm Springs Rd/Project Driveway C	*EBR*	155	96|179[3]
		WBL	100	**133|265[3]**
		NBL	250	124|227
		SBL	100	3|13
		SBR	100	0|0

Source: Appendix I.

Notes: I = Interstate; SB = southbound; EB = eastbound; R = right; WB = westbound; NB = northbound; L = left; U = U-turn; T = through.

1 Approximate distance to adjacent intersection.

2 Distance to development of separate turn lanes from highway off-ramp.

3 Queues onto private property, not on City streets.

4 The 95th percentile queue is less than the 50th percentile queue due to how Synchro calculates each queue length. Upstream metering is only performed with the 95th percentile queue. When the 95th percentile volumes cause the corresponding approach of the upstream intersection to be over capacity, volumes are metered and the 95th percentile queue can be less than the 50th percentile queue.

Boldface type indicates the 95th percentile queue exceeds the available storage.

Italic type indicates the movement does not currently exist.

Roadway Segment Analysis

An assessment of ADT was conducted for 2035 Build-Out Conditions for the weekday. Average daily volumes were developed by assuming the same ratio between peak hour and daily counts observed under existing conditions. The resulting v/c ratios on each roadway are shown in Table 4.13-29.

Table 4.13-29. 2035 Build-Out Conditions Average Daily Traffic Analysis

Segment	Metric	Weekday
Clinton Keith Road, between I-215 Northbound Ramps and Warm Springs Parkway	Volume (Daily)	52,240
	Capacity (Daily, LOS E)	53,900
	LOS	E[1]
	v/c Ratio	0.97
Warm Springs Parkway Road, north of Clinton Keith Road	Volume (Daily)	26,468[2]
	Capacity (Daily, LOS E)	34,100
	LOS	C
	v/c Ratio	0.68
Whitewood Road, north of Clinton Keith Road	Volume (Daily)	26,764
	Capacity (Daily, LOS E)	34,100
	LOS	C
	v/c Ratio	0.78

Source: Appendix I.
Notes: I = Interstate; LOS = level of service; v/c = volume to capacity.
The capacities shown are based on roadway classification and taken from the City's General Plan (Reference 2) for roadways operating at an LOS E. The level of service is based on the City's General Plan maximum two-way ADT volume for each LOS grade. The table provides maximum ADT volumes for LOS C, D and E. Clinton Keith Road is an urban arterial, Warm Springs Parkway is a major roadway, and Whitewood Road a major roadway.

1 See page 5-12 in Murrieta General Plan 2035.

2 The volume projected on Whitewood Road is based on the City's General Plan (Reference 2) and Clinton Keith Road Extension Project Traffic Operations Analysis (Reference 11).

As shown in the table, the segment of Clinton Keith Road between the I-215 northbound ramps and Warm Spring Parkway is projected to operate at LOS E under year 2035 Build-Out conditions on a weekday, in excess of the City's LOS C standard. However, the City's General Plan acknowledges that certain corridors are projected to exceed the City's performance standard, including Clinton Keith Road (City of Murrieta 2011b).

Freeway Analysis

Tables 4.13-30 and 4.13-31 show the 2035 Build-Out Conditions analysis results for the freeway study segments during weekday AM and PM and the Saturday midday peak hours for the northbound and southbound lanes, respectively. As shown in Tables 4.13-30 and 4.13-31, multiple study segments operate with an unacceptable LOS E or F under 2035 Build-Out Conditions. Because the project does not change development assumptions made for the site, Build-Out Year 2035 traffic volumes would include project traffic.

Table 4.13-30. 2035 Build-Out Freeway Analysis – Northbound

Interstate 215 Northbound Segment			AM Peak Hour		PM Peak Hour		Saturday Midday Peak Hour	
Segment ID	*Segment Type[1]*	*Segment Location*	*Density[2]*	*LOS*	*Density[2]*	*LOS*	*Density[2]*	*LOS*
NB-1	Basic	North of Scott Road	19.7	C	40.4	E	-[3]	-[3]
NB-2	Merge	Scott Road On Ramp	24.1	C	35.6	E	-[3]	-[3]
NB-3	Diverge	Scott Road Off Ramp	30.7	D	39.3	D	-[3]	-[3]

Table 4.13-30. 2035 Build-Out Freeway Analysis – Northbound

Interstate 215 Northbound Segment			AM Peak Hour		PM Peak Hour		Saturday Midday Peak Hour	
Segment ID	*Segment Type[1]*	*Segment Location*	*Density[2]*	*LOS*	*Density[2]*	*LOS*	*Density[2]*	*LOS*
NB-4	Basic	Between Scott Road and Clinton Keith On Ramp	22.3	C	42.0	E	28.0	D
NB-5	Merge	Clinton Keith On Ramp	25.4	C	37.1	E	29.1	D
NB-6	Merge	Clinton Keith On Ramp Loop	25.3	C	35.3	E	28.4	D
NB-7	Diverge	Clinton Keith Off Ramp	28.9	D	42.0	F	34.1	D
NB-8	Basic	Between Clinton Keith Off Ramp and Los Alamos On Ramp	20.4	C	46.5	F	28.7	D
NB-9	Merge	Los Alamos On Ramp	24.8	C	38.6	F	30.3	D
NB-10	Diverge	Los Alamos Off Ramp	28.5	D	41.3	F	33.7	D
NB-11	Basic	Between Los Alamos Off Ramp and Murrieta Hot Springs Off Ramp	20.0	C	45.3	F	28.2	D
NB-12	Merge	Murrieta Hot Springs On Ramp	25.5	C	39.5	F	30.9	D
NB-13	Merge	Murrieta Hot Springs On Ramp (Loop)	15.4	B	28.5	D	22.3	C
NB-14	Diverge	Murrieta Hot Springs Off Ramp	19.0	B	37.8	F	29.6	D
NB-15	Basic	South of Murrieta Hot Springs Road	23.7	C	71.6	F	39.9	E

Source: Appendix I.
Notes: LOS = level of service. NB = northbound.
1 HCM 2010 definition, Basic Freeway Segment, Weaving Segment, Merge Segment, or Diverge Segment
2 Density expressed in pc/mi/ln, passenger cars per mile per lane
3 No data available for Saturday peak hour conditions

Table 4.13-31. 2035 Build-Out Conditions Freeway Analysis – Southbound

Interstate 215 Northbound Segment			AM Peak Hour		PM Peak Hour		Saturday Midday Peak Hour	
Segment ID	*Segment Type[1]*	*Segment Location*	*Density[2]*	*LOS*	*Density[2]*	*LOS*	*Density[2]*	*LOS*
SB-1	Basic	North of Scott Road	29.0	D	31.4	D	–[3]	–[3]
SB-2	Diverge	Scott Road Off Ramp	33.8	D	35.1	D	–[3]	–[3]
SB-3	Merge	Scott Road On Ramp	36.2	E	33.0	D	–[3]	–[3]
SB-4	Basic	Between Scott Road and Clinton Keith Off Ramp	36.2	E	32.6	D	37.8	E
SB-5	Diverge	Clinton Keith Off Ramp	36.6	E	35.8	E	37.0	E
SB-6	Merge	Clinton Keith On Ramp Loop	29.8	D	26.9	C	30.3	D

Table 4.13-31. 2035 Build-Out Conditions Freeway Analysis – Southbound

Interstate 215 Northbound Segment			AM Peak Hour		PM Peak Hour		Saturday Midday Peak Hour	
Segment ID	*Segment Type[1]*	*Segment Location*	*Density[2]*	*LOS*	*Density[2]*	*LOS*	*Density[2]*	*LOS*
SB-7	Merge	Clinton Keith On Ramp	34.0	D	30.8	D	34.2	D
SB-8	Basic	Between Clinton Keith Off Ramp and Los Alamos On Ramp	36.9	E	30.5	D	38.0	E
SB-9	Diverge	Los Alamos Off Ramp	38.2	E	36.4	E	39.0	E
SB-10	Weave	Between Los Alamos On Ramp and Murrieta Hot Springs	28.5	D	—	F	—	F
SB-11	Merge	Murrieta Hot Springs On Ramp (Loop)	41.9	F	33.1	D	40.0	F
SB-12	Merge	Murrieta Hot Springs On Ramp	43.8	F	35.1	E	42.1	F
SB-13	Basic	South of Murrieta Hot Springs Road	62.8	F	35.5	E	55.2	F

Source: Appendix I.
Notes: LOS = level of service; SB = southbound.
1 HCM 2010 definition, Basic Freeway Segment, Weaving Segment, Merge Segment, or Diverge Segment
2 Density expressed in pc/mi/ln, passenger cars per mile per lane
3 No data available for Saturday peak hour conditions

Summary and Conclusions

Intersection Level of Service

The previously discussed analysis indicates that nine intersections would not meet standards under 2021 Cumulative Conditions. Table 4.13-32 lists these locations and the operations under all scenarios studied. A discussion of each intersection is included below. Three intersections do not meet LOS standards during Existing Conditions. These and one additional intersection are projected to not meet LOS standards for Year 2021 Project Completion Conditions. Five additional intersections beyond that are projected to not meet LOS standards for Year 2021 Cumulative conditions. In addition, the intersections along Warm Springs Parkway and on Clinton Keith Road from the I-215 ramps to Warm Springs Parkway were also assessed under 2035 Build-Out Conditions. All intersections are projected to operate at an acceptable LOS with the planned lane configurations and traffic control devices under 2035 Build-Out Conditions.

Table 4.13-32. Intersections not Meeting LOS Standards

ID	Intersection	Traffic Control	Standard	Level of Service (Weekday PM | Saturday Midday)			Impact Type
				Existing	*Year 2021 Project Completion*	*Year 2021 Cumulative*	
5	Salida Del Sol and Clinton Keith Road	TWSC	LOS D	**F** | C (SBL/R)	**E** |C (SBL/R)	**F** | D (SBL/R)	Existing + Project + Cumulative

Table 4.13-32. Intersections not Meeting LOS Standards

ID	Intersection	Traffic Control	Standard	Level of Service (Weekday PM | Saturday Midday)			Impact Type
				Existing	*Year 2021 Project Completion*	*Year 2021 Cumulative*	
6	Elizabeth Lane and Clinton Keith Road	TWSC	LOS D	**F** | D (NBL/T/R)	**F** | C (NBL/T/R)	**F** | D (NBL/T/R)	Existing + Project + Cumulative
9	California Oaks Rd and Clinton Keith Rd	Signal	LOS D	D | C	**E** | C	E| C	Project + Cumulative
11	Mitchell Road/Murrieta Oaks Ave and Clinton Keith Rd	Signal	LOS D	C | B	D | C	**E** | **E**	Cumulative
15	Creighton Avenue and Clinton Keith Rd (with Creighton Access)	Signal`	LOS D	A|A	B|A	**F|F**	Cumulative
15	Creighton Avenue and Clinton Keith Rd (without Creighton Access)	Signal	LOS D	A|A	B|A	**F|F**	Cumulative
17	Bronco Way and Clinton Keith Road	Signal	LOS D	B|A	D|B	**F**|B	Cumulative
18	Whitewood Rd and Clinton Keith Rd	Signal	LOS D	D | C	D | C	**E** | **E**	Cumulative
22	Max Gillis Blvd/Briggs Rd and Leon Rd	Signal	LOS D	D | C	D | D	**F** | D	Cumulative
23	Max Gillis Blvd/ Thompson Road and SR-79	Signal	LOS D	**F** | **E**	**E** | **E**	**F** | **F**	Existing + Project + Cumulative

Source: Appendix I.
Notes: TWSC = two-way stop control; LOS = level of service; SB = southbound; L = left; R = right; NB = northbound; T = through; SR = State Route.
Boldface type indicates locations performing at LOS that does not meet standards.

Salida Del Sol and Clinton Keith Road

The southbound approach to this three-legged, stop-controlled intersection is projected to operate at LOS F during the weekday PM peak hour under existing, project, and cumulative conditions, and therefore is an existing, project, and Cumulative Conditions impact. The intersection is outside of the City's jurisdiction and is under the jurisdiction of the City of Wildomar. Project trips would not contribute to the critical movement where 26 vehicles make a southbound left or right turn under 2021 Cumulative Conditions during the weekday PM peak hour. Volume-based signal warrants from the Manual of Uniform Traffic Control Devices were completed for this location and can be found in the TIA, Appendix K. The City of Wildomar's Capital Improvement Program (CIP) includes a future

development impact fee traffic signal improvement at this intersection. If the intersection were signalized, it would operate at an LOS A during the weekday PM peak hour under 2021 Cumulative Conditions, within the City's standards. There are alternate routes available for vehicles to access a signal on Clinton Keith Road (George Avenue 0.5 miles to the west and Smith Ranch Road 0.5 miles to the east), so vehicles experiencing long delays or challenges turning onto Clinton Keith Road at Salida Del Sol during peak periods have other options available.

In addition, future widening of Clinton Keith Road to six lanes is identified in this area as part of the widening of Clinton Keith Road from the eastern Wildomar city limit to Inland Valley Drive beginning in the winter of 2020. Widening would improve operations to an LOS D during the weekday PM peak hour under 2021 Cumulative Conditions, therefore addressing the LOS deficiency. The project applicants will pay the TUMF required of all developments in participating jurisdictions. The Clinton Keith Road corridor widening and traffic signals are identified in the fund. As the implementation of this work is outside the lead agency's jurisdiction and full funding and implementation cannot be guaranteed by project opening, the project and cumulative intersection impacts are considered significant and unavoidable.

Elizabeth Lane and Clinton Keith Road

The northbound approach to this three-legged, stop-controlled intersection is projected to operate at LOS F during the weekday PM peak hour under existing conditions and future scenarios studied, and is, therefore, an existing, project, and Cumulative Conditions impact. Of the five vehicles projected to make a northbound movement under 2021 Cumulative Conditions during the weekday PM peak hour, all are existing vehicles (presumably associated with the storage facility southeast of the intersection). Volume-based signal warrants from the Manual of Uniform Traffic Control Devices were completed for this location as summarized in Appendix K of the TIA. The City of Wildomar's CIP includes a future development impact fee traffic signal improvement at this intersection. If the intersection were signalized, it would operate at an LOS A during the weekday PM peak hour under 2021 Cumulative Conditions, within the City's standards. Further, this intersection is located outside of the jurisdiction of the lead agency and is in the City of Wildomar.

The planned widening of Clinton Keith Road to six lanes improves operations at the intersection, but does not fully mitigate the LOS failure. With the widening, the intersection would continue to operate at an LOS F but with a delay of 53.8 seconds during the weekday PM peak hour under 2021 Cumulative Conditions as compared to a delay of 95.4 seconds without the additional lanes. The project applicants will be responsible for paying the TUMF required of all developments in participating jurisdictions, and the Clinton Keith Road corridor widening and traffic signals are identified in the fund. As the implementation of the this work is outside of the lead agency's jurisdiction and full funding and implementation cannot be guaranteed by project opening, the project and cumulative intersection impacts are considered significant and unavoidable.

California Oaks Road and Clinton Keith Road, and Mitchell Road/Murrieta Oaks Avenue and Clinton Keith Road

The City's General Plan shows a future cross-section across Clinton Keith Road at California Oaks Road and Murrieta Oaks Avenue (City of Murrieta 2011b). Based on discussions with the City, Clinton Keith Road was designed and constructed at its ultimate width, but striped as two lanes in each direction at some locations with the intent to restripe the roadway to add the additional lanes when traffic volumes warranted it. Currently there are two eastbound through lanes at all locations, and two westbound through lanes at all locations except at Mitchell Road/Murrieta Oaks Avenue, where there are three westbound lanes. Restriping the road to accommodate an additional eastbound through lane would significantly improve operations at all locations, as shown in Table 4.13-33.

Table 4.13-33. Year 2021 Cumulative Conditions Intersection LOS Analysis – Additional Eastbound Through Lane on Clinton Keith Road

ID	Intersection	Traffic Control	Weekday PM Peak		Saturday Midday Peak	
			Delay (sec)	*LOS*	*Delay (sec)*	*LOS*
9	California Oaks Rd and Clinton Keith Rd	Signal	40.7	D	19.5	B
11	Mitchell Road/Murrieta Oaks Ave and Clinton Keith Rd	Signal	31.8	C	33.0	C

Source: Appendix I.
Note: sec = seconds LOS = level of service.

The intersection of California Oaks Road and Clinton Keith Road meets LOS standards under existing conditions but is projected to operate at LOS E during the weekday PM peak hour under 2021 Project Completion Conditions and at LOS F during the weekday PM peak hour under 2021 Cumulative Conditions. With implementation of mitigation requiring striping of an additional eastbound through lane and signal detection modifications (**Mitigation Measure [MM] TRAF-1**), the project and cumulative LOS impact at the California Oaks Road and Clinton Keith Road intersection would be less than significant.

The intersection of Mitchell Road/Murrieta Oaks Avenue and Clinton Keith Road is projected to meet LOS standards under Year 2021 Project Completion Conditions, but not under Year 2021 Cumulative Conditions, and thus is a 2021 Cumulative Conditions impact. The City of Murrieta requires a proportionate share contribution at intersections that meet standards under Project Completion Conditions but not under Cumulative Conditions.

As such, the project applicants will pay a fair-share contribution to restripe the additional eastbound travel lane on Clinton Keith Road between California Oaks Road and Mitchell/Murrieta Oaks Avenue and to add signal detection (**MM-TRAF-6).**

Implementation of **MM-TRAF-6** would reduce cumulative LOS impacts at this location to less than significant. However, since overall funding for the impacts at Clinton Keith Road at Mitchell Road/Murrieta Oaks Avenue has not been identified and the mitigation cannot be guaranteed, the impact at this location remains significant and unavoidable.

Creighton Avenue and Clinton Keith Road

With Creighton Avenue Access

The intersection of Creighton Avenue and Clinton Keith Road meets standards under existing conditions and 2021 Project Completion Conditions but is projected to operate at LOS F during the weekday PM and Saturday midday peak hours under 2021 Cumulative Conditions. This is a Cumulative Conditions impact. As signal coordination was kept constant between the 2021 Project Completion and Cumulative Conditions, a revised coordination plan is needed to account for the additional traffic from approved and pending projects. Regulatory optimizing of signal timing and coordination by the City would reduce intersection operations to LOS C during the weekday PM peak hour and LOS D during Saturday midday peak hour. The City is currently implementing signal coordination and optimization along Clinton Keith Road and would routinely update timing plans as traffic volumes change; no mitigation is required and the project would have a less-than-significant impact at this location.

Per the City, the Vineyard III project will be conditioned for dual eastbound left turn lanes at Creighton Avenue and Clinton Keith Road at 13,000 square feet of development (5,000-square-foot tire store, 3,000-square-foot high-turnover (sit-down) restaurant, and 5,000-square-foot drive-in bank). Project access to the Costco property from eastbound Clinton Keith Road would require travel across the privately owned Vineyard I property. The significant cumulative impact at this intersection would occur only if this access is provided and, in that case, construction of a dual westbound left turn lane would mitigate this intersection. Until that dual left turn lane is constructed, it is anticipated that connection to the Costco property from Creighton Avenue would be restricted and as such, the project would not contribute trips at the eastbound left turn lanes at Creighton Avenue and Clinton Keith Road. As access would only be provided if this cumulative impact is mitigated by construction of dual left turn lanes, cumulative impacts would be less than significant.

Without Creighton Avenue Access

The intersection of Creighton Avenue and Clinton Keith Road meets standards under existing conditions and 2021 Project Completion Conditions but is projected to operate at LOS F during the weekday PM and Saturday midday peak hours under 2021 Cumulative Conditions. This is a Cumulative Conditions impact. As signal coordination was kept constant between the 2021 Project Completion and Cumulative conditions, a revised coordination plan is needed to account for the additional traffic from approved and pending projects. Regular review and update of signal timing and coordination by the City would reduce intersection operations to LOS B during the weekday PM peak hour and LOS D during Saturday midday peak hour. The City is currently implementing signal coordination and optimization along Clinton Keith Road and would routinely update timing plans as traffic volumes change; no mitigation is required and the project would have a less-than-significant impact at this location. As indicated above, if the project does not have Creighton Avenue access, the project would not cumulatively contribute to impacts at the eastbound left turn lane at this intersection.

Bronco Way and Clinton Keith Road

The intersection of Bronco Way and Clinton Keith Road meets standards under existing conditions and 2021 Project Completion Conditions but is projected to operate at LOS F during the weekday PM peak hour under 2021 Cumulative Conditions. This is a Cumulative Conditions impact. As signal coordination was kept constant between the 2021 Project Completion and Cumulative Conditions, a revised coordination plan is needed to account for the additional traffic from approved and pending projects. Regular review and update of signal timing and coordination by the City would reduce intersection operations to LOS C during the weekday PM peak hour. The City is currently implementing signal coordination along Clinton Keith Road and would routinely update timing plans as traffic volumes change. No mitigation is required and the project would have a less–than-significant impact at this location.

Whitewood Road and Clinton Keith Road

The signalized intersection of White Road and Clinton Keith Road is projected to operate at LOS E under 2021 Cumulative Conditions. The City's General Plan has identified the operational failure projected at the intersection of Whitewood Road and Clinton Keith Road and the City Council has adopted overriding considerations at this location in the current General Plan (per resolution 11-2768). Nonetheless, the project is calculated to have a cumulatively considerable impact at this intersection. The City currently has a project in the CIP (project #8389) to add dual northbound and southbound left turn lanes at this intersection and to restripe; the project applicants will pay a fair-share contribution to this CIP project (**MM-TRAF-5**). This CIP project would improve operations at this intersection; however, it is not guaranteed to be completed by project build-out. Therefore, the project would have a significant and unavoidable impact at this location until the CIP project is completed.

Max Gillis Boulevard/Briggs Road and Leon Road, Max Gillis Boulevard/Thompson Road and SR-79

The signalized intersection of Max Gillis Boulevard/Briggs Road and Leon Road is projected to meet the LOS standards under 2021 Project Completion Conditions. With the addition of traffic associated with approved/pending projects, operations would degrade during the weekday PM peak hour to LOS E, which does not meet the County's LOS D standard. This is a Cumulative Conditions impact.

The signalized intersection of Max Gillis Boulevard/Thompson Road and SR-79 does not meet standards under existing conditions or the year 2021 project or cumulative scenarios. Under all scenarios, the intersection is projected to operate at an LOS E or F during both the weekday PM peak hour and Saturday midday peak hour (See Table 4.13-32). This is an existing impact.

Both intersections currently serve to provide a connection between I-215 and SR-79. A planned extension of Clinton Keith Road (shown in Figure 16 in the TIA) will provide an alternative route for traffic using Max Gillis Boulevard. Without the final piece of the Clinton Keith Road extension between Leon Road and SR-79, eastbound right turn and northbound left turn volumes at both the Max Gillis Boulevard/Briggs Road and Leon Road and Max Gillis Boulevard/Thompson Road and SR-79 intersections are high, as vehicles use the intersections to connect between Clinton Keith Road and SR-79. The Clinton Keith Road extension will be completed in the future between Leon Road and SR-79, which will provide an additional route for traffic currently using Leon Road and Max Gillis Boulevard. Additional improvements at the intersections (such as provision of an overlap for the eastbound right turn) could improve operations in the interim. In order to estimate operations at the intersections with the extension in place, volumes were adjusted to account for anticipated changes in traffic patterns. Based on the Clinton Keith Road Extension Project Traffic Operations Analysis, approximately 51% of traffic volumes on Clinton Keith Road northwest of Leon Road would use the Clinton Keith Road extension and 49% would use Leon Road. Therefore, eastbound right turns and northbound left turns at Max Gillis Boulevard/Briggs Road and Leon Road were reduced by 51% to account for rerouting to Clinton Keith Road with the extension in place. The reduced traffic volumes from Max Gillis Boulevard/Briggs Road and Leon Road were also carried forward to the affected movements at Max Gillis Boulevard/Thompson Road and SR-79. The extension of Clinton Keith Road to SR-79 would significantly improve operations at both locations, as shown in Table 4.13-34. The Clinton Keith Road extension is identified in the TUMF fund, and the project would pay its fair share of the TUMF. Since implementation of the TUMF is outside of the lead agency's jurisdiction and full funding for the extension has not been identified, the implementation of the improvement cannot be guaranteed to be implemented by project opening and the impact would be significant and unavoidable.

Table 4.13-34. Year 2021 Cumulative Conditions Intersection LOS Analysis – Clinton Keith Road Extension

ID	Intersection	Traffic Control	Weekday PM Peak		Saturday Midday Peak	
			Delay (sec)	*LOS*	*Delay (sec)*	*LOS*
22	Max Gillis Blvd/Briggs and Leon Road	Signal	25.6	C	21.6	C
23	Max Gillis Blvd/Thompson Road and Hwy 79	Signal	51.9	D	54.6	D

Source: Appendix I.
Note: sec = seconds LOS = level of service.

Roadway Segments

Based on TIA, all study area roadway segments are projected to operate with an acceptable LOS for the 2021 Project Completion conditions. Under 2021 Cumulative conditions, the segment of Clinton Keith Road between I-215 northbound ramps and Warm Spring Parkways is projected to operate at LOS D on a Saturday, in excess of the City's LOS C standard. The City's General Plan indicates that LOS D is allowed in certain areas, including the North Murrieta Business Corridor and Multiple Use 3 Focus Area, which encompass the project site and study area roadways. Under 2035 General Plan Build-Out Conditions, the segment of Clinton Keith Road between I-215 northbound ramps and Warm Spring Parkways is projected to operate at LOS E on a weekday, in excess of the City's LOS C standard. However, the City's General Plan acknowledges that certain corridors are projected to exceed the City's performance standard, including Clinton Keith Road. Therefore, the LOS failure on this roadway is not considered to be unacceptable. Project impacts to roadway segments would be less than significant.

Freeway

Under 2035 General Plan Build-Out Conditions, the I-215 corridor is projected to generally operate below the target LOS D threshold. The future projections indicate that additional capacity is required along the six-lane mainline corridor. The poor performance at ramp merge/diverge areas can also be attributed to overcapacity operations along the mainline. The I-215 Transportation Concept Report recommends expansion of the mainline segment to eight lanes to accommodate the increased demand. The project would contribute minimal traffic to the mainline corridor: less than 1% during the weekday AM peak hour, 2% or less during the weekday PM peak hour, and 4% or less during the Saturday peak hour. Based on the significance criteria, the mainline corridor baseline operations of LOS E or F would be maintained with the minimal addition of project traffic. Therefore, project impacts to the freeway mainline facilities would be less than significant.

Queuing Analysis

Based on the operational analysis, 10 intersections are projected to not meet standards under Year 2021 Cumulative Conditions (see Table 4.13-35).

Table 4.13-35. Intersections with Queues Exceeding Determined Threshold

ID	Intersection	Movement	Available Storage	95th Percentile Queues (Weekday PM | Saturday Midday)			Impact Type*
				Existing	*Year 2021 Project Completion*	*Year 2021 Cumulative*	
8	Nutmeg Street and Clinton Keith Road	WBL	225	**532**|198	**506|274**	**602|332**	Existing + Project + Cumulative
		SBL	50	**110**|65	**148|106**	**166|132**	Existing + Project + Cumulative

Table 4.13-35. Intersections with Queues Exceeding Determined Threshold

ID	Intersection	Movement	Available Storage	95th Percentile Queues (Weekday PM | Saturday Midday)			Impact Type*
				Existing	*Year 2021 Project Completion*	*Year 2021 Cumulative*	
9	California Oaks Rd and Clinton Keith Rd	WBL	220	**797|301**	**959|412**	**1047|472**	Existing + Project + Cumulative
		NBL	100[1]	**227**|81	**279**|102	**294**|113	Existing + Project
10	Greer Road/ Murrieta Oaks Avenue and Clinton Keith Road	WBL	150	59|46	107|95	**179|173**	Cumulative
		SBL	150	134|118	167|**198**	**188|217**	Project
11	Mitchell Road/Murrieta Oaks Ave and Clinton Keith Rd	EBL	150	37|38	45|26	170|**180**	Cumulative
		WBL	150	**199**|162	**406|297**	**533|423**	Existing + Project + Cumulative
13	I-215 SB Ramps and Clinton Keith Road	EBR	385	212|155	108|127	369|**631**	Cumulative
15	Creighton Avenue and Clinton Keith Rd (with Creighton Access)	EBL	250	16|13	62|112	**564|627**	Cumulative
15	Creighton Avenue and Clinton Keith Rd (without Creighton Access)	EBL	250	16|13	12|21	**479|494**	Cumulative
16	High School West Driveway/ Warms Springs Parkway and Clinton Keith Road (with Creighton Access)	EBL	205 (x2)	Does Not Exist	415|**535**	**473|625**	Project + Cumulative

Table 4.13-35. Intersections with Queues Exceeding Determined Threshold

ID	Intersection	Movement	Available Storage	95th Percentile Queues (Weekday PM | Saturday Midday)			Impact Type*
				Existing	*Year 2021 Project Completion*	*Year 2021 Cumulative*	
16	High School West Driveway/ Warms Springs Parkway and Clinton Keith Road (without Creighton Access)	EBL	205 (x2)	Does Not Exist	**464|602**	**513|690**	Project + Cumulative
17	Bronco Way and Clinton Keith Road	EBL	200	30|4	44|42	**258|306**	Cumulative
18	Whitewood Rd and Clinton Keith Road	EBL	250 (x2)	359|164	423|218	**576|344**	Cumulative
		NBL	300	304|147	**477**|265	**624|408**	Project + Cumulative
		SBL	100	147|84	**178**|100	**217|165**	Existing + Project + Cumulative
20	Whitewood Road and Baxter Road	NBL	215	232|80	**255**|113	**469|263**	Project + Cumulative

Source: Appendix I.
Notes: *Impacts determined using 95th percentile queues. A queuing impact is determined if the project causes the calculated 95th percentile queue length on public streets to exceed the existing or planned storage capacity by more than 25 feet. For storage lanes that are already deficient without the project, a significant queuing impact is determined if the project increases the calculated 95th percentile queue length by more than 25 feet. Average queues provided for information.
[1] The City recently completed a project to extend this left turn storage to 250 feet.
Boldface type indicates the 95th percentile queue on public streets exceeds the available storage by 25 feet or more or by more than 25 feet beyond previous queues for locations that already exceed available storage.

A mitigation approach was developed for queuing impacts given their potential to influence traffic operations. Queuing impacts were determined to be significant and mitigation was identified for queues where the 95th-percentile queue length exceeds the storage length by more than 25 feet. For storage lanes that are already deficient without the project, a queuing impact was determined to be significant and mitigation was identified if the project increases the calculated 95th-percentile queue length by at least 25 feet. Therefore, a project impact is considered mitigated if the queues are reduced to within 25 feet of the storage available or within 25 feet of the already deficient queue occurring under existing conditions. Each of these impacted intersections are discussed below.

Nutmeg Street and Clinton Keith Road

This is an existing, project, and Cumulative Condition impact. The westbound and southbound left turn queues do not meet standards under existing conditions during the weekday PM peak hour. The project impact occurs during the Saturday midday peak hour for the westbound left turn and in both the weekday PM peak hour and Saturday midday peak hour for the southbound left turn. The cumulative queuing conditions impact occurs during both the weekday PM peak hour and the Saturday midday peak hour for the westbound and southbound left turns. As signal coordination was kept constant between the existing and 2021 Project Completion conditions, optimizing signal timing at the intersection would reduce queues to within 25 feet of existing conditions for the project condition and would reduce impacts to less than significant. The City is currently implementing signal coordination and optimization along Clinton Keith Road and would routinely update timing plans as traffic volumes change; no mitigation is required and the project would have a less-than-significant impact at this location.

The cumulative impact would require optimizing signal timing and restriping the westbound and southbound left turns to provide additional storage. Queues for the weekday PM peak hour can be reduced to 524 feet for the westbound left and 161 feet for the southbound left with optimized signal timing. The existing weekday PM peak hour queue is 532 feet; therefore, the queue of 524 feet is less than significant. Queues for the Saturday midday peak hour would be 315 feet for the westbound left and 116 feet for the southbound left with optimized signal timing. The City is currently implementing signal coordination and optimization along Clinton Keith Road and would routinely update timing plans as traffic volumes change. After optimization of signal timing, the westbound left turn lane would need to be extended by 75 feet to 300 feet and the southbound left turn lane would be extended by 100 feet to 150 feet to accommodate the remaining queues. The project applicants will pay a fair-share contribution toward this work (**MM-TRAF-8**) with the project fair share calculated for each turn movement per the fair-share methodology discussed earlier. While this is feasible, timing of the implementation cannot be guaranteed by project build-out. As such, this impact is significant and unavoidable.

California Oaks Road and Clinton Keith Road

There are existing, project, and Cumulative Condition queuing impacts at this location. The westbound and northbound left turn queues do not meet the thresholds under existing conditions during the weekday PM peak hour. The westbound left turn also does not meet thresholds under existing conditions during the Saturday midday peak hour. The project queuing impact occurs during the weekday PM peak hour for the westbound and northbound left turns and during the Saturday midday peak hour for the westbound left turn. Mitigation for LOS impacts requires striping a third eastbound through/right turn lane and optimizing signal detection by installing signal detection loops (**MM-TRAF-1**). With implementation of **MM-TRAF-1**, queues for the weekday PM peak hour can be reduced to 810 feet for the westbound left and 205 feet for the northbound left turn lane. With implementation of **MM-TRAF- 1** and implementation of signal optimization, the westbound left queue is reduced to within 25 feet of the base condition (797 feet under existing conditions), and the impact is less than significant. The City is currently implementing signal coordination and optimization along Clinton Keith Road and would routinely update timing plans as traffic volumes change. A current City CIP project has recently extended the northbound left turn lane storage to 250 feet, reducing these impacts to less than significant. Therefore, project impacts are less than significant.

Under Cumulative Conditions, queuing impacts occur for the westbound left turn and the westbound left turn queues continue to increase during both peak hours. Providing 200 feet of additional storage (**MM-TRAF-9**) along with signal timing optimization will accommodate the westbound left turn queues during the critical weekday PM peak. With implementation of **MM-TRAF-9**, the project applicants will contribute a proportional share to extend the available westbound left turn storage by an additional 200 feet (for a total of 420 feet of storage), which, together

with the regulatory signal timing optimization, would mitigate this impact to less than significant. The City is currently implementing signal coordination and optimization along Clinton Keith Road and would routinely update timing plans as traffic volumes change. However, as complete funding for the mitigation cannot be guaranteed by project build-out, the impact is considered significant and unavoidable.

Greer Road/Murrieta Oaks Avenue and Clinton Keith Road

Project and Cumulative Conditions queuing impacts occur at this location. The project queuing impact occurs during the Saturday midday peak hour for the southbound left turn. Providing an additional 50 feet of storage for a total storage capacity of 200 feet would accommodate project queues (**MM-TRAF-2**). With this mitigation in place, the project impact is considered mitigated and less than significant.

The cumulative impact occurs during the weekday PM and Saturday midday peak hours for the westbound left turn. As part of improvements at adjacent intersections, signal coordination was applied at this intersection. The signal timing optimization and signal coordination reduces westbound left turn queues to less than significant (156 feet). The City is currently implementing signal coordination and timing along Clinton Keith Road and would routinely update timing plans as traffic volumes change; no mitigation is required and the project would have a less-than-significant impact at this westbound left turn location. Providing additional storage for the southbound left turn to mitigate project impacts at the southbound left turn lane (**MM-TRAF-2**) results in the cumulative impact being mitigated and less than significant.

Mitchell Road/Murrieta Oaks Avenue and Clinton Keith Road

This is a cumulative impact for the eastbound left turn and an existing, project, and cumulative impact for the westbound left turn. The project queuing impact occurs during the weekday PM and Saturday midday peak hours for the westbound left turn. With signal timing optimization, westbound queues can be reduced to 221 feet for the weekday PM peak hour and 226 feet for the Saturday midday peak hour. Providing an additional 100 feet of storage for a total storage capacity of 250 feet would accommodate project queues (**MM-TRAF-3**). This mitigation is feasible. With standard City signal optimization and implementation of **MM-TRAF-3**, the project level queuing impact at this intersection is mitigated and less than significant.

Under cumulative conditions, the westbound left turn queues continue to increase during the weekday PM and Saturday midday peak hours. With signal timing optimization and coordination, westbound queues can be reduced to 363 feet for the weekday PM peak hour and 332 feet for Saturday midday peak hour. Providing an additional 200 feet of storage for a total storage capacity of 350 feet would accommodate cumulative queues (**MM-TRAF-6**) and reduce westbound left turn queue impacts to less than significant. With implementation of **MM-TRAF-6**, the project would have a less-than-significant impact at this location.

While implementation of **MM-TRAF-6** is feasible, timing of implementation cannot be guaranteed by project build-out. As such, the impacts at the westbound left turn queue are considered significant and unavoidable impacts. The City will create a CIP project for this improvement and the project applicants will contribute a proportional fair-share contribution as described in **MM-TRAF-6**. As this is a cumulative impact, the project fair share is calculated for each turn movement per the fair-share methodology discussed earlier.

The eastbound left turn is also impacted under cumulative conditions. However, optimizing signal timing and coordination at the intersection by the City would reduce eastbound left turn queues to 100 feet, which can be accommodated in the existing 150-foot pocket, so no impact would occur. The City is currently implementing signal coordination and optimization along Clinton Keith Road and would routinely update timing plans as traffic volumes change; no mitigation is required and this impact would be less than significant.

I-215 SB Ramps and Clinton Keith Road

This is a Cumulative Conditions impact. The cumulative impact occurs during the Saturday midday peak hour for the eastbound right turn. As part of LOS mitigation measures at adjacent intersections, signal coordination was applied at this intersection. The signal timing optimization and signal coordination reduces the eastbound right turn queue to 449 feet. A potential mitigation measure would provide additional storage by extending the right turn pocket; however, space is not available to extend the turn lane given the spacing with the adjacent intersection. Therefore, the cumulative impact is considered significant and unavoidable.

Creighton Avenue and Clinton Keith Road

With Creighton Avenue Access

This is a Cumulative Conditions impact. The cumulative impact occurs during the weekday PM and Saturday midday peak hours for the eastbound left turn. Construction of a second eastbound left turn lane would provide an additional storage and throughput at the signal, reducing the weekday PM peak hour queue to 202 feet and the Saturday midday peak hour queue to 247 feet; this would result in a less-than-significant impact. However, as indicated above, access to the project site from the eastbound left turn lane at this intersection would be restricted in the absence of construction of this second left turn lane. Therefore, in the absence of this left turn lane, which would reduce impacts to less than significant, the project would not contribute trips at this intersection.

Without Creighton Avenue Access

This is a Cumulative Conditions impact. Without the Creighton Avenue access to the project, queues are lower at this intersection; however, queues are expected to continue to exceed storage capacity beyond the threshold of significance. A second eastbound left turn lane would provide additional storage and throughput, reducing the weekday PM peak hour queue to 186 feet and the Saturday midday peak hour queue to 165 feet. The cumulative impact is therefore considered mitigated and less than significant. As this is a cumulative impact, the project fair share is calculated for each turn movement per the fair-share methodology discussed earlier. However, as the project does not contribute trips to the movement in the "without Creighton Avenue access" scenario, the project would not be required to contribute to this improvement.

High School West Driveway/Warm Springs Parkway and Clinton Keith Road

With Creighton Avenue Access

This is a project and a Cumulative Conditions impact. The project queuing impact occurs during the Saturday midday peak hour for the eastbound left turn. Providing an additional 70 feet of storage for a total storage capacity of 275 feet per lane would accommodate project queues (**MM-TRAF-4**). As this intersection is not yet built, the City CIP project for this intersection has accommodated this additional storage and will be completed by 2021. The project impact is therefore considered mitigated and less than significant.

Under Cumulative Conditions, the eastbound left turn queues continue to increase during the weekday PM and Saturday midday peak hours. Providing an additional 30 feet of storage for a total storage capacity of 305 feet in each left turn lane would accommodate cumulative queues (**MM-TRAF-7**) and would mitigate this impact to less than significant. As indicated in **MM-TRAF-7**, the project applicants will contribute a proportional share to fund implementation of this mitigation measure. As this intersection is not yet built, the City CIP project for this

intersection can accommodate this additional storage and will be completed by 2021. The cumulative impact is therefore considered mitigated and less than significant.

Without Creighton Avenue Access

This is a project and Cumulative Conditions impact. Without the Creighton Avenue access, the project contributes additional trips to the eastbound left turn and queues increase with project impacts during the weekday PM and Saturday midday peak hours. Providing an additional 90 feet of storage for a total storage capacity of 295 feet per lane would accommodate project queues (**MM-TRAF-4**). As this intersection is not yet built, the City CIP project for this intersection has accommodated this additional storage and will be completed by 2021. The project impact is therefore considered mitigated and is less than significant.

Under Cumulative Conditions without the Creighton Avenue access, the project contributes additional trips to eastbound left turn and queues increase with project impacts during the weekday PM and Saturday midday peak hours. Providing an additional 45 feet of storage for a total storage capacity of 340 feet per lane (**MM-TRAF-7**) would accommodate cumulative queues. As indicated in **MM-TRAF-7**, the project applicants will contribute a proportional share to fund implementation of this mitigation measure. As this intersection is not yet built, the City CIP project for this intersection can accommodate this additional storage and will be completed in 2021. The cumulative impact is therefore considered mitigated and less than significant.

Bronco Way and Clinton Keith Road

This is a Cumulative Conditions impact. The cumulative queuing impact occurs during the weekday PM and Saturday midday peak hours for the eastbound left turn. With signal timing optimization and coordination, eastbound queues can be reduced to 164 feet for the weekday PM peak hour and 271 feet for the Saturday midday peak hour. The Saturday midday peak hour queues would continue to exceed storage capacity by 71 feet. Mitigation would provide additional storage by extending the right turn pocket. The project applicants will contribute a proportional fair share to extending the turn lane by 71 feet (**MM-TRAF-10**). However, the full funding and implementation of this mitigation cannot be guaranteed by project build-out so the impact is significant and unavoidable.

Whitewood Road and Clinton Keith Road

There are existing, project, and Cumulative Conditions queuing impacts at this intersection. The southbound left turn queue does not meet the threshold under existing conditions. The project queuing impact occurs during the weekday PM peak hour for the northbound left turn and southbound left turn. As indicated in **MM-TRAF-5, t**he project applicants will extend the existing northbound and southbound left turn lanes at the Whitewood Road and Clinton Keith Road intersection to the maximum extent feasible within the available right-of-way and available spacing between the next intersections; however, this will not fully mitigate the project impact. The City has an existing CIP project to provide dual northbound and southbound left turn lanes at this intersection, which would improve intersection operations and accommodate the projected queues; however, this project will require additional right-of-way and cannot be guaranteed to be completed by the project build-out year. Therefore, the impact is considered significant and unavoidable even with implementation of **MM-TRAF-5**.

In addition, there is a Cumulative Conditions impact for the eastbound left turn lane. Providing an additional 35 feet of storage for each eastbound left turn lane for a total storage capacity of 570 feet (285 feet in each turn lane) would accommodate the cumulative condition queues (**MM-TRAF-11**). As this is a cumulative impact, the project fair share is calculated for each turn movement per the fair share methodology discussed earlier.

Whitewood Road and Baxter Road

This is a Cumulative Conditions impact. Under cumulative conditions, the northbound left turn queue continues to increase during the weekday PM and Saturday midday peak hours. Restriping the existing northbound turn lane with an additional 285 feet of storage (for a total of 500 feet) (**MM-TRAF-12**) would accommodate cumulative queues. The project applicants will pay a fair-share contribution with respect to the mitigation described in **MM-TRAF-12**. Although implementation of **MM-TRAF-12** would reduce cumulative impacts to less than significant, the cumulative impact is considered significant and unavoidable as full funding and implementation of the restriping cannot be guaranteed by project build-out.

Transit, Pedestrian and Bicycle Facilities

Riverside Transit Routes 61 and 23 provide service on Clinton Keith Road via a bus stop at the intersection of Clinton Keith Road and the main entrance to the Vista Murrieta High School. The services would not be affected by the project. The existing bus stop is located with access considerations to Vista Murrieta High School and is being relocated by the shopping center south of the project in conjunction with the construction of the initial segment of Warm Springs Parkway. The project would not further alter the existing route. In addition, the addition of the Warm Springs Road signal would minimally affect operations along the corridor, since the Clinton Keith Road corridor would operate with coordinated signals, with priority given to east/west travel. Thus, the project site would be served by the existing bus system, allowing patrons the option of accessing the project site through public transit. The availability of alternative transportation options to access the project site aids in maintaining an acceptable LOS in the study area. Overall, the project would not create a significant impact to Riverside Transit Route 61 or 23.

The City's General Plan Circulation Element identifies existing and proposed bikeways and trails. Currently, the closest existing bikeway to the project site is a Class II bike lane along Whitewood Road, south of Clinton Keith Road. Proposed bikeways near the project site include proposed Class II bike lanes along Clinton Keith Road, Whitewood Road (north of Clinton Keith Road), and Linnel Lane, as well as a proposed Class II bike lane that crosses through the project site. The proposed bike lane is located along the same route as the proposed Warm Springs Parkway that would be constructed in association with the project. A Class II bike lane would be included in the design of Warm Springs Parkway, and there would be no impact to existing or proposed bikeways. The retail center will install bike racks at each building.

Pedestrian circulation would continue to be provided via existing public sidewalks and walkways. The project would provide sidewalks on Warm Springs Parkway along the project site, consistent with City guidelines. The project would not affect existing sidewalks or crosswalks along Clinton Keith Road, and would provide additional crosswalk facilities across Clinton Keith Road at the signalized Warm Springs Road intersection and at the Vista Murrieta High School entrance. The project would also provide pedestrian connections onto the site at the south right-in/right-out driveway and at the signalized primary access point. The pedestrian facilities provided on site are consistent with City guidelines.

The project would not conflict with adopted policies, plans, or programs regarding public transit, bicycles, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities. Impacts related to transit, bicycle, and pedestrian facilities would be less than significant.

Riverside County Congestion Management Program

The RCTC is designated as the congestion management agency to oversee the Congestion Management Program. Recently, the RCTC approved modification of the Congestion Management Program Land Use Coordination Element, which included elimination of the TIA process and replacement with an Enhanced Traffic Monitoring System.

Therefore, a TIA is no longer required, but local jurisdictions are required to report deficient facilities (locations that cannot be mitigated to LOS E or better) along the Congestion Management Program network, which are identified in traffic impact studies prepared for local agencies. The only Congestion Management Program facility in the study area is I-215. As previously discussed, the I-215 corridor generally operates below the target LOS standards under the 2035 Build-Out Conditions. However, project impacts to this facility were found to be less than significant because the project would contribute minimal traffic to the mainline corridor. The mainline corridor would operate at an unsatisfactory LOS E or F regardless of project traffic, and project traffic would not significantly worsen LOS. Therefore, the project would not conflict with the Riverside County Congestion Management Program and impacts would be less than significant.

Would the project conflict or be inconsistent with CEQA Guidelines Section 15064.3(b)?

Significant and Unavoidable Impact. CEQA Guidelines Section 15064.3(b) focuses on newly adopted criteria (vehicle miles traveled [VMT]) for determining the significance of transportation impacts. It is further divided into four subdivisions: (1) land use projects, (2) transportation projects, (3) qualitative analysis, and (4) methodology.

Section 15064.3(b)(1) for land use projects would apply to the proposed project; however, as indicated above, this section does not become operative until the earlier of July 1, 2020, or the adoption by the jurisdiction of VMT standards. The County of Riverside and City of Murrieta have not yet adopted local VMT criteria; therefore, a VMT analysis for the proposed project has not been prepared at this time.

Vehicle Miles Traveled (Informational Only)

As described in Section 4.2, Air Quality, of this EIR, the proposed project is consistent with the applicable regional transportation plan/sustainable communities strategy (RTP/SCS). Specifically, the proposed project is consistent with the City's existing General Plan Commercial designation and with the existing Regional Commercial zoning for the project site. As such, the project is also consistent with the RTP/SCS for the region.[9] Thus, the project would not be considered to have a significant impact with respect to consistency with the RTP/SCS for the region.

The proposed project includes both local serving retail and regional serving retail uses. The Costco portion of the project is considered regional serving, while portions of the Vineyard II project would generally be considered local serving retail in that they provide goods and services of a local nature. As indicated in the OPR Technical Advisory and WRCOG Analysis, local serving retail is generally presumed to have less than significant impact. Nonetheless, as the project as a whole and the Costco and Vineyard II project individually each exceeds the 50,000 square-foot threshold identified for regional serving retail, the project is considered to be a regional serving retail project.

The proposed Costco warehouse will operate on a members-only basis. There are currently existing warehouses in Lake Elsinore and Temecula within the trade area of the proposed Costco. It is anticipated that up to eighty percent (80%) of Costco members who will shop at the new warehouse are currently shopping at existing Costco warehouses. As the proposed Costco has been purposely sited to be closer to the homes of those members in the trade area, it is expected the trip lengths, and VMT, of these members will decrease as compared to existing conditions. Nonetheless, to provide a more conservative analysis, the air quality and GHG analyses assumed that all trips to the Costco would be new and did not reflect any VMT reduction. The project is projected to result in annual operational VMT of 36,481,323 for Costco and 16,309,077 for Vineyard II. As this is a net increase in VMT

[9] The City General Plan Land Use Map designates the project site as Commercial (City of Murrieta 2011). The City's Zoning Map shows the site as being zoned Regional Commercial (City of Murrieta 2014). The project would be consistent with the current zoning and land use designation. The RTP/SCS incorporates existing zoning and land use designations of the city. As the project is consistent with existing General Plan and zoning it is considered consistent with SCS/RTP.

as compared with existing conditions, the project would be conservatively be considered for informational purposes to have a significant impact with respect to operational VMT related to net increase in VMT.

Would the project substantially increase hazards due to a geometric design feature (e.g., sharp curves, or dangerous intersections) or incompatible uses (e.g., farm equipment)?

No Impact. Project driveways and internal circulation elements have been designed to reduce vehicular and pedestrian conflicts, enhance safety, and increase line of sight. All intersections, circulation improvements, and access to the site would be designed consistent with City roadway standards and would not create a hazard for vehicles, bicycles, or pedestrians entering or exiting the site. Specifically, Creighton Avenue would be designed with one lane northbound from Clinton Keith Road for vehicles turning left onto Creighton Avenue.

Access to the site would be designed according to City standards and would not create sharp curves or dangerous intersections. Based on review of the preliminary site plan, the overall layout would not create any unsafe vehicle-pedestrian conflict points. Turning radii and drive aisles widths are designed for passenger cars, ambulances, shuttles, service/delivery trucks and trash trucks. The alignment, spacing and throating of the project driveways is adequate and the circulation around the building is adequate with sufficient sight distance along the drive aisles. The proposed site plan is subject to approval by the City and the City Fire Department to ensure City roadway standards are met and no hazards are created or increased by the project.

Since the project would be consistent with City roadway standards, and for the reasons described above, the project would not increase hazards due to a design feature or incompatible uses.

Would the project result in inadequate emergency access?

Less-Than-Significant Impact. The project would result in the development of a currently undeveloped area, including the development of site access. The project would involve the construction of new structures, roadways, and intersections and would generate new trips to and from the project site. The project would be required to comply with the City's development review process, including review for compliance with the City's Development Code and compliance with applicable emergency access standards that would facilitate emergency vehicle access during project construction and operation. The project applicants would be required to design, construct, and maintain structures, roadways, and facilities to comply with applicable local, regional, state, and federal requirements related to emergency access. Drive aisles, turning radii, and all four access points would be designed with adequate emergency access. The proposed site plan is subject to approval by the City and the City's Fire Department. Further, the City and the City's Fire Department would review any modifications to existing roadways to ensure that adequate emergency access or emergency response would be maintained. Additionally, emergency response procedures would be coordinated through the City in coordination with the police and fire departments. Adherence to these requirements would ensure that potential impacts related to this issue remain below a level of significance, and no mitigation is required.

4.13.5 Mitigation Measures

Project Impacts

MM-TRAF-1 **California Oaks Road and Clinton Keith Road:** The project applicants shall improve the intersection of California Oaks Road and Clinton Keith Road to add a third eastbound through lane between California Oaks Road and Nutmeg Street with a receiving lane east of California Oaks Road and signal detection loops at California Oaks Road.

MM-TRAF-2 **Greer Road/Murrieta Oaks Avenue and Clinton Keith Road:** The project applicants shall restripe an additional 50 feet of storage for the existing southbound left turn lane for a total of 200 feet of storage at the intersection of Greer Road/Murrieta Oaks Avenue and Clinton Keith Road.

MM-TRAF-3 **Mitchell Road/Murrieta Oaks Avenue and Clinton Keith Road:** The project applicants shall provide an additional 100 feet of storage for the westbound turn lane for a total of 250 feet of storage at the intersection of Mitchell Road/Murrieta Oaks Avenue and Clinton Keith Road.

MM-TRAF-4 **High School West Driveway/Warm Springs Parkway and Clinton Keith Road:** If Creighton Avenue access is provided at project buildout (2021), an additional 70 feet of storage shall be added to each existing eastbound left hand turn lane at the High School West Driveway/Warm Springs Parkway and Clinton Keith Road (with Creighton Avenue access) for a total of 275 feet of storage. If Creighton Avenue access is not provided at project buildout (2021), an additional 90 feet of storage in each eastbound left hand turn lane (without Creighton Avenue access) shall be added for a total of 295 feet of storage at this intersection. The City has updated the intersection design plans to add this additional storage.

MM-TRAF-5 **Whitewood Road and Clinton Keith Road**: The project applicants shall extend the existing northbound and southbound left turn lanes at the Whitewood Road and Clinton Keith Road intersection to the maximum extent feasible within the available right of way and available spacing between the intersections and per the City of Murrieta requirements, and pay a fair share contribution to existing City CIP 8389 to add a second northbound and southbound left turn lane (to provide dual left turn lanes).

Cumulative Impacts

MM-TRAF-6 **Mitchell Road/Murrieta Oaks Avenue and Clinton Keith Road:** Per the City of Murrieta requirements, the project applicants shall pay a fair share contribution (1) to restripe an additional eastbound travel lane on Clinton Keith Road between California Oaks Road and for approximately 1,100 linear feet to create an additional eastbound travel lane, (2) add signal detection, and (3) provide an additional 200 feet of storage for the existing westbound left turn land for a total of 350 feet of storage (and removal of the raised median as required for that extension) at the intersection of Mitchell Road/Murrieta Oaks Avenue and Clinton Keith Road.

MM-TRA-7 **High School West Driveway/Warm Springs Parkway and Clinton Keith Road:** If Creighton Avenue access is provided at project buildout (2021), the project applicants shall, per the City of Murrieta requirements, pay a fair share contribution to the City to extend the existing left hand turn lane pocket at the High School Driveway/Warm Springs Parkway and Clinton Keith Road intersection for a total of 315 feet of storage. If Creighton Avenue access is not provided at project buildout (2021), the project applicants shall, per the City of Murrieta requirements, pay a fair share contribution to the City to extend the existing left hand turn lane pocket at the High School West Driveway/Warm Springs Parkway and Clinton Keith Road intersection for a total of 345 feet of storage. The City has updated the intersection design plans to add this additional storage.

MM-TRAF-8 **Nutmeg Street and Clinton Keith Road:** Per the City of Murrieta requirements, the project applicants shall pay a fair share contribution for improvements to Nutmeg Street and Clinton Keith Road to add 75 feet of storage to the existing westbound left turn lane for a total of 300 feet of storage, and an additional 100 feet of storage to the existing southbound left turn lane for a total of 150 feet of storage.

MM-TRAF-9 **California Oaks Road and Clinton Keith Road:** Per the City of Murrieta requirements, the project applicants shall pay a fair share contribution to extend the existing westbound left turn lane by 200 feet for a total of 420 feet of storage.

MM-TRAF-10 **Bronco Way and Clinton Keith Road:** Per the City of Murrieta requirements, the project applicants shall pay a fair share contribution to extend the eastbound left turn lane by 71 feet at the intersection of Bronco Way and Clinton Keith Road for a total storage of 271 feet.

MM-TRAF-11 **Whitewood Road and Clinton Keith Road:** Per the City of Murrieta requirements, the project applicants shall pay a fair share contribution to extend the dual left turn lanes by 35 feet each for a total of 285 feet in each eastbound left turn lane.

MM-TRAF-12 **Whitewood and Baxter Road:** Per the City of Murrieta requirements, the project applicants shall pay a fair share contribution to provide 285 feet of additional storage for the northbound left turn lane for a total of 500 feet of storage at the intersection of Whitewood Road and Baxter Road.

4.13.6 Level of Significance After Mitigation

Salida Del Sol and Clinton Keith Road: The project and cumulative LOS impacts remain significant and unavoidable because full funding for the improvements cannot be guaranteed by project build-out and the roadway project is outside the City's control to implement. The project applicants will contribute to the TUMF, which funds countywide improvements, including the Clinton Keith Road corridor.

Elizabeth Lane and Clinton Keith Road: The project and cumulative LOS impacts remain significant and unavoidable because full funding for the improvements cannot be guaranteed by project build-out and the roadway project is outside the City's control to implement. The project applicants will contribute to the TUMF, which funds countywide improvements, including the Clinton Keith Road corridor.

California Oaks Road and Clinton Keith Road: With the implementation of the proposed **MM-TRAF-1**, the project LOS and queuing impacts at California Oaks Road and Clinton Keith Road would be less than significant. Despite implementation of **MM-TRAF-9**, this cumulative queuing impact remains significant and avoidable because timing for implementation cannot be guaranteed by project build-out.

Max Gillis Boulevard/Thompson Road and SR-79: The project and cumulative LOS impacts remain significant and unavoidable at this location. Although the project applicants will contribute to the TUMF for future extension, the full funding and implementation is not guaranteed by project build-out and the County is the lead agency so the project is outside the City's control to implement.

Max Gillis Boulevard/Briggs Road/Leon Road: The cumulative LOS impact remains significant and unavoidable at this location. Although the project applicants will contribute to the TUMF for future extension, the full funding and implementation is not guaranteed by project build-out and the County is the lead agency so the project is outside the City's control to implement.

Greer Road/Murrieta Oaks Avenue and Clinton Keith Road: With implementation of **MM-TRAF-2**, the project and cumulative queuing impacts are less than significant.

Mitchell Road/Murrieta Oaks Avenue and Clinton Keith Road: With implementation of the proposed **MM-TRAF-3**, the project queuing impact is less than significant. Despite implementation of **MM-TRAF-6**, the cumulative LOS impact to this intersection is significant and unavoidable because the timing of the mitigation cannot be guaranteed by project build-out. Despite implementation of **MM-TRAF-6**, the cumulative queuing impact to this intersection is significant and unavoidable because timing of the mitigation cannot be guaranteed by project build-out.

High School Driveway West/Warm Springs Parkway and Clinton Keith Road: Under both the with Creighton Avenue access and without Creighton Avenue access scenarios, with the implementation of the proposed **MM-TRAF-4** and **MM-TRAF-7**, the project and cumulative impacts at High School West Driveway/Warm Springs Parkway and Clinton Keith Road would be less than significant.

Whitewood Road and Clinton Keith Road: Implementation of **MM-TRAF-11** would mitigate the cumulative queuing impact at the eastbound left turn lane. While the project applicants would implement **MM-TRA-5** to enhance the northbound and southbound left turn lanes at this intersection, right-of-way restrictions prohibit extending the turn lanes to the total length needed and full funding to acquire additional right-of-way and to provide dual turn lanes is not guaranteed by project build-out. Accordingly, the cumulative LOS impact and the project and cumulative queuing impacts remain significant and unavoidable.

Nutmeg Street and Clinton Keith Road: Despite implementation of the proposed **MM-TRAF-8**, full funding for implementation is not guaranteed by project build-out. This cumulative queuing impact remains significant and unavoidable.

I-215 Southbound Ramps and Clinton Keith Road: Cumulative queuing impacts remain significant and unavoidable because it is not possible to extend storage due to right-of-way restrictions and spacing to the adjacent traffic signal.

Bronco Way and Clinton Keith Road: The cumulative condition queuing impact is significant and unavoidable because funding and implementation of **MM-TRAF-10** cannot be guaranteed by project opening.

Whitewood Road and Baxter Road: The cumulative condition queuing impact is significant and unavoidable because the implementation of **MM-TRAF-12** cannot be guaranteed by project build-out.

All project impacts associated with design features, emergency access, and conflicts with adopted policies, plans, or programs regarding public transit, bicycles, or pedestrian facilities would be less than significant, and no mitigation measures would be required.

4.13.7 Cumulative Impacts

Cumulative impacts were considered by analyzing 2021 Cumulative Conditions and 2035 Build-Out Conditions. The related projects in Table 4.13-20 were used to analyze cumulative impacts. As previously discussed, project impacts related to geometric design features; incompatible uses; emergency access; public transportation; bicycle and pedestrian policies; and plans, programs, and facilities would be less than significant, and it is not anticipated that the proposed project, combined with other related projects, would result in a cumulatively considerable impact to these areas.

Intersections

Based on the operational analysis previously discussed, the following intersections are projected to operate at an unacceptable LOS under 2021 Cumulative Conditions:

- Salida del Sol and Clinton Keith Road (intersection operates at LOS E or F under existing conditions; intersection outside of the City's jurisdiction)
- Elizabeth Lane and Clinton Keith Road (intersection operates at LOS E or F under existing conditions; intersection outside of the City's jurisdiction)
- California Oaks Road and Clinton Keith Road
- Bronco Way and Clinton Keith Road
- Mitchell Road/Murrieta Oaks Avenue and Clinton Keith Road
- Creighton Avenue and Clinton Keith Road (with Creighton Avenue access)
- Whitewood Road and Clinton Keith Road
- Max Gillis Boulevard/Briggs Road and Leon Road (intersection outside of the City's jurisdiction)
- Max Gillis Boulevard/Thompson Road and SR-79 (intersection operates at LOS E or F under existing conditions; intersection outside of the City's jurisdiction)

Three of these intersections operate at an LOS E or F under existing conditions: Salida del Sol and Clinton Keith Road, Elizabeth Lane and Clinton Keith Road, and Max Gillis Boulevard/Thompson Road and SR-79. Further, the following intersections are located outside of the City of Murrieta's jurisdiction: Salida Del Sol and Clinton Keith Road, Elizabeth Lane and Clinton Keith Road, Max Gills Boulevard/Briggs Road and Leon Road, and Max Gillis Boulevard/Thompson Road and SR-79 (which is partially in the City). At one of these intersections, Bronco Way and Clinton Keith Road, the impact is resolved with signal timing and coordination. In addition, under 2035 Build-Out Conditions, all intersections analyzed along Warm Springs Parkway and at the I-215 interchange are projected to operate an acceptable LOS with the planned roadway improvements, including lane configurations and traffic control devices.

In the interim, mitigation measures (**MM-TRAF-6** through **MM-TRAF-12**) have been proposed in the form of fair-share payment toward roadway improvements that would help to reduce impacts. However, as discussed in Section 4.13.6, with respect to intersections with significant impacts, since implementation of some of the mitigation measures is outside of the lead agency's jurisdiction or implementation of the roadway improvements cannot be guaranteed by project opening or project build-out, the impacts would be cumulatively considerable and would remain significant and unavoidable even with implementation of mitigation measures.

Queuing

Based on the queuing analysis previously discussed, with Creighton Avenue access the following movements are projected to have significant queuing impacts under 2021 Cumulative Conditions:

- Nutmeg Street and Clinton Keith Road (WBL, SBL)
- California Oaks Road and Clinton Keith Road (WBL)
- Greer Road/Murrieta Oaks Avenue and Clinton Keith Road (WBL)
- Mitchell Road/Murrieta Oaks Avenue and Clinton Keith Road (EBL, WBL)
- I-215 SB Ramps and Clinton Keith Road (EBR)
- Creighton Avenue and Clinton Keith Road (EBL)
- High School West Driveway/Warm Springs Parkway and Clinton Keith Road (EBL)
- Bronco Way and Clinton Keith Road (EBL)
- Whitewood Road and Clinton Keith Road (EBL, NBL, SBL)
- Whitewood Road and Baxter Road (NBL)

Without Creighton Avenue access, the following additional movements are projected to have significant queuing impacts under 2021 Cumulative Conditions:

- Creighton Avenue and Clinton Keith Road (EBL/U)
- High School West Driveway/Warm Springs Parkway and Clinton Keith Road (EBL)

Mitigation measures (**MM-TRAF-6** through **MM-TRAF-12**) have been proposed in the form of fair-share payments toward roadway improvements that would help to reduce cumulative queuing impacts. However, as discussed above, since implementation of some of the mitigation cannot be guaranteed by project opening or project build-out, certain impacts would be cumulatively considerable and would remain significant and unavoidable even with implementation of mitigation measures.

Roadway Segments

All study area roadway segments are projected to operate with acceptable LOS for the 2021 Cumulative Conditions and 2035 Build-Out Conditions, with the exception of the segment of Clinton Keith Road between I-215 northbound ramps and Warm Springs Parkway. Under 2021 Cumulative Conditions, this segment is anticipated to operate at LOS D during Saturday peak hours. The City's General Plan indicates that LOS D is allowed in certain areas, including the North Murrieta Business Corridor and Multiple Use 3 Focus Area, which encompass the project site and study area roadways. Under 2035 General Plan Build-Out Conditions, the same segment of Clinton Keith Road is projected to operate at LOS E on a weekday. However, the City's General Plan acknowledges that certain corridors are projected to exceed the City's performance standard, including Clinton Keith Road. Therefore, the LOS failure on this roadway would not be a cumulatively considerable impact.

Freeway

Under 2035 Build-Out Conditions, the I-215 corridor generally operates below the target LOS D threshold. The future projections indicate that additional capacity is required along the six-lane mainline corridor. The poor performance at ramp merge/diverge areas can also be attributed to overcapacity operations along the mainline. The I-215

Transportation Concept Report recommends expansion of the mainline segment to eight lanes to accommodate the increased demand. The project would contribute minimal traffic to the mainline corridor, and based on the significance criteria, the mainline corridor baseline case operations of LOS E or F would be maintained with the addition of project traffic and traffic associated with related projects.

It is assumed that related cumulative projects in the study area would be subject to the same federal, state, and local standards, regulations, and requirements that the project must comply with, which would further reduce the opportunity for cumulative impacts in the broader project area. However, due to the significant and unavoidable impacts to study intersections, the project, in combination with related projects, would result in significant and unavoidable impacts.

Vehicle Miles Traveled Cumulative Impacts (Informational Only)

The VMT of cumulative projects is currently unknown. As indicated above, for purposes of this analysis (and in the absence of a City adopted methodology to determine the cumulative impacts of VMT) the project would have a significant cumulative impact on VMT if it has a significant project-level impact or is not consistent with the 2016-2040 RTP/SCS in terms of development location, density, and intensity. Based on the conclusion above (provided for informational purposes) that the project is presumed to result in a significant impact with respect to VMT due to an increase in net VMT as compared with existing conditions, the project's VMT impact would be considered to be cumulatively considerable.

4.13.8 References Cited

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Caltrans. 2012. *Transportation Concept Report: Interstate 2015, District 8*. September 2012. Accessed August 2108. http://www.dot.ca.gov/hq/tpp/corridor-mobility/D8_docs/TCRs/I-215.pdf.

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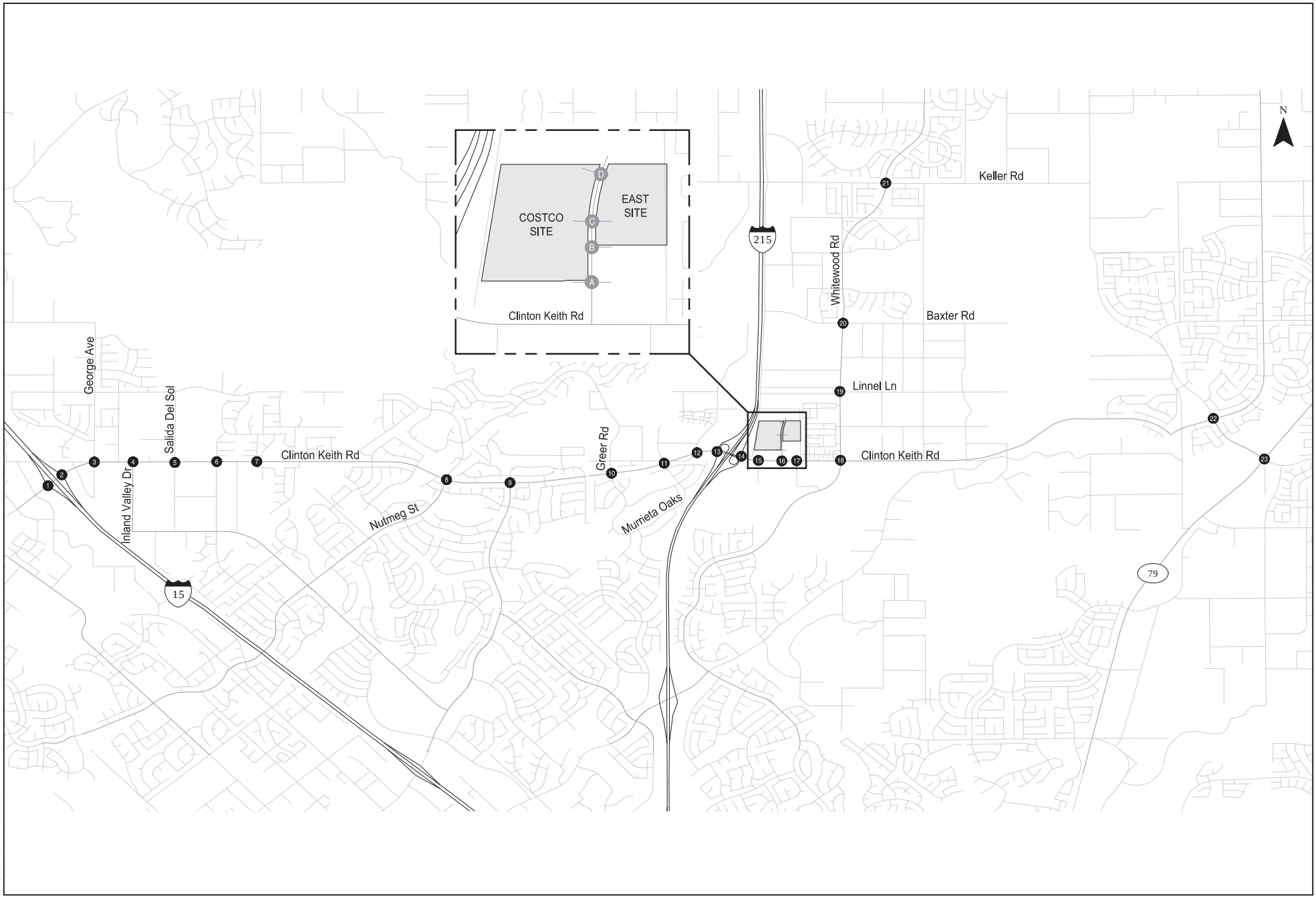
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SOURCE: Kittelson & Associates

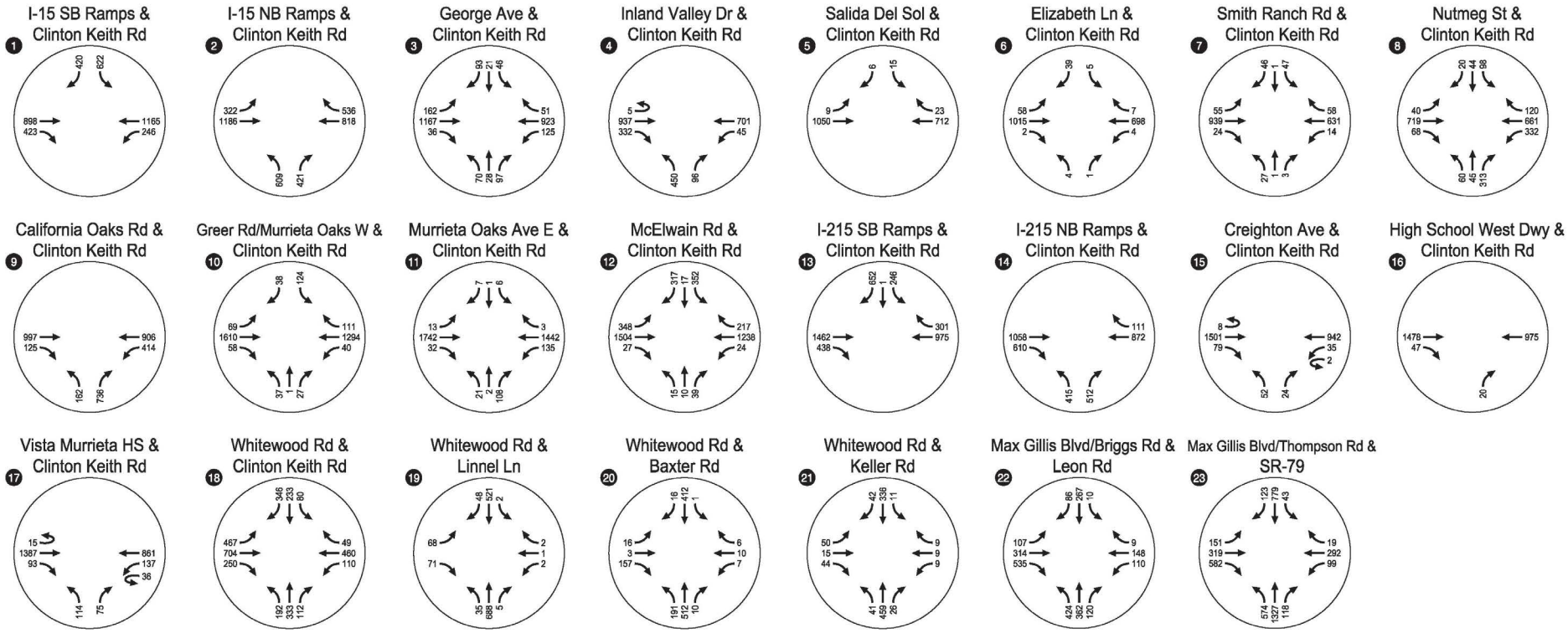
FIGURE 4.13-1

Study Intersections

Costco/Vineyard Phase II Retail Development Project, City of Murrieta, California

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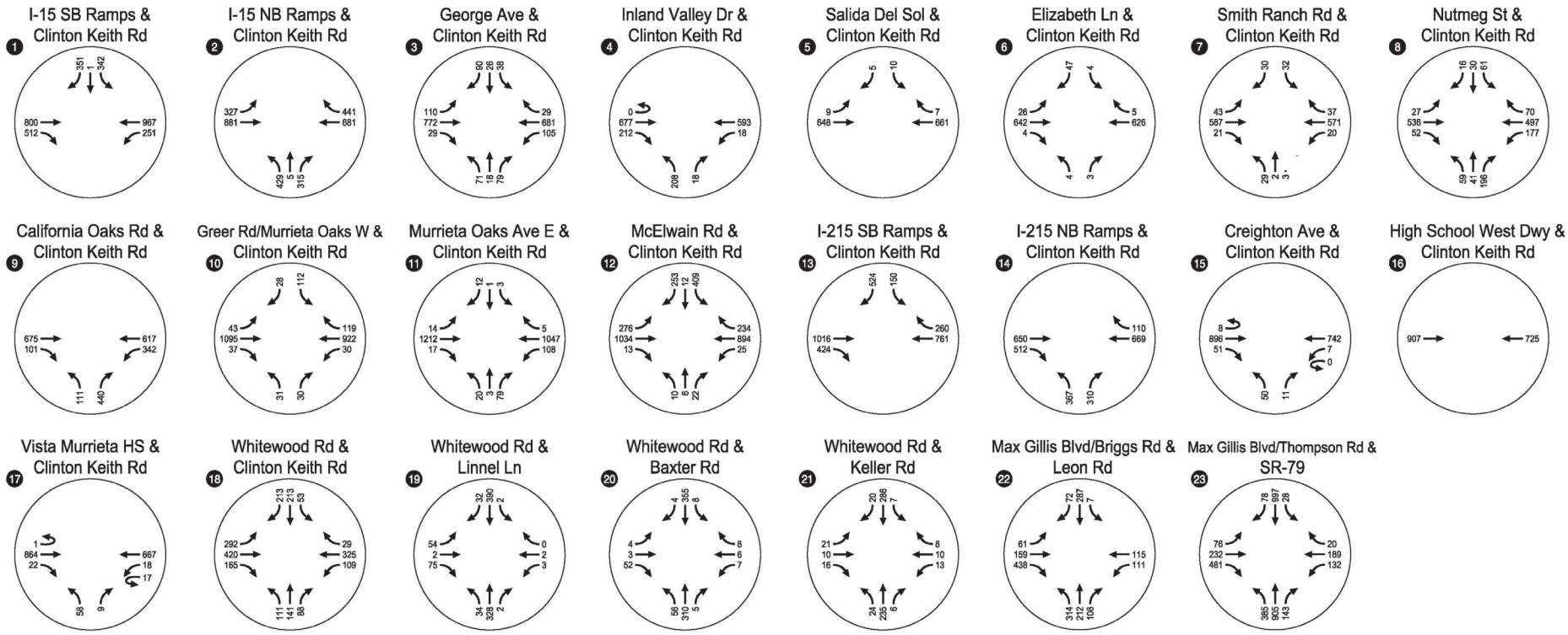
FIGURE 4.13-2

Existing Traffic Volumes Weekday PM Peak Hour

Costco/Vineyard Phase II Retail Development Project, City of Murrieta, California

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SOURCE: Kittelson & Associates

FIGURE 4.13-3

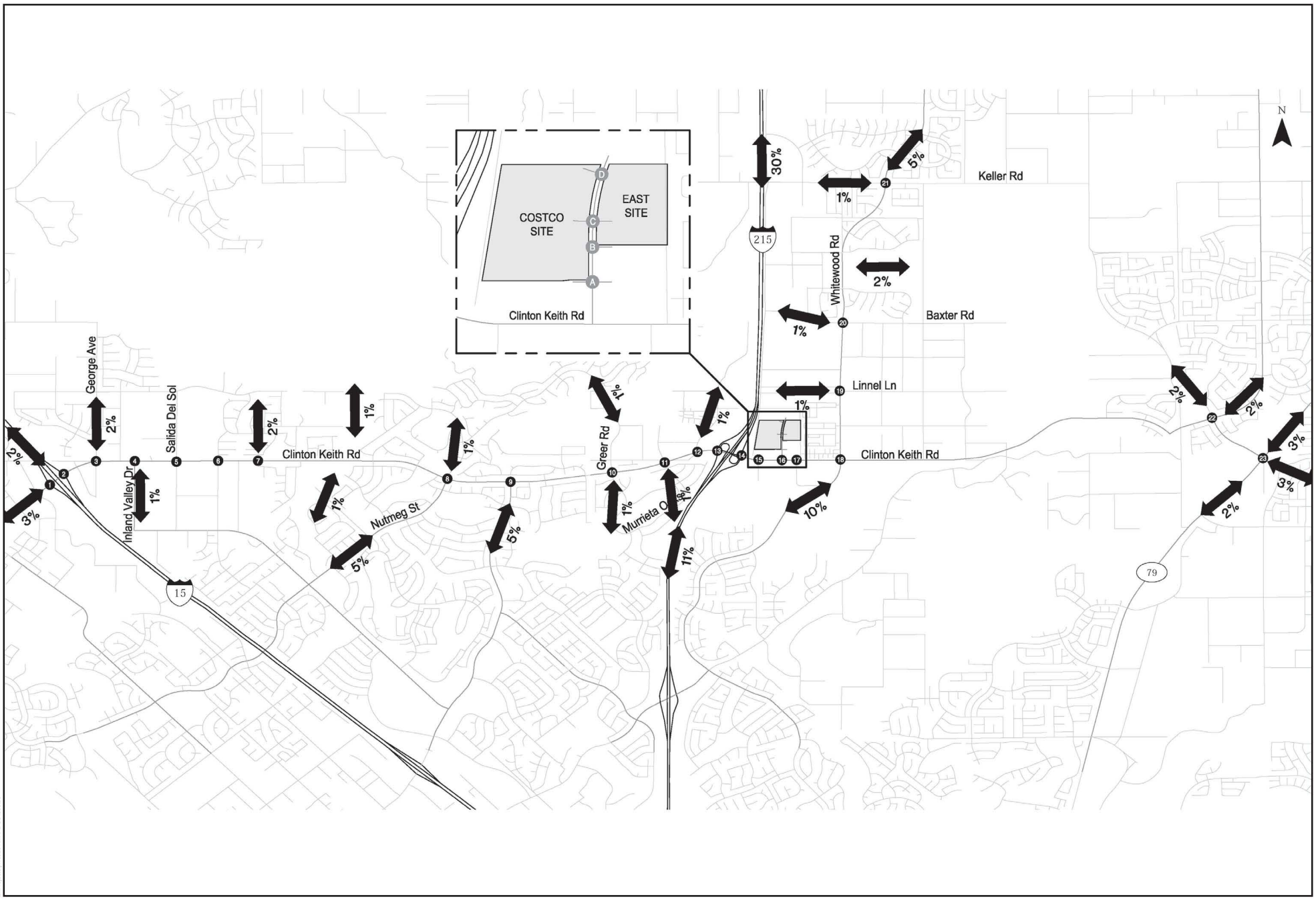
Existing Traffic Volumes Saturday Midday Peak Hour

Costco/Vineyard Phase II Retail Development Project, City of Murrieta, California

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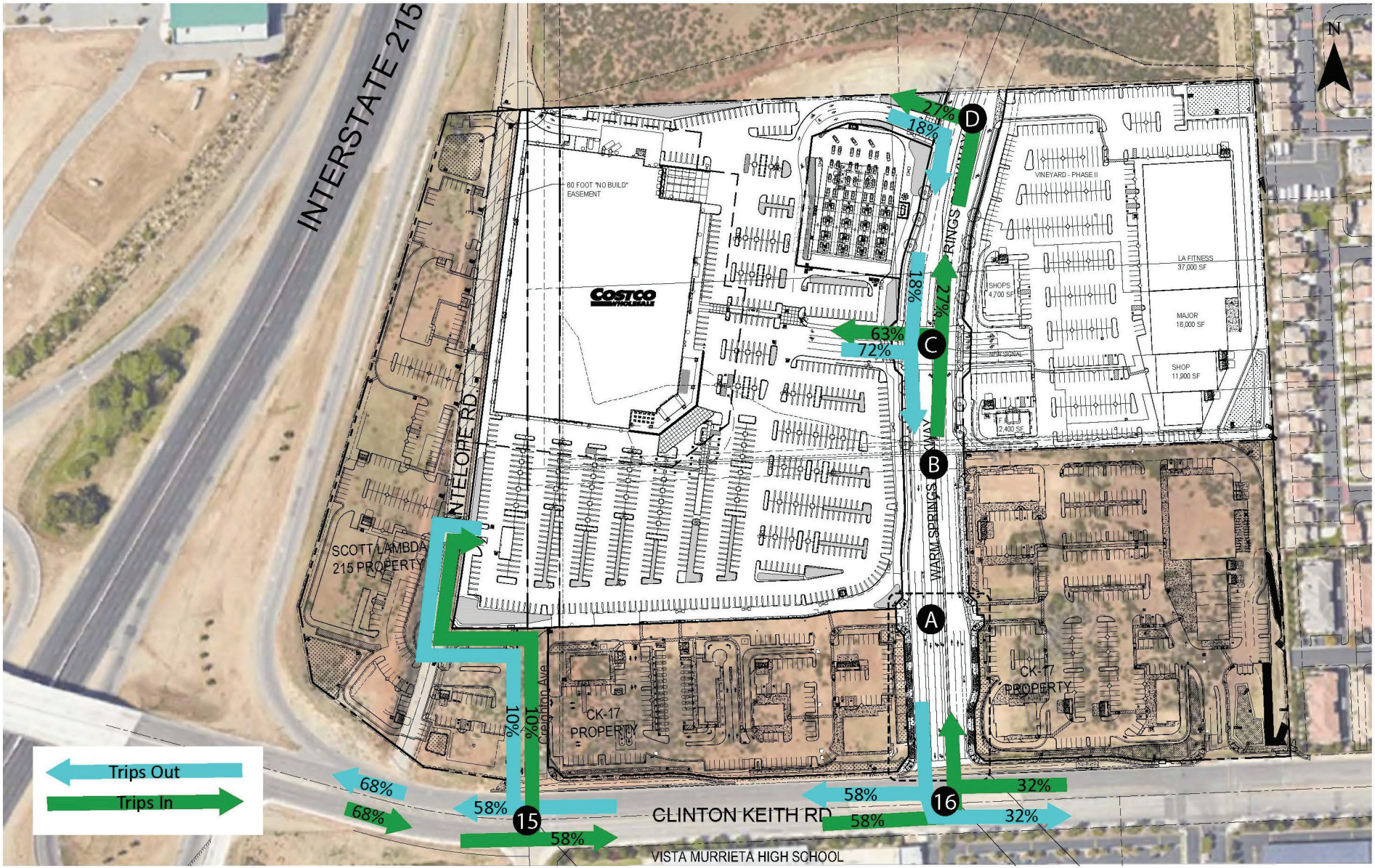
FIGURE 4.13-4

Trip Distribution Costco Project

Costco/Vineyard Phase II Retail Development Project, City of Murrieta, California

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SOURCE: Kittelson & Associates

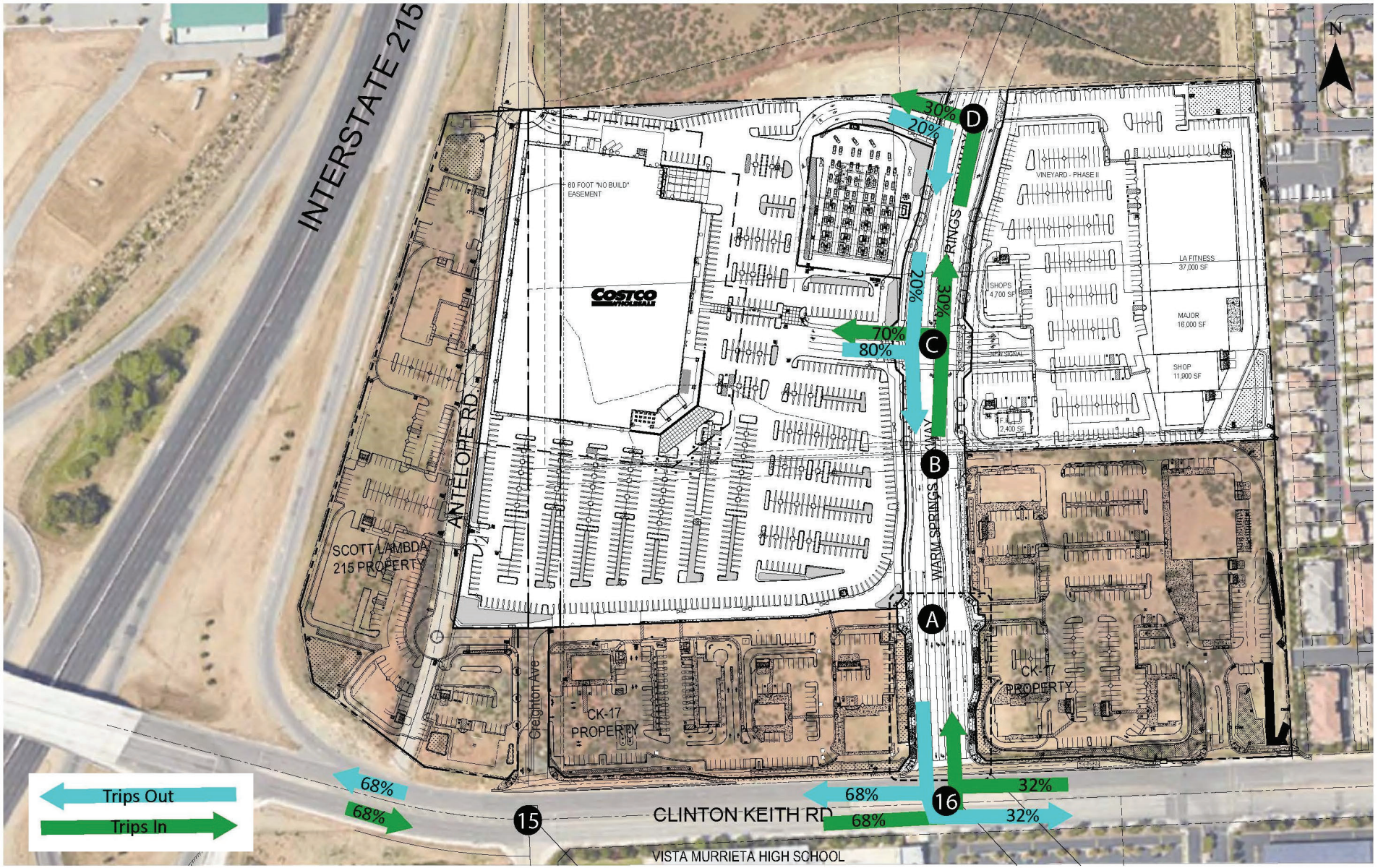
FIGURE 4.13-5

Costco Trip Distribution at Site Accesses with Creighton Avenue Access

Costco/Vineyard Phase II Retail Development Project, City of Murrieta, California

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SOURCE: Kittelson & Associates

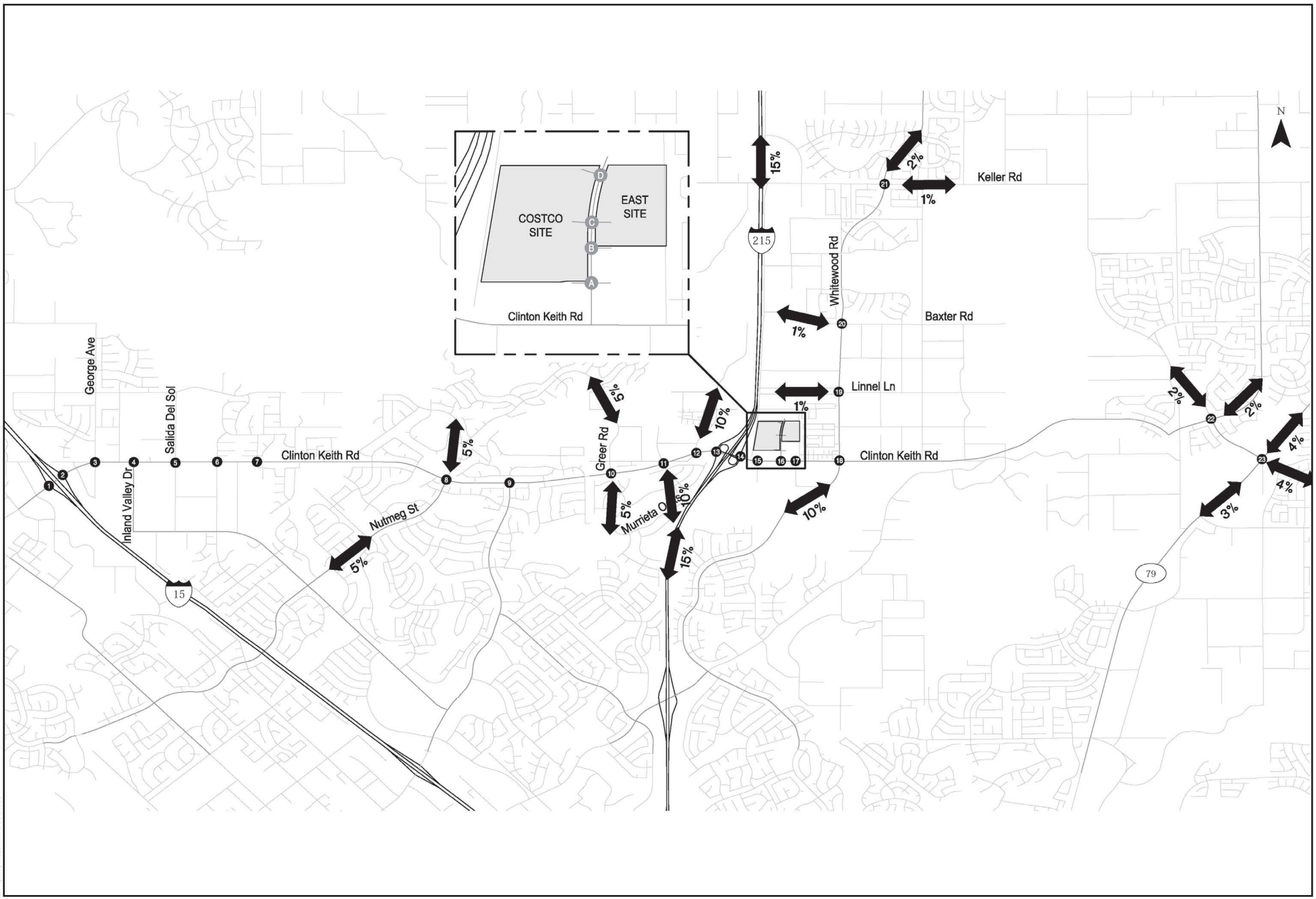
FIGURE 4.13-6

Costco Trip Distribution at Site Accesses without Creighton Avenue Access

Costco/Vineyard Phase II Retail Development Project, City of Murrieta, California

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SOURCE: Kittelson & Associates

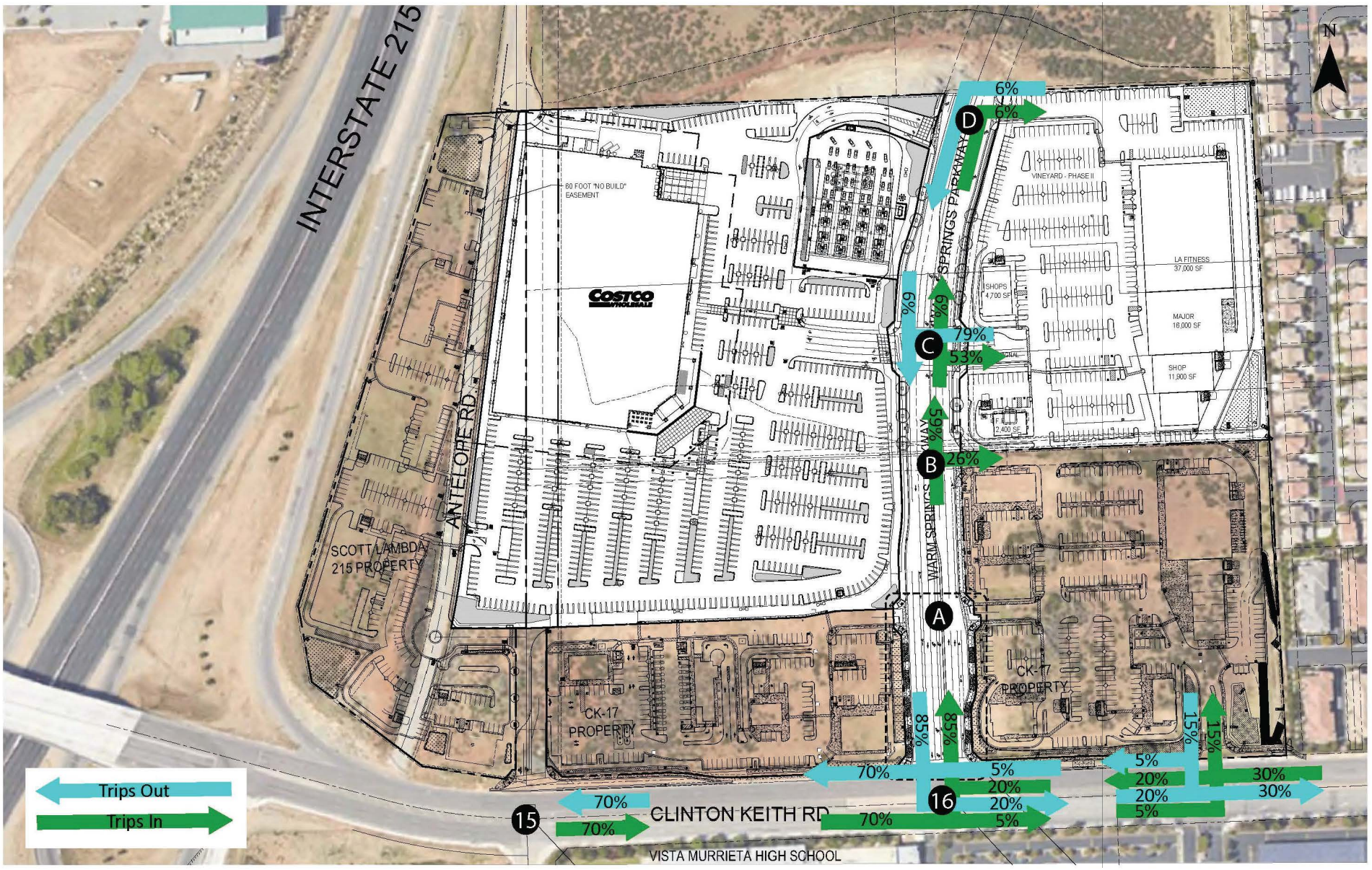
FIGURE 4.13-7

Trip Distribution Vineyard II Project

Costco/Vineyard Phase II Retail Development Project, City of Murrieta, California

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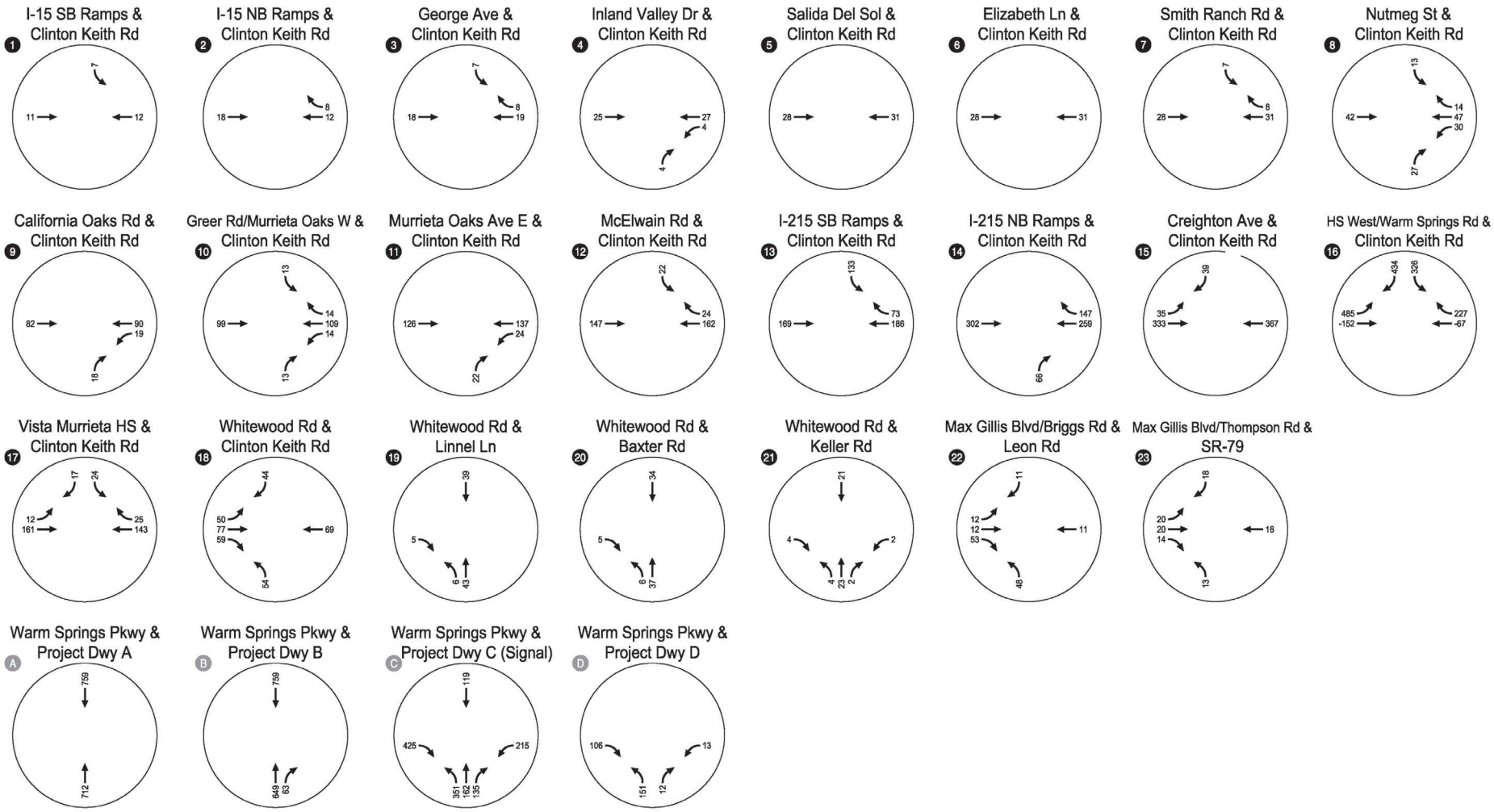
FIGURE 4.13-8

Trip Distribution at Site Accesses Vineyard II Project

Costco/Vineyard Phase II Retail Development Project, City of Murrieta, California

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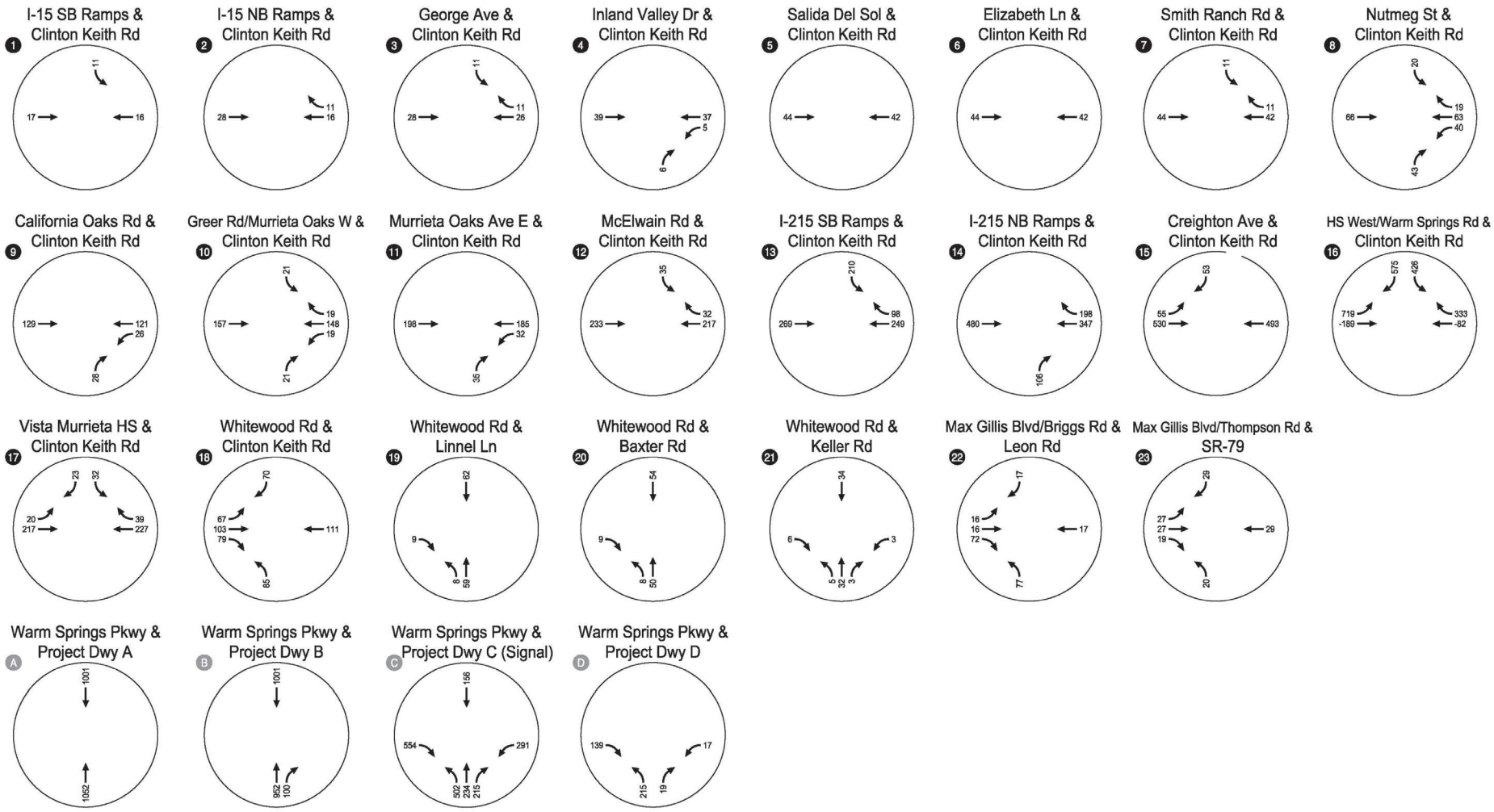
FIGURE 4.13-9

Total Project Trip Assignment Weekday PM Peak Hour with Creighton Avenue Access

Costco/Vineyard Phase II Retail Development Project, City of Murrieta, California

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SOURCE: Kittelson & Associates

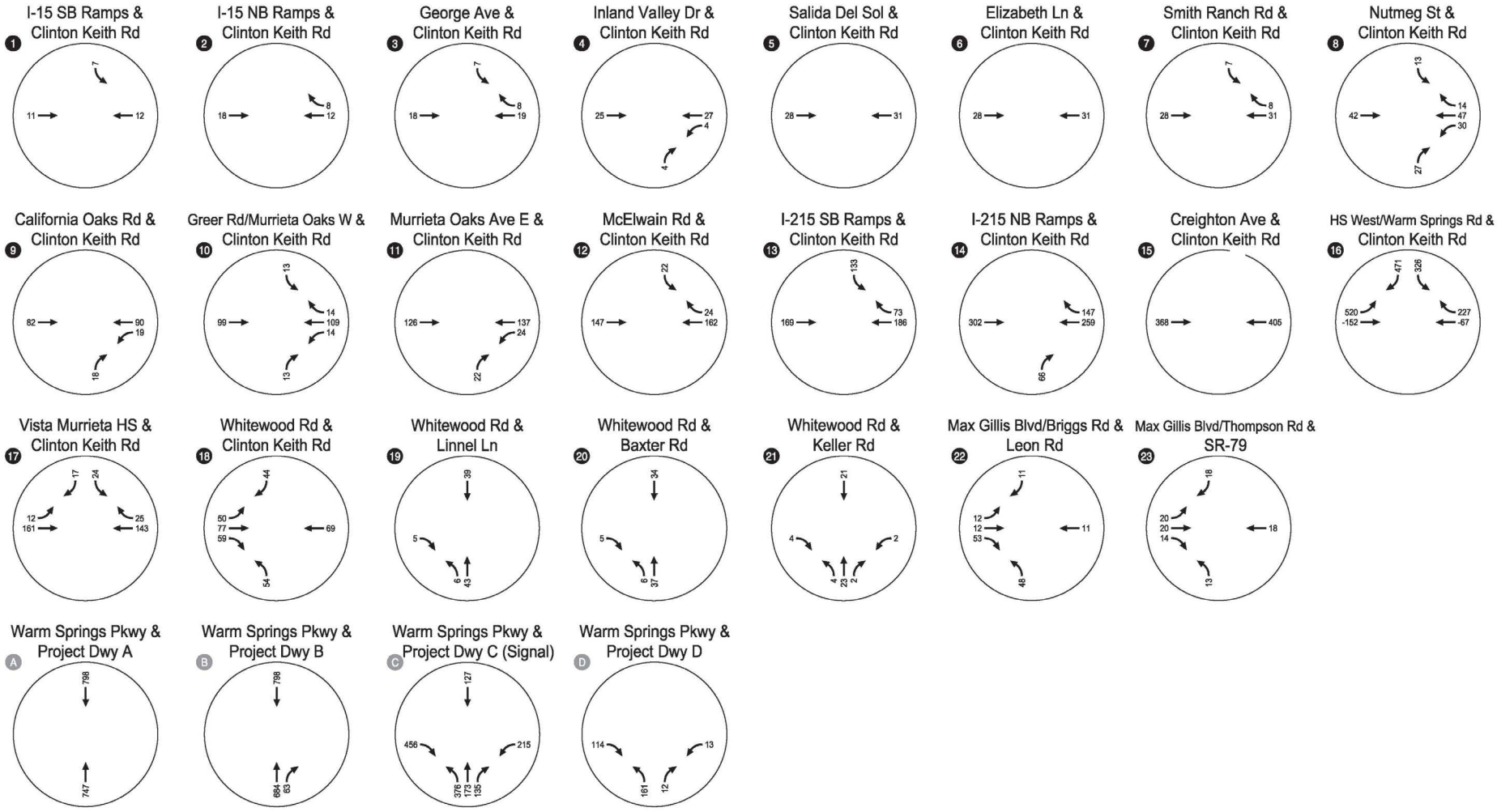
FIGURE 4.13-10

Total Project Trip Assignment Saturday Midday Peak Hour with Creighton Avenue Access

Costco/Vineyard Phase II Retail Development Project, City of Murrieta, California

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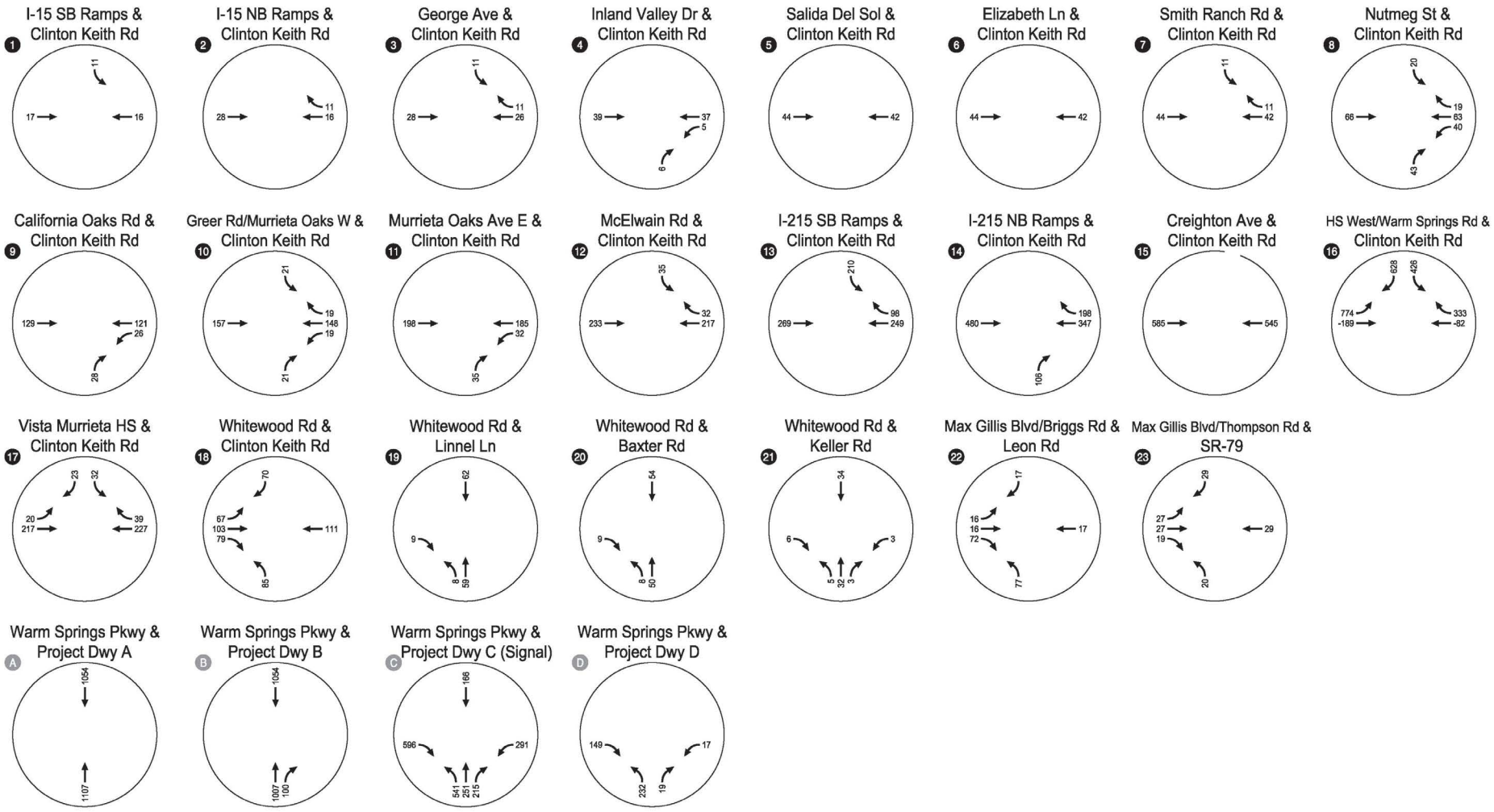
FIGURE 4.13-11

Total Project Trip Assignment Weekday PM Peak Hour without Creighton Avenue Access

Costco/Vineyard Phase II Retail Development Project, City of Murrieta, California

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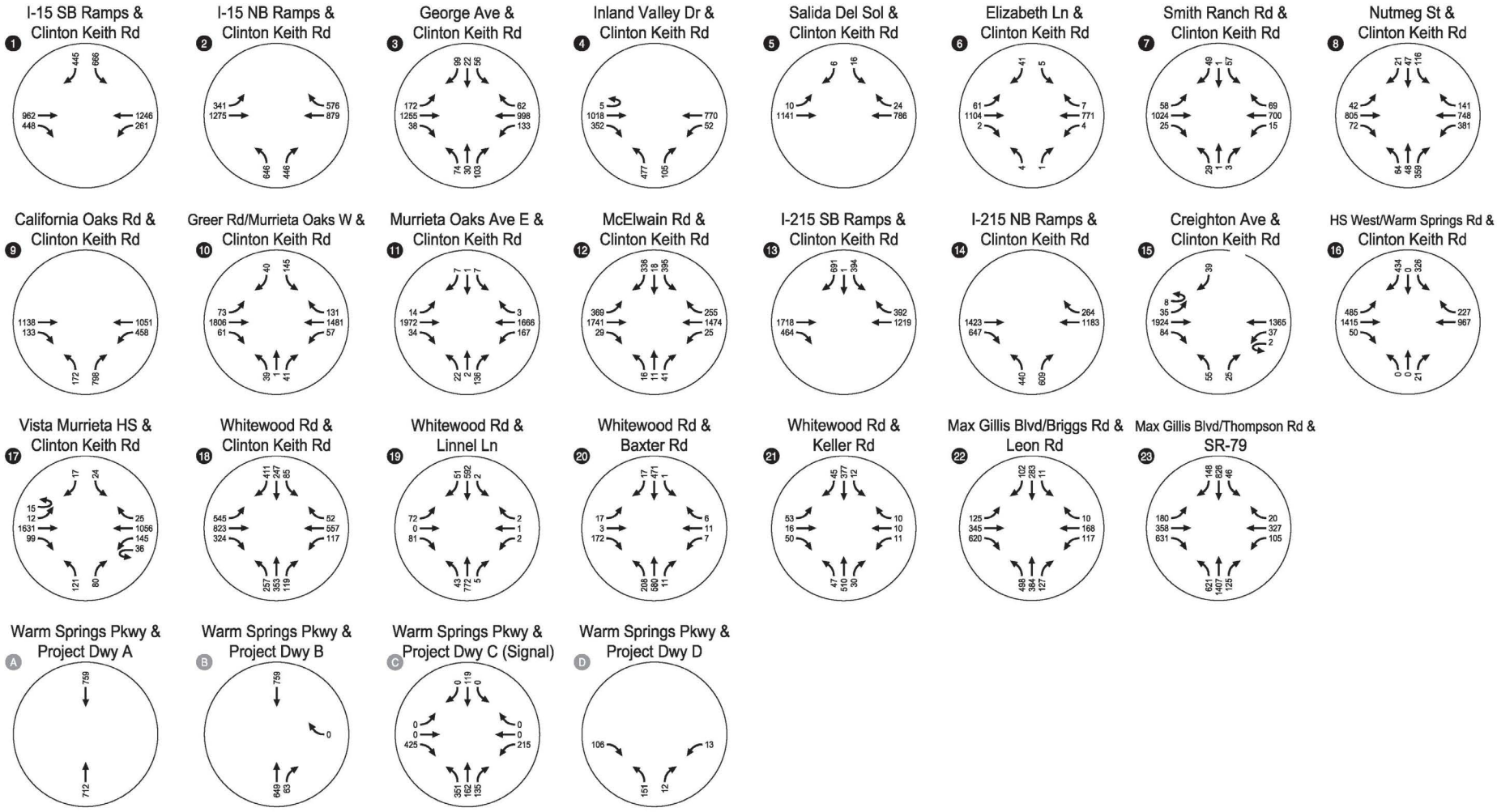
FIGURE 4.13-12

Total Project Trip Assignment Saturday Peak Hour without Creighton Avenue Access

Costco/Vineyard Phase II Retail Development Project, City of Murrieta, California

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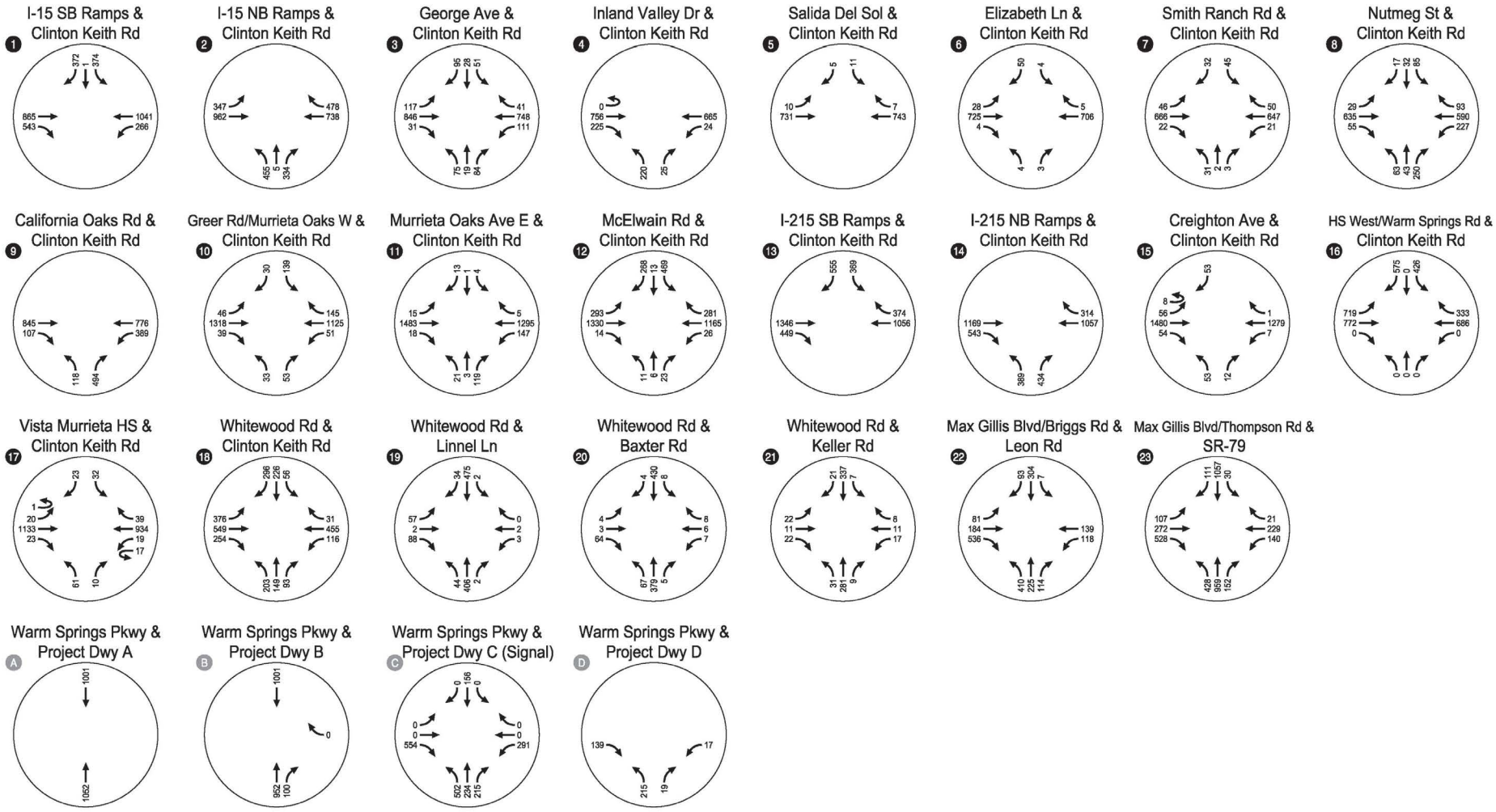
FIGURE 4.13-13

Year 2021 Project Completion Traffic Volumes with Creighton Avenue Access, Weekday PM Peak Hour

Costco/Vineyard Phase II Retail Development Project, City of Murrieta, California

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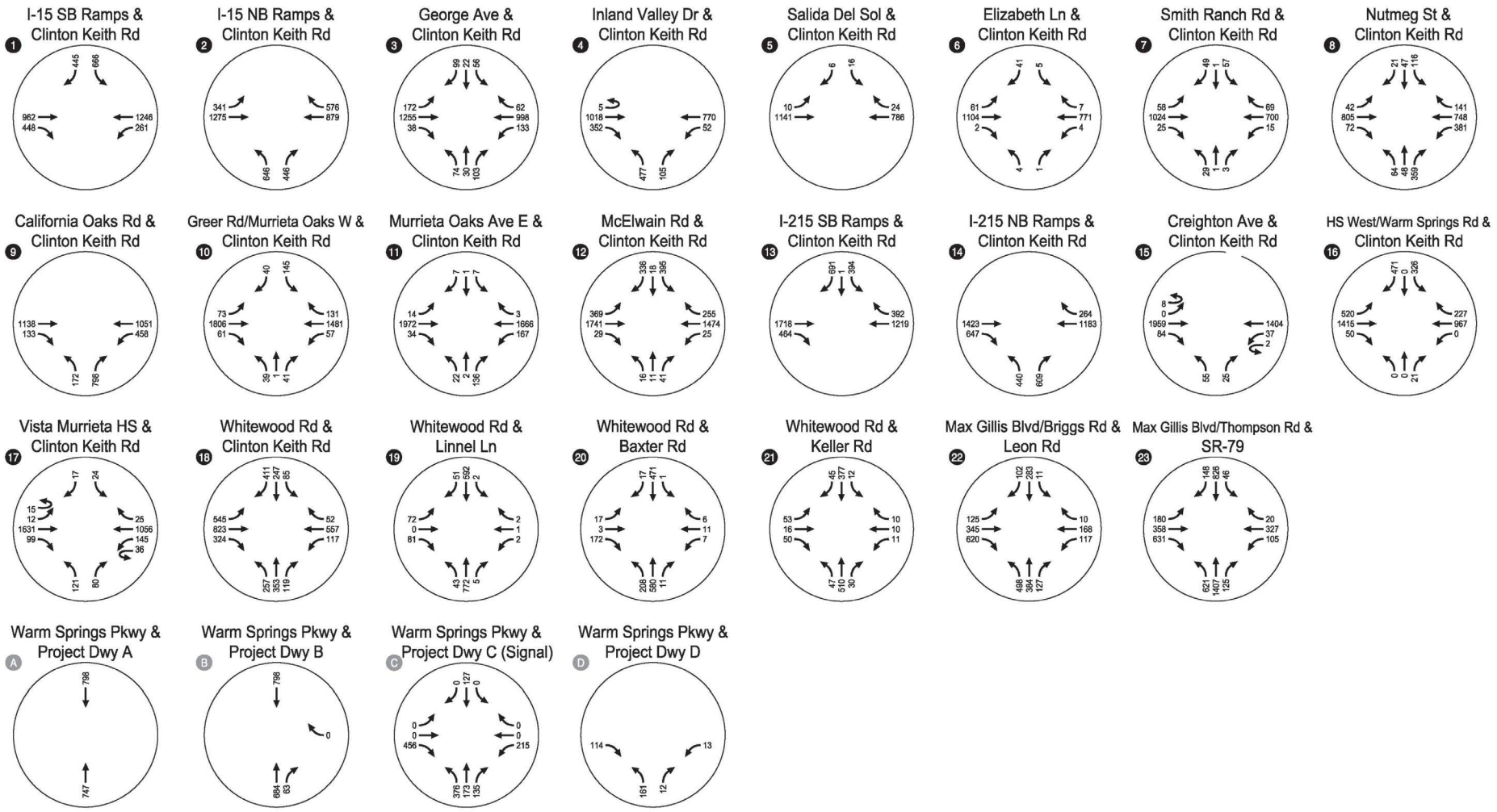
FIGURE 4.13-14

Year 2021 Project Completion Traffic Volumes with Creighton Avenue Access, Saturday Midday Peak Hour

Costco/Vineyard Phase II Retail Development Project, City of Murrieta, California

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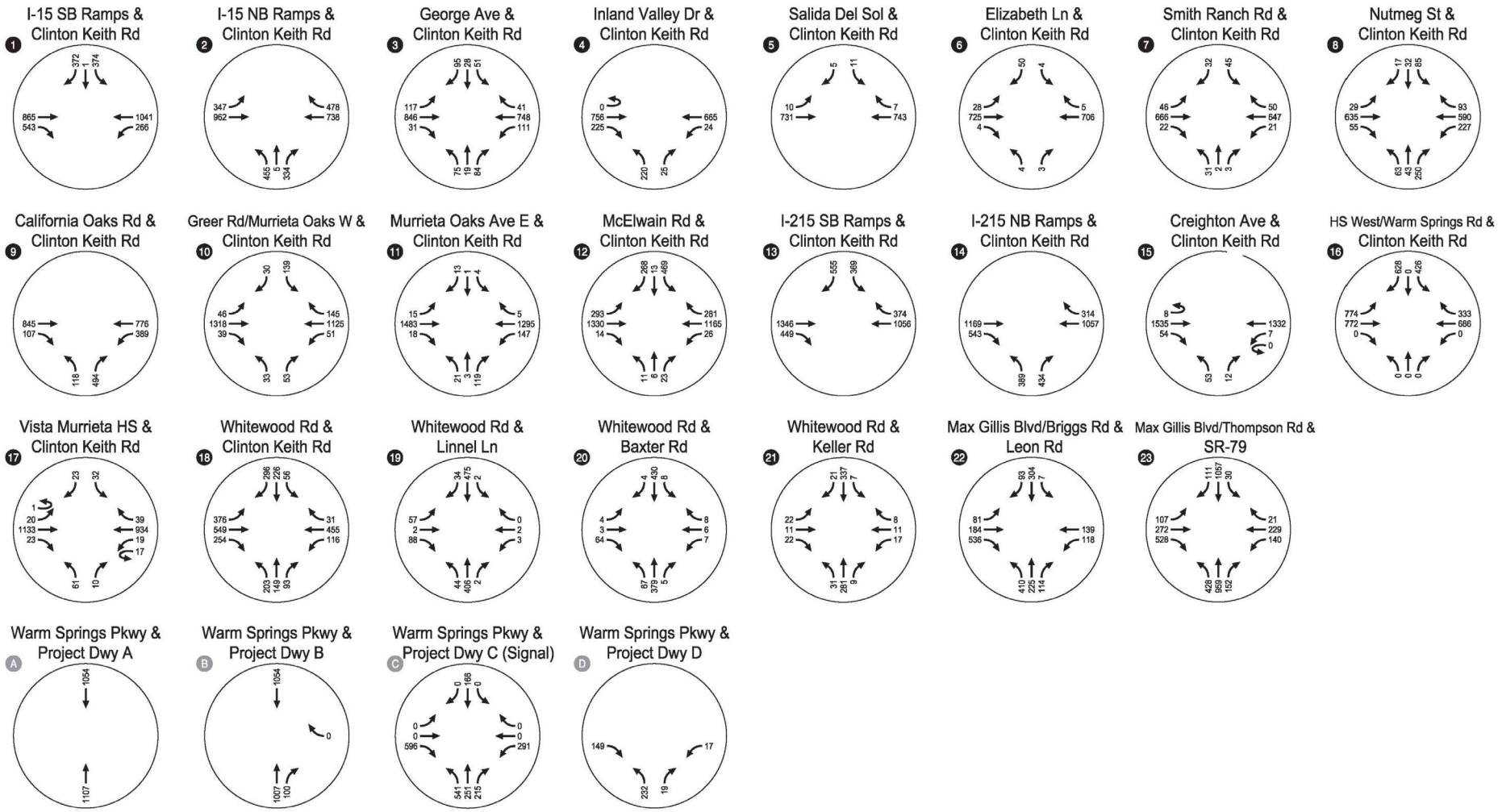
FIGURE 4.13-15

Year 2021 Project Completion Traffic Volumes without Creighton Avenue Access, Weekday PM Peak Hour

Costco/Vineyard Phase II Retail Development Project, City of Murrieta, California

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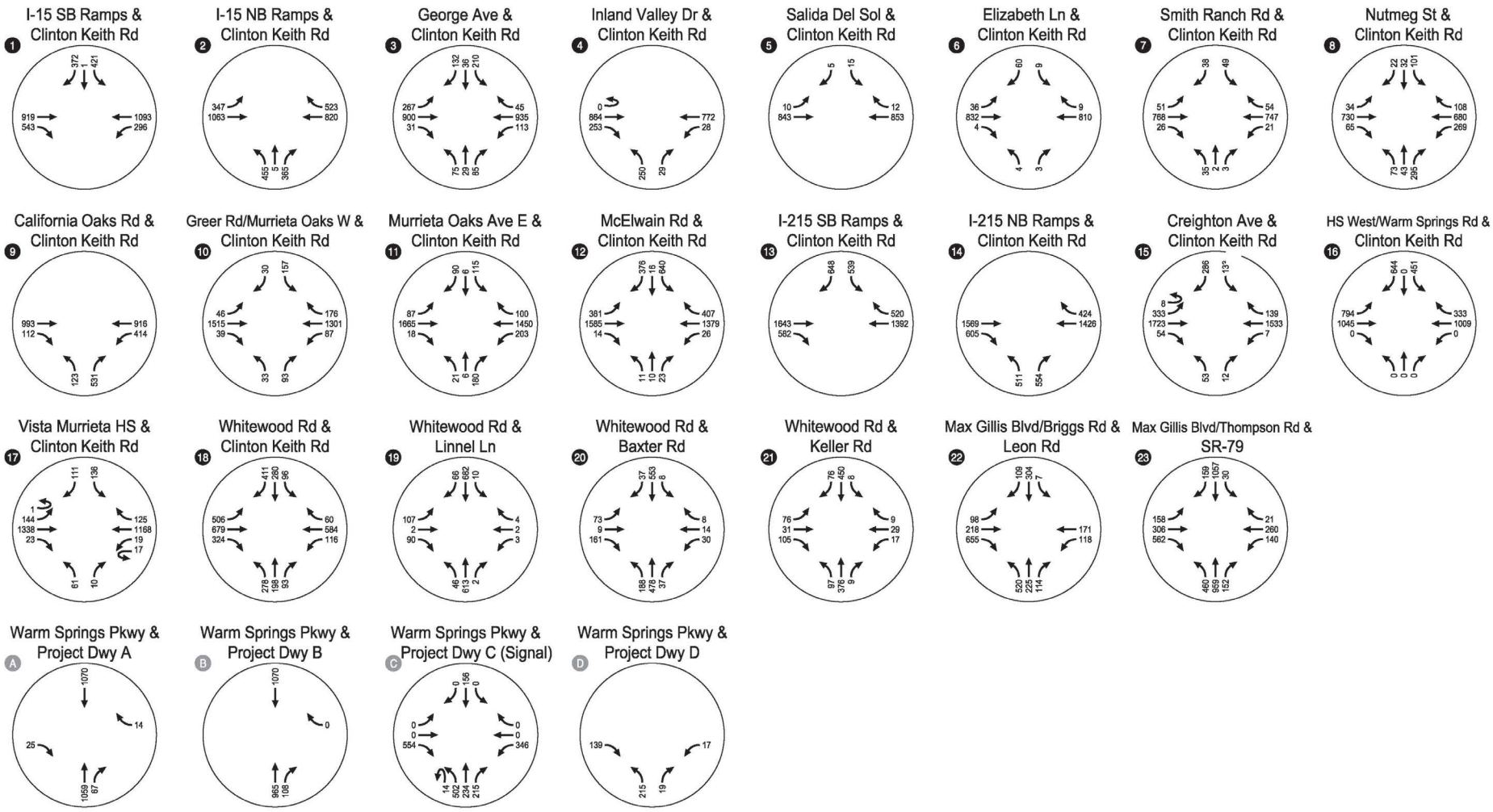
FIGURE 4.13-16

Year 2021 Project Completion Traffic Volumes without Creighton Avenue Access, Saturday Midday Peak Hour

Costco/Vineyard Phase II Retail Development Project, City of Murrieta, California

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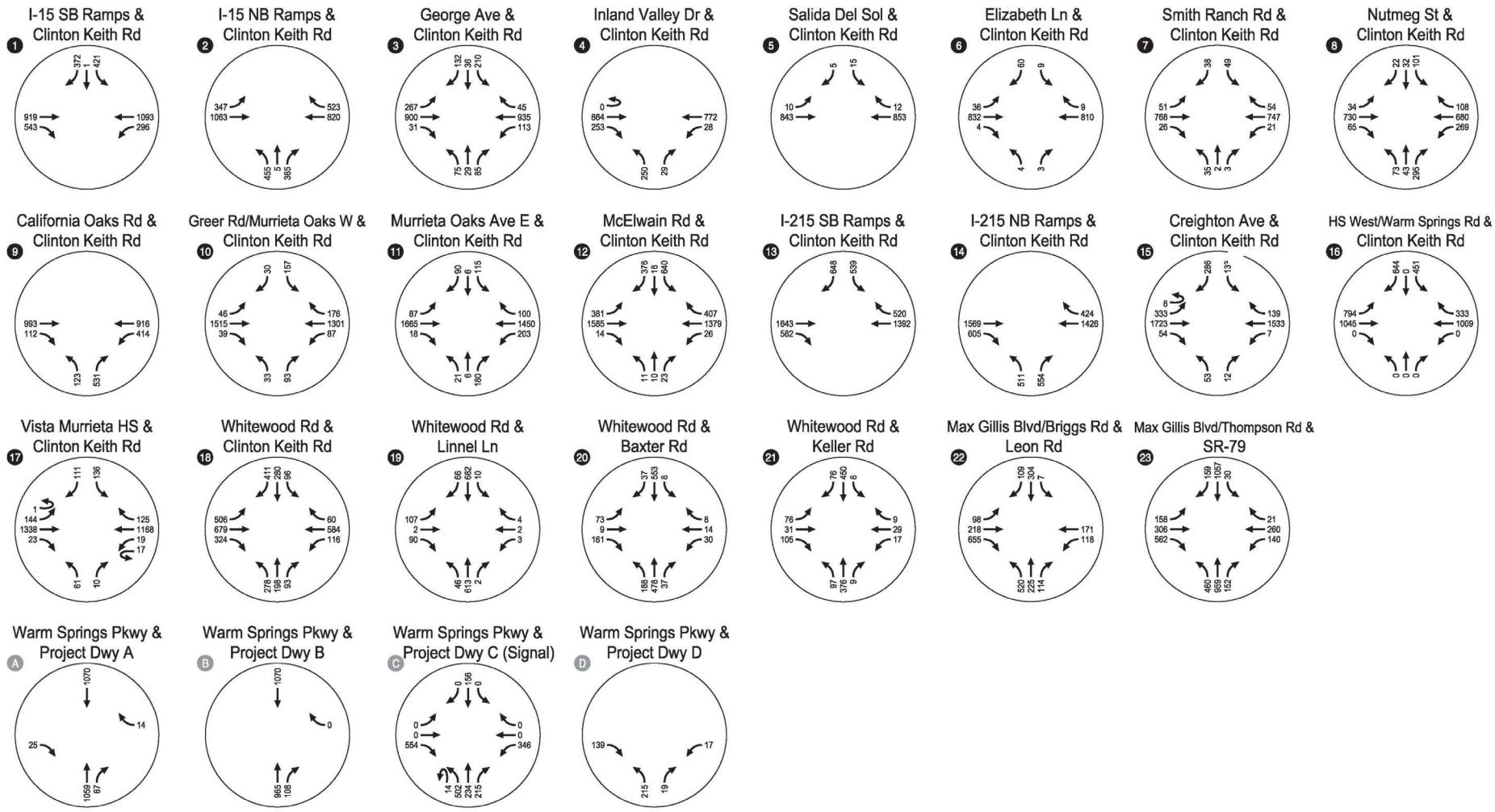
FIGURE 4.13-17

Year 2021 Cumulative Traffic Volumes with Creighton Avenue Access, Weekday PM Peak Hour

Costco/Vineyard Phase II Retail Development Project, City of Murrieta, California

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SOURCE: Kittelson & Associates

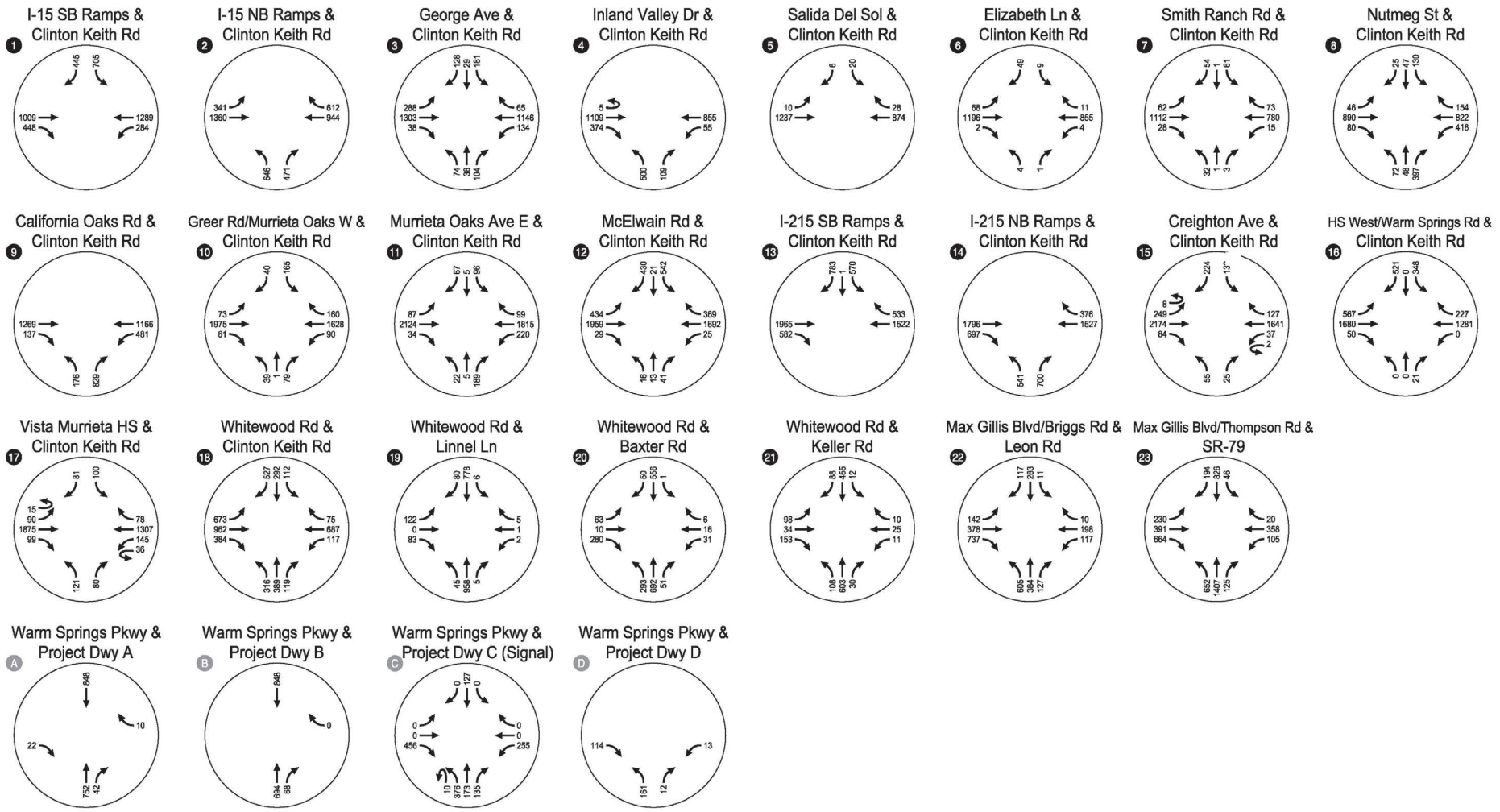
FIGURE 4.13-18

Year 2021 Cumulative Traffic Volumes with Creighton Avenue Access, Saturday Midday Peak Hour

Costco/Vineyard Phase II Retail Development Project, City of Murrieta, California

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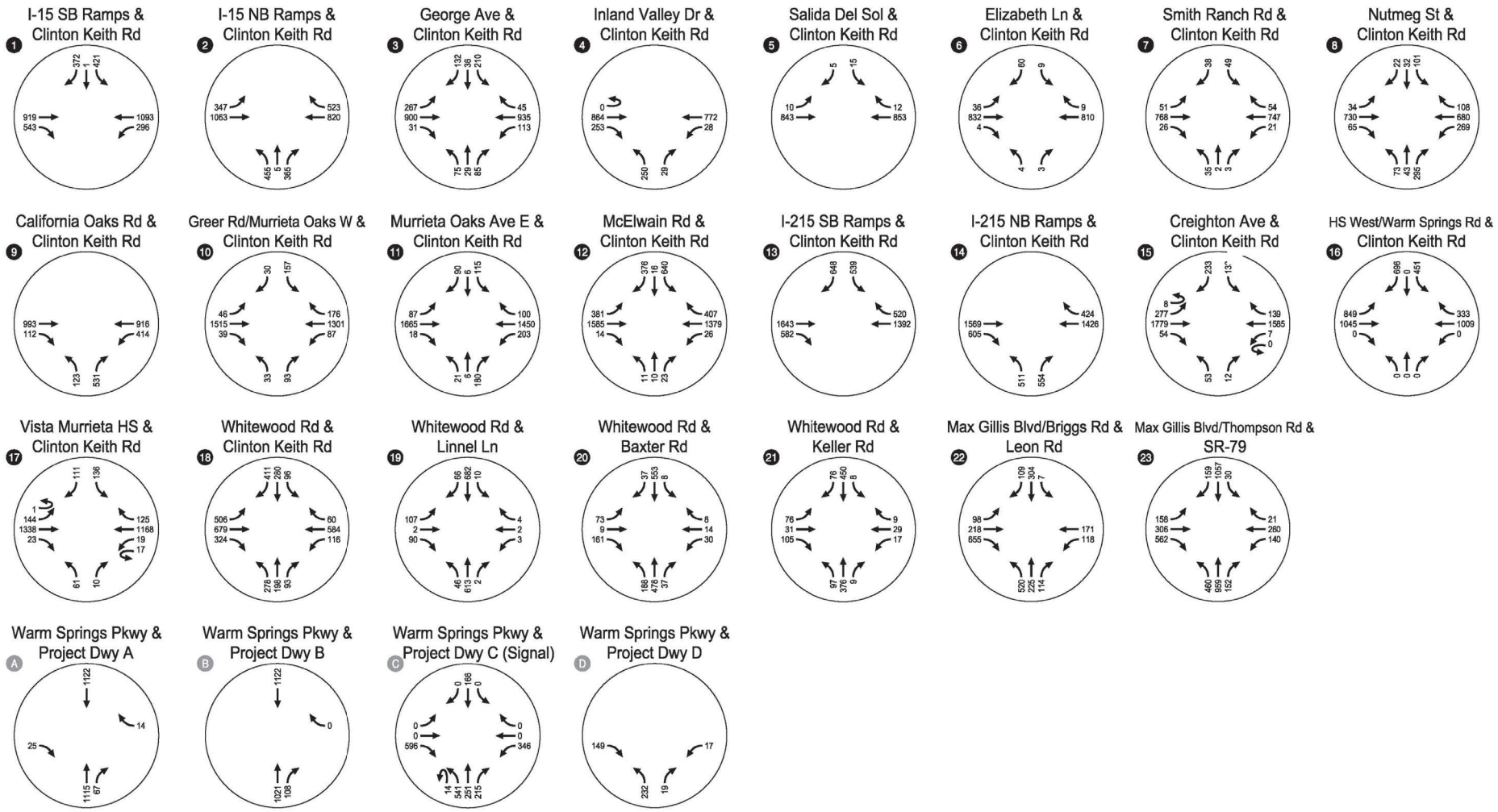
FIGURE 4.13-19

Year 2021 Cumulative Traffic Volumes without Creighton Avenue Access, Weekday PM Peak Hour

Costco/Vineyard Phase II Retail Development Project, City of Murrieta, California

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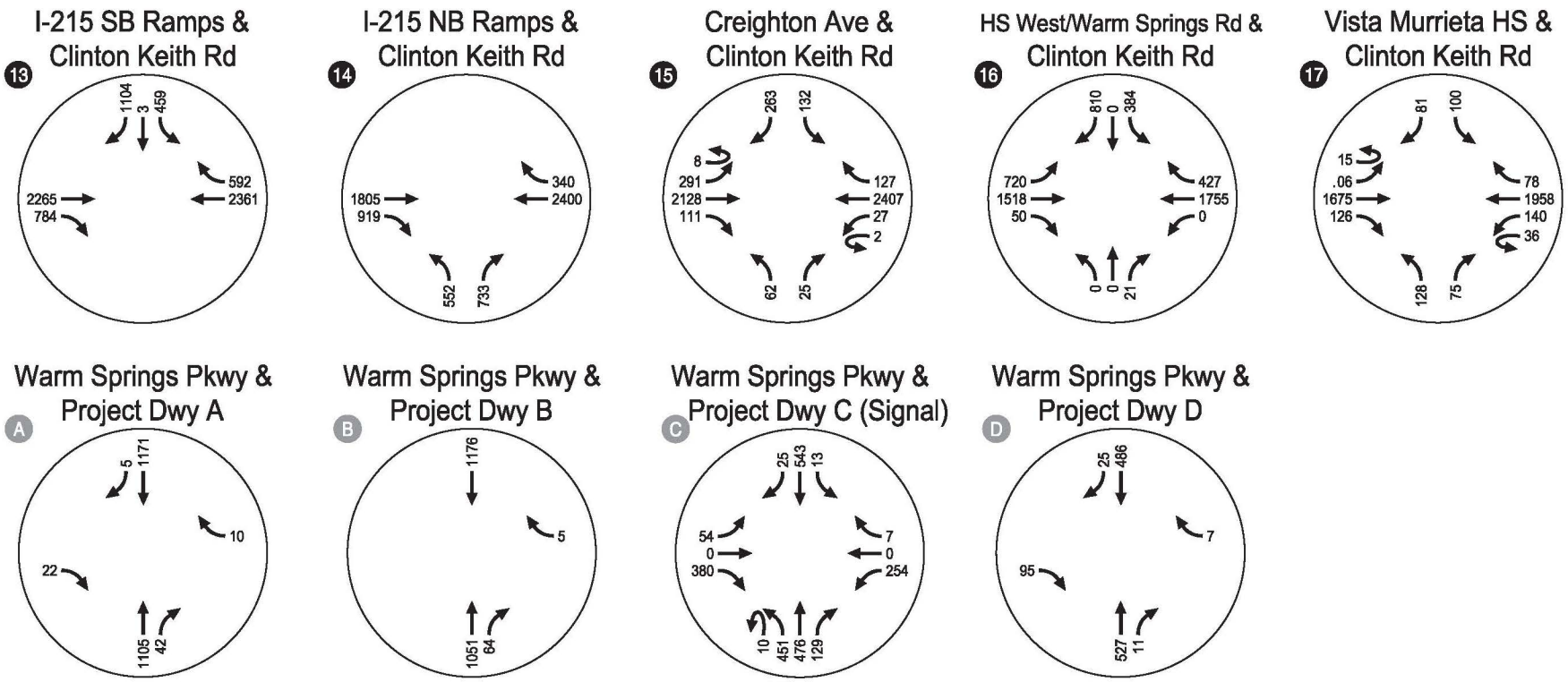
FIGURE 4.13-20

Year 2021 Cumulative Traffic Volumes without Creighton Avenue Access, Saturday Midday Peak Hour

Costco/Vineyard Phase II Retail Development Project, City of Murrieta, California

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SOURCE: Kittelson & Associates

FIGURE 4.13-21

Year 2035 Cumulative Traffic Volumes, Weekday PM Peak Hour

Costco/Vineyard Phase II Retail Development Project, City of Murrieta, California

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4.14 Tribal Cultural Resources

This section describes the existing tribal cultural resources of the Costco/Vineyard II Retail Development Project (project) site, identifies associated regulatory requirements, evaluates potential impacts, and identifies mitigation measures related to implementation of the project. The following analysis is based in part on the Cultural Resources Inventory Report, included as Appendix D of this Environmental Impact Report.

4.14.1 Existing Conditions

As discussed in Section 4.4, Cultural Resources, a Cultural Resources Inventory Report (Appendix D) was completed for the project to identify all previously recorded cultural resources within the project site and within a 1-mile (1,608-meter) buffer area (study area). The report (Appendix D) documents the results of a California Historical Resources Information System (CHRIS) records search, a Native American Heritage Commission (NAHC) Sacred Lands File (SLF) search, informal tribal outreach, and an intensive-level pedestrian survey.

The records search identified 65 previous cultural resources technical investigations that have been conducted within the study area, and 57 previously recorded resources within the study area; none of these resources were identified within or overlapping with the project site. As further discussed below, an NAHC SLF search returned positive results for the presence of Native American cultural resources in the study area.

Native American Heritage Commission Sacred Lands File Search and Tribal Correspondence

On June 5, 2018, Dudek contacted the NAHC to request a review of the SLF. The NAHC replied through email on June 6, 2018, stating that the SLF search was completed with positive results and indicated that Native American cultural resources or sacred sites may be located within the 1-mile record search area. The NAHC provided a list of 37 Native American individuals and/or tribal organizations who may have direct knowledge of cultural resources in or near the project site (see Appendix D, Table 3). Subsequent outreach letters were sent to all 37 Native American individuals and/or tribal organizations. This outreach was conducted for informational purposes only, and does not constitute formal government-to-government consultation.

Assembly Bill 52 Consultation

Under Assembly Bill (AB) 52, a tribal cultural resource must have tangible, geographically defined properties that can be impacted by project implementation. The proposed project is subject to compliance with AB 52.

On September 4, 2018, the City of Murrieta (City) sent notification of the proposed project to all California Native American tribal representatives that have requested project notifications from the City pursuant to AB 52 and that are on file with the NAHC as being traditionally or culturally affiliated with the geographic area. Specifically, notification letters were sent to five tribes: the Soboba Band of Luiseño Indians, the Agua Caliente Band of Cahuilla Indians, the Rincon Band of Mission Indians, the Pechanga Band of Luiseño Indians, and the Morongo Band of Mission Indians. The letters included a project map, a project description, and a statement informing the tribes that the notification letter was provided to initiate AB 52 consultation. AB 52 allows tribes 30 days after receiving notification to request consultation. If a response is not received within the allotted 30 days, it is assumed that consultation is declined. To date, government-to-government consultation initiated by the City has occurred with the three tribes that requested consultation in accordance with the AB 52 consultation process: the Rincon Band of Mission Indians, the Pechanga Band of Luiseño Indians, and the Soboba Band of Luiseño Indians. Table 4.14-1 summarizes the results of the AB 52 consultation for the proposed project.

Table 4.14-1. Assembly Bill 52 Native American Tribal Outreach Results

Native American Tribal Representatives	Method of Consultation	Results
Destiny Colocho, Rincon Band	Certified Mail sent September 4, 2018; conference call on November 2, 2018; follow-up emails.	Response received via email from tribal representative Destiny Colocho indicating that the project site is within the tribe's area of historic interest and requesting formal consultation. The City sent a copy of the Cultural Resources Report, an aerial photo of the project site, and a copy of the Geotechnical Report for their review. Upon review of the information provided and the number of recorded cultural sites within 1 mile of the project site, the tribe recommended archaeological and tribal monitoring for ground-breaking activities that take place below the currently disturbed/graded areas. Consultation concluded on November 19, 2018.
Ebru Ozdil, Pechanga Band	Certified Mail sent September 4, 2018; conference call on November 1, 2018; follow-up emails	Response received via email and U.S. Postal Service from tribal representative Ebru Ozdil indicating that the project is within the tribe's historic territory and requesting formal consultation. The tribe requested to review the archaeological, geotechnical, and conceptual grading plans. The City sent a copy of the Cultural Resources Report, an aerial photo of the project site, and a copy of the Geotechnical Report for their review. After multiple attempts to contact the Pechanga Band of Luiseño Indians, the City did not receive a response to emails/phone calls/letters requesting to meet. A final letter requesting to contact the City to consult was sent on January 11, 2019, with an end date of January 31, 2019. The City did not receive any response and consultation was concluded.
Joseph Ontiveros, Soboba Band	Certified Mail; sent September 4, 2018; conference call on October 25, 2018; follow-up emails	Response received via U.S. Postal Service on October 8, 2018, from tribal representative Joseph Ontiveros requesting formal consultation. The City sent a copy of the Cultural Resources Report, an aerial photo of the project site, and a copy of the Geotechnical Report for their review. Upon review of the information provided, the tribe recommended tribal monitoring of grading activities. Draft mitigation measures were provided for the tribe's review. Consultation concluded on August 27, 2019, with consensus regarding mitigation measures as identified in Section 4.14.5.
Lacy Padilla, Agua Caliente Band of Cahuilla Indians	Email response, November 21, 2018	No consultation requested.
Travis Armstrong, Morongo Band of Mission Indians	Email response, November 19, 2018	No consultation requested.

4.14.2 Relevant Plans, Policies, and Ordinances

State

California Public Resources Code

California Public Resources Code (PRC), Sections 5097–5097.6, provide that the unauthorized disturbance or removal of archaeological, historical, or paleontological resources located on public lands is a misdemeanor. These sections prohibit the knowing destruction of objects of antiquity without a permit (express permission) on public lands, and provide for criminal sanctions. This section was amended in 1987 to require consultation with the NAHC whenever Native American graves are found. Violations that involve taking or possessing remains or artifacts are felonies.

PRC Section 5097.5(a) states that "A person shall not knowingly and willfully excavate upon, or remove, destroy, injure, or deface, any historic or prehistoric ruins, burial grounds, archaeological or vertebrate paleontological site, including fossilized footprints, inscriptions made by human agency, rock art, or any other archaeological, paleontological or historical feature, situated on public lands, except with the express permission of the public agency having jurisdiction over the lands."

California Register of Historical Resources

In California, the term "historical resource" includes, but is not limited to, "any object, building, structure, site, area, place, record, or manuscript which is historically or archaeologically significant, or is significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California" (PRC Section 5020.1[j]). In 1992, the California legislature established the California Register of Historical Resources (CRHR) "to be used by state and local agencies, private groups, and citizens to identify the state's historical resources and to indicate what properties are to be protected, to the extent prudent and feasible, from substantial adverse change" (PRC Section 5024.1[a]). The criteria for listing resources on the CRHR were expressly developed to be in accordance with previously established criteria developed for listing in the National Register of Historic Places (NRHP), enumerated below. According to PRC Section 5024.1(c)(1–4) and 14 CCR 4852(c), a resource may be listed as a historical resource in the California Register if it (i) retains "sufficient integrity," and (ii) meets at least one of the following criteria:

1. Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage.
2. Is associated with the lives of persons important in our past.
3. Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values.
4. Has yielded, or may be likely to yield, information important in prehistory or history.

In order to understand the historic importance of a resource, sufficient time must have passed to obtain a scholarly perspective on the events or individuals associated with the resource. A resource less than 50 years old may be considered for listing in the CRHR if it can be demonstrated that sufficient time has passed to understand its historical importance (see 14 CCR 4852[d][2]).

The CRHR protects cultural resources by requiring evaluations of the significance of prehistoric and historic resources. The criteria for the CRHR are nearly identical to those for the NRHP, and properties listed or formally designated as eligible for listing in the NRHP are automatically listed in the CRHR, as are the state landmarks and points of interest. The CRHR also includes properties designated under local ordinances or identified through local historical resource surveys.

California Environmental Quality Act

The following California Environmental Quality Act (CEQA) Statute (PRC Section 21000 et seq.) and Guidelines (14 CCR 15000 et seq.) are of relevance to the analysis of archaeological, historic, and tribal cultural resources:

- PRC Section 21083.2(g) defines "unique archaeological resource."
- PRC Section 21084.1 and CEQA Guidelines Section 15064.5(a) define "historical resources." In addition, CEQA Guidelines Section 15064.5(b) defines the phrase "substantial adverse change in the significance of an historical resource;" it also defines the circumstances when a project would materially impair the significance of a historical resource.
- PRC Section 21074(a) defines "tribal cultural resources."
- PRC Section 5097.98 and CEQA Guidelines Section 15064.5(e) set forth standards and steps to be employed following the accidental discovery of human remains in any location other than a dedicated cemetery.
- PRC Sections 21083.2(b) and 21083.2(c) and CEQA Guidelines Section 15126.4 provide information regarding the mitigation framework for archaeological and historic resources, including examples of preservation-in-place mitigation measures. Preservation in place is the preferred manner of mitigating impacts to significant archaeological sites because it maintains the relationship between artifacts and the archaeological context, and may also help avoid conflict with religious or cultural values of groups associated with the archaeological site(s).

More specifically, under CEQA, a project may have a significant effect on the environment if it may cause "a substantial adverse change in the significance of an historical resource" (PRC Section 21084.1; 14 CCR 15064.5[b]). If a site is listed or eligible for listing in the CRHR, or included in a local register of historic resources, or identified as significant in a historical resources survey (meeting the requirements of PRC Section 5024.1[g]), it is a "historical resource" and is presumed to be historically or culturally significant for purposes of CEQA (PRC Section 21084.1; 14 CCR 15064.5[a]). The lead agency is not precluded from determining that a resource is a historical resource even if it does not fall within this presumption (PRC Section 21084.1; 14 CCR 15064.5[a]).

A "substantial adverse change in the significance of an historical resource" reflecting a significant effect under CEQA means "physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of an historical resource would be materially impaired" (14 CCR 15064.5[b][1]; see also PRC Section 5020.1[q]). In turn, the significance of a historical resource is materially impaired when a project does any of the following (14 CCR 15064.5[b][2]):

(A) Demolishes or materially alters in an adverse manner those physical characteristics of an historical resource that convey its historical significance and that justify its inclusion in, or eligibility for, inclusion in the California Register of Historical Resources; or

(B) Demolishes or materially alters in an adverse manner those physical characteristics that account for its inclusion in a local register of historical resources pursuant to section 5020.1(k) of the Public Resources Code or its identification in an historical resources survey meeting the requirements of section 5024.1(g)

of the Public Resources Code, unless the public agency reviewing the effects of the project establishes by a preponderance of evidence that the resource is not historically or culturally significant; or

(C) Demolishes or materially alters in an adverse manner those physical characteristics of a historical resource that convey its historical significance and that justify its eligibility for inclusion in the California Register of Historical Resources as determined by a lead agency for purposes of CEQA.

Pursuant to these sections, the CEQA inquiry begins with evaluating whether a project site contains any "historical resources," then evaluates whether that project would cause a substantial adverse change in the significance of a historical resource such that the resource's historical significance is materially impaired.

If it can be demonstrated that a project would cause damage to a unique archaeological resource, the lead agency may require reasonable efforts be made to permit any or all of these resources to be preserved in place or left in an undisturbed state. To the extent that they cannot be left undisturbed, mitigation measures are required (PRC Sections 21083.2[a]–[c]).

PRC Section 21083.2(g) defines a unique archaeological resource as an archaeological artifact, object, or site about which it can be clearly demonstrated that without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:

1. Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information.
2. Has a special and particular quality such as being the oldest of its type or the best available example of its type.
3. Is directly associated with a scientifically recognized important prehistoric or historic event or person.

Impacts on non-unique archaeological resources are generally not considered a significant environmental impact (PRC Section 21083.2[a]; 14 CCR 15064.5[c][4]). However, if a non-unique archaeological resource qualifies as a tribal cultural resource (PRC Sections 21074[c], 21083.2[h]), further consideration of significant impacts is required.

CEQA Guidelines Section 15064.5 assigns special importance to human remains and specifies procedures to be used when Native American remains are discovered. As described in this section, these procedures are detailed in PRC Section 5097.98.

California State Assembly Bill 52

AB 52 (2014) amended PRC Section 5097.94 and added PRC Sections 21073, 21074, 21080.3.1, 21080.3.2, 21082.3, 21083.09, 21084.2, and 21084.3. AB 52 established that tribal cultural resources must be considered under CEQA and also provided for additional Native American consultation requirements for the lead agency. Section 21074 describes a tribal cultural resource as a site, feature, place, cultural landscape, sacred place, or object that is considered of cultural value to a California Native American Tribe and that is either:

- On or determined to be eligible for the CRHR or a local historic register; or
- A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in CEQA Guidelines Section 5024.1(c).

AB 52 formalizes the lead agency–tribal consultation process, requiring the lead agency to initiate consultation with California Native American groups that are traditionally and culturally affiliated with the project site, including tribes that may not be federally recognized. Lead agencies are required to begin consultation prior to the release of a negative declaration, mitigated negative declaration, or environmental impact report.

Section 1(a)(9) of AB 52 establishes that "a substantial adverse change to a tribal cultural resource has a significant effect on the environment." Effects on tribal cultural resources should be considered under CEQA. Section 6 of AB 52 adds Section 21080.3.2 to the PRC, which states that parties may propose mitigation measures "capable of avoiding or substantially lessening potential significant impacts to a tribal cultural resource or alternatives that would avoid significant impacts to a tribal cultural resource." Further, if a California Native American tribe requests consultation regarding project alternatives, mitigation measures, or significant effects to tribal cultural resources, the consultation shall include those topics (PRC Section 21080.3.2[a]). The environmental document and the mitigation monitoring and reporting program (where applicable) shall include any mitigation measures that are adopted (PRC Section 21082.3[a]).

California Health and Safety Code Section 7050.5

California law protects Native American burials, skeletal remains, and associated grave goods, regardless of their antiquity, and provides for the sensitive treatment and disposition of those remains. Section 7050.5 of the California Health and Safety Code requires that if human remains are discovered in any place other than a dedicated cemetery, no further disturbance or excavation of the site or nearby area reasonably suspected to contain human remains shall occur until the county coroner has examined the remains (Section 7050.5[b]). PRC Section 5097.98 outlines the process to be followed in the event that remains are discovered. If the coroner determines or has reason to believe the remains are those of a Native American, the coroner must contact NAHC within 24 hours (Section 7050.5[c]). NAHC will notify the "most likely descendant." With the permission of the landowner, the most likely descendant may inspect the site of discovery. The inspection must be completed within 48 hours of notification of the most likely descendant by NAHC. The most likely descendant may recommend means of treating or disposing of, with appropriate dignity, the human remains and items associated with Native Americans.

Local

City of Murrieta General Plan

The City's General Plan Conservation Element provides direction regarding the conservation, development, and utilization of natural and cultural resources. The following goal and policies from the Conservation Element related to cultural resources may be applicable to the project with regard to tribal cultural resources (City of Murrieta 2011).

Goal CSV-11 Murrieta protects, enhances, and celebrates archaeological, cultural, and historic resources as a way to foster community identity.

Policy CSV-11.1 Promote the protection and preservation of archaeological, cultural, historical, and architecturally significant sites, structures, districts, Native American resources, and natural features throughout the community, consistent with the Cultural Resource Preservation Ordinance. Preferred methods of protection include avoidance of impacts, placing resources in

designated open space and allocation of local resources and/or tax credits as feasible.

Policy CSV-11.2 Encourage appropriate adaptive reuse of historic structures and sites.

Policy CSV-11.3 Promote the designation of eligible resources to the City Register of Cultural Resources, the County Landmarks Program, or other regional, state, or federal programs.

Policy CSV-11.4 Encourage the development of programs to educate the community about Murrieta's historic resources and involve the community in historic preservation.

Policy CSV-11.5 Comply with state and federal law regarding the identification and protection of archaeological and Native American resources, and consult early with the appropriate tribal governments.

Policy CSV-11.6 Investigate the feasibility of establishing a museum or other repository to archive and display Murrieta's archaeological resources.

Policy CSV-11.7 Maintain the position of archivist/historian at the Murrieta Public Library, and promote the Library's Heritage Room as a repository for historical information about the Murrieta area.

Policy CSV-11.8 Promote the use of historic elements in City parks and public places.

Policy CSV-11.9 Exercise sensitivity and respect for all human remains, including cremations, and comply with all applicable state and federal laws regulating human remains.

4.14.3 Thresholds of Significance

The significance criteria used to evaluate the project impacts to tribal cultural resources are based on Appendix G of the CEQA Guidelines. According to Appendix G of the CEQA Guidelines, a significant impact related to tribal cultural resources would occur if the project would:

1. Cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:
   a. Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or
   b. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.

4.14.4 Impacts Analysis

Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:

a. Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k)?

Less than Significant Impact. A Cultural Resources Inventory Report (Appendix D) was prepared for the proposed project, documenting the results of a CHRIS records search conducted at the EIC for the project site and a 1-mile (1,608 meters) buffer, an NAHC SLF search, informal tribal consultation, and an intensive-level pedestrian survey. The CHRIS records search identified 57 previously recorded cultural resources within the 1-mile search radius; none of these resources were identified within the project site. No historical resources listed or eligible for listing in the CRHR or in a local register of historic resources were identified during this search.

In an SLF results letter dated June 6, 2018, the NAHC stated that the SLF search was completed with positive results for the presence of Native American cultural resources and suggested contacting the Native American individuals and/or tribal organizations who may have direct knowledge of cultural resources in or near the project site (see Appendix D, Table 3). Informal outreach letters were sent to the 37 Native American individuals and/or tribal organizations suggested by the NAHC. Further, the City conducted formal AB 52 consultation (see response to 4.14.4[b] below for further details on this process). No specific tribal cultural resources were identified by California Native American tribes as part of the City's AB 52 notification and consultation process.

Therefore, no historical resources listed or eligible for listing in the CRHR or in a local register of historic resources were identified during informal or formal consultation with the tribes by the City as a result of the CHRIS records search, the NAHC SLF search, or the intensive-level pedestrian survey. The project would result in a less-than-significant impact to tribal cultural resources listed or eligible for listing in the CRHR, or in a local register of historical resources as defined in PRC Section 5020.1(k).

b. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe?

Less than Significant with Mitigation Incorporated. There are no resources in the project area that have been determined by the City to be significant pursuant to the criteria set forth in PRC Section 5024.1. Further, no specific tribal cultural resources were identified in the project area by the NAHC through the SLF search or by the City as part of the AB 52 notification and consultation process. Informal outreach letters were sent to the Native American individuals and/or tribal organizations suggested by the NAHC, and in September 2018, the City sent notification of the proposed project to all California Native American tribal representatives that requested project notifications pursuant to AB 52. As indicated in Table 4.14-1, five California Native American tribal representatives requested to receive notifications from the City pursuant to AB 52: the Soboba Band of Luiseño Indians, the Agua Caliente Band of Cahuilla

Indians, Rincon Band of Mission Indians, the Pechanga Band of Luiseño Indians, and the Morongo Band of Mission Indians. Three responses were received by the City and government-to-government consultation initiated by the City has occurred with these three tribes, which include the Rincon Band of Mission Indians, the Pechanga Band of Luiseño Indians, and the Soboba Band of Luiseño Indians. The results of the AB 52 consultation for the proposed project are summarized below and in Table 4.14-1.

- Rincon Band of Luiseño Indians – On October 5, 2018, the City received a response letter from tribal representative Destiny Colocho requesting formal consultation. The City sent the Cultural Resources Report, the Geotechnical Report, and an aerial showing the project site and boundaries. On November 2, 2018, the City consulted with the tribe via a conference call with Destiny Colocho. Upon review of project materials and recorded cultural sites in the project vicinity, the tribe recommended archaeological and tribal monitoring for all ground-breaking activities below the currently disturbed or graded areas. Consultation concluded on November 19, 2018.
- Pechanga Band of Luiseño Indians – On September 20, 2018, the City received a response letter from tribal representative Ebru Ozdil requesting formal consultation. The City followed up with a conference call on November 1, 2018, with tribal representative Ebru Ozdil, and sent the Cultural Resources Report, the Geotechnical Report, and an aerial showing the project site and boundaries. The City did not receive further response after multiple attempts to contact the tribe. A final letter requesting that the tribe contact the City was sent on January 11, 2019, with an end date of January 31, 2019. The City did not receive a response and consultation was concluded.
- Soboba Band of Luiseño Indians – On October 8, 2018, the City received a response letter from tribal representative Joseph Ontiveros requesting formal consultation. The City sent the Cultural Resources Report, the Geotechnical Report, and an aerial showing the project site and boundaries. On October 25, 2018, the City consulted with the tribe via a conference call with Joseph Ontiveros. Upon review of the information provided, the tribe recommended tribal monitoring of grading activities. Through consultation, agreement on proposed draft mitigation measures was reached, and consultation was concluded on August 27, 2019.

It is possible that items of tribal significance could be uncovered during earthwork activities; thus, mitigation measures were developed in consultation with the consulting tribes. Adherence to **Mitigation Measure (MM) TCR-1** through **MM-TCR-5** would reduce impacts to tribal cultural resources to less than significant.

4.14.5 Mitigation Measures

The project would be required to comply with the following mitigation measures:

MM-TCR-1 The project permittee/owner shall retain a Riverside County-certified archaeological monitor to monitor all ground-disturbing activities in an effort to identify any unknown cultural resources. Prior to grading, the project permittee/owner shall provide to the City of Murrieta verification that a certified archaeological monitor has been retained. Any newly discovered cultural resource deposits shall be subject to a cultural resources evaluation.

MM-TCR-2 *Archaeological Monitoring:* At least 30 days prior to grading permit issuance and before any grading, excavation, and/or ground-disturbing activities on the site take place, the project permittee/owner shall retain a Riverside County-certified archaeological monitor to monitor all ground-disturbing activities in an effort to identify any unknown archaeological resources.

The Project Archaeologist, in consultation with consulting tribes, the permittee/owner, and the City of Murrieta, shall develop an Archaeological Monitoring Plan to address the details, timing, and responsibility of all archaeological and cultural monitoring activities that will occur on the project site during construction. Details in the plan shall include:

a) Project grading and development scheduling;

The development of a schedule in coordination with the permittee/owner and the Project Archaeologist for designated Native American Tribal Monitors from the consulting tribes during grading, excavation and ground-disturbing activities on the site: including the scheduling, safety requirements, duties, scope of work, and Native American Tribal Monitors' authority to stop and redirect grading activities in coordination with all project archaeologists; and,

The protocols and stipulations that the permittee/owner, City of Murrieta, tribes, and Project Archaeologist will follow in the event of inadvertent cultural resources discoveries, including any newly discovered cultural resource deposits that shall be subject to a cultural resources evaluation.

A final report documenting the monitoring activity and disposition of any recovered cultural resources shall be submitted to the City of Murrieta, Eastern Information Center and the consulting tribe within 60 days of completion of monitoring.

MM-TCR-3 *Native American Monitoring:* Native American Tribal monitors shall also participate in monitoring of ground-disturbing activity. At least 30 days prior to issuance of grading permits, agreement(s) between the permittee/owner and the consulting tribe(s) shall be developed regarding tribal monitoring requirements and treatment of Tribal Cultural Resources so as to meet the requirements of the California Environmental Quality Act. The monitoring agreement shall address the treatment of known Tribal Cultural Resources; the designation, responsibilities, and participation of designated Tribal monitors during grading, excavation, and ground-disturbing activities; project grading and development scheduling.

MM-TCR-4 *Disposition of Cultural Resources:* In the event that tribal cultural resources are discovered during the course of grading for this project, one or more of the following treatments, in order of preference, shall be employed with the tribes. Evidence of such shall be submitted to the City of Murrieta Planning Department:

1. Preservation in place means avoiding the resources, leaving them in the place where they were found with no development affecting the integrity of the resource.
2. On-site reburial of the discovered items as detailed in the Monitoring Plan required pursuant to MM-TCR-2. This shall include measures and provisions to protect the future reburial area from any future impacts in perpetuity. Reburial shall not occur until all legally required cataloging and basic recordation have been completed. No recordation of sacred items is permitted without the written consent of all Consulting Native American Tribal Governments.

3. The permittee/owner shall relinquish ownership of all cultural resources, including sacred items, burial goods, and all archaeological artifacts and non-human remains as part of the required mitigation for impacts to cultural resources, and adhere to the following:

A curation agreement with an appropriate qualified repository within Riverside County that meets federal standards per Title 36 Code of Federal Regulations 800 Part 79 and therefore would be curated and made available to other archaeologists/researchers for further study. The collections and associated records shall be transferred, including title, to an appropriate curation facility within Riverside County, to be accompanied by payment of the fees necessary for permanent curation.

At the completion of grading, excavation, and ground-disturbing activities on site, a Phase IV Monitoring Report shall be submitted to the City of Murrieta documenting monitoring activities conducted by the Project Archaeologist and Native American Tribal Monitors within 60 days of completion of grading. This report shall document the impacts to the known resources on the property; describe how each mitigation measure was fulfilled; document the type of cultural resources recovered and the disposition of such resources; provide evidence of the required cultural sensitivity training for the construction staff held during the required pre-grade meeting; and, in a confidential appendix, include the daily/weekly monitoring notes from the archaeologist. All reports produced will be submitted to the City of Murrieta, Eastern Information Center and Consulting Tribes.

MM-TCR-5 ***Human remains:*** If human remains are encountered, California Health and Safety Code Section 7050.5 states that no further disturbance shall occur until the Riverside County Coroner has made the necessary findings as to origin. Further, pursuant to California Public Resources Code, Section 5097.98(b), remains shall be left in place and free from disturbance until a final decision as to the treatment and disposition has been made. If the Riverside County Coroner determines the remains to be Native American, the Native American Heritage Commission must be contacted within 24 hours. The Native American Heritage Commission must then immediately identify the "most likely descendants(s)" for purposes of receiving notification of discovery. The most likely descendant(s) shall then make recommendations within 48 hours and engage in consultation concerning the treatment of the remains as provided in California Public Resources Code, Section 5097.98.

4.14.6 Level of Significance After Mitigation

MM-TCR-1 through **MM-TCR-5** listed in Section 4.14.5, Mitigation Measures, would reduce potential impacts to tribal cultural resources to a less-than-significant level.

4.14.7 Cumulative Impacts

Cumulative impacts on tribal cultural resources evaluate whether impacts of the project and related projects, when taken as a whole, substantially diminish the number of tribal cultural resources within the same or similar context or property type. As discussed throughout this section, the project could have potentially significant impacts to unknown tribal cultural resources, and mitigation would be required to reduce adverse impacts to less than significant. It is anticipated that tribal cultural resources that are potentially affected by related projects would be subject to the same requirements of CEQA as the project, and that the project applicants would mitigate for their impacts, if applicable. These determinations would be made on a case-by-case basis, and the effects of cumulative

development on cultural resources would be mitigated to the extent feasible in accordance with CEQA and other applicable legal requirements. Therefore, the proposed project would not contribute to a cumulatively considerable impact associated with tribal cultural resources and cumulative impacts would be less than significant.

4.14.8 References Cited

City of Murrieta. 2011. *Murrieta General Plan 2035*. Accessed August 2018. https://www.murrietaca.gov/departments/planning/general.asp.

4.15 Utilities and Service Systems

This section describes the existing utilities setting of the project site, identifies associated regulatory requirements, evaluates potential impacts, and identifies mitigation measures related to implementation of the proposed Costco/Vineyard II Retail Development Project (project). This analysis was completed, in part, based on a Master Water Study (Appendix J-1) and a Master Sewer Study (Appendix J-2), which were prepared to assist Eastern Municipal Water District (EMWD) in its evaluation of impacts of the proposed project and the immediately adjacent projects (i.e., Vineyard I and Vineyard III [also referred to as the "related projects" for the purposes of this analysis]) on water and sewer infrastructure in the vicinity of the project site. Additionally, this analysis is in part based on a Design Conditions Plan (formerly referred to as a Plan of Service) (EMWD 2019a) prepared by EMWD for the proposed project and related projects, which incorporates the Master Water Study and Master Sewer Study. Lastly, this analysis references two project-specific water quality management plans (Appendices G-3 and G-4).

4.15.1 Existing Conditions

Wastewater

Sewer System

Eastern Municipal Water District

The proposed project would be in EMWD's service area for sewer services. EMWD wastewater collection systems include 1,534 miles of gravity sewer, 53 lift stations, and 4 regional water reclamation facilities (RWRFs) that treat municipal sewage and produce water for recycling, with interconnections between local collection systems serving each treatment plant. The four RWRFs—San Jacinto Valley, Moreno Valley, Temecula Valley, and Perris Valley—are spread throughout EMWD's service area. While the majority of the project's wastewater would be treated at the Perris Valley RWRF, interconnections between the local collections systems serving each treatment plant allow system operators to route wastewater to other RWRFs for operational flexibility and improved reliability. As presented in Table 4.15-1, in fiscal year 2018/2019, the Perris Valley RWRF treated 15,468 acre-feet of wastewater and has a current capacity of 24,600 acre-feet per year (AFY) (EMWD 2020). In total, the four RWRFs treated 50,439 acre-feet of wastewater flows in fiscal year 2018/2019 and have a combined capacity to treat up to 84,100 acre-feet of wastewater flows per year (EMWD 2020).

Table 4.15-1. EMWD Treatment Facilities – Capacity and Flow

Treatment Plant	Level of Treatment	Flow in Fiscal Year 2018/2019 (AFY)	Capacity (AFY)	Ultimate Capacity (AFY)
San Jacinto Valley RWRF	Secondary	6,725	15,700	30,300
Moreno Valley RWRF	Tertiary	12,554	17,900	46,000
Perris Valley RWRF	Tertiary	15,468	24,700	112,000
Temecula Valley RWRF	Tertiary	15,692	25,800	31,400
	Total	**50,439**	**84,100**	**219,700**

Source: EMWD 2020.
Notes: AFY = acre-feet per year; RWRF = regional water reclamation facility.

Project Vicinity

Within the immediate project vicinity, there is an existing 12-inch gravity sewer line located within Clinton Keith Road. As part of the Vineyard I project, an 8-inch gravity sewer line would be constructed within the future Warm Springs Parkway, which would be extended further within Warm Springs Parkway as part of the project. Upon final build-out, wastewater from the project site would be conveyed by the future 8-inch gravity sewer line into the existing 12-inch gravity sewer line in Clinton Keith Road. The 12-inch gravity sewer line within Clinton Keith Road eventually flows to a 15-inch gravity sewer line in Whitewood Road, which in turn eventually flows to the Perris Valley RWRF.

Water

Eastern Municipal Water District

Water connection services within the City of Murrieta (City) are provided by four water districts: Rancho California Water District, Elsinore Valley Municipal Water District, Western Municipal Water District, and EMWD. The project site is within the service boundary of EMWD. EMWD serves a 555-square-mile service area in western Riverside County (County) and in most areas provides retail water and sewer service. EMWD also provides wholesale and retail water service to multiple subagencies including the Rancho California Water District.

As stated in EMWD's 2015 UWMP (revised 2016) (EMWD UWMP), EMWD has four sources of water supply: imported water from Metropolitan Water District of Southern California (MWD), local groundwater, desalinated groundwater, and recycled water. Delivery points for each source of water are located throughout the EMWD service area. Potable imported water is treated and delivered to EMWD directly from MWD's two large filtration plants. The Henry J. Mills (Mills) Water Treatment Plant treats water from Northern California and provides it to EMWD through two connection points located in the northeast portion of EMWD's service area. The Robert F. Skinner (Skinner) Water Treatment Plant treats a blend of Colorado River water and water from Northern California and provides it to EMWD through a connection point in the southwest portion of EMWD's service area. EMWD owns and operates two microfiltration plants that filter raw imported water delivered through MWD, removing particulate contaminants to achieve potable water standards. The two treatment plants—the Perris Water Filtration Plant and the Hemet Water Filtration Plant—are located in Perris and Hemet, respectively. Raw water from MWD is also used for groundwater replenishment in the eastern part of EMWD. EMWD and others can extract this water at a later date for beneficial uses. Untreated water from MWD used for agricultural purposes is delivered in the northeast for use by EMWD retail and wholesale accounts and in the south for Rancho California Water District agricultural accounts. EMWD produces potable and brackish groundwater from the San Jacinto Groundwater Basin that underlies the EMWD service area. Groundwater wells are mostly located within the San Jacinto Watershed and serve the northern portion of EMWD, with the largest amount of production taking place around the cities of Hemet and San Jacinto. EMWD owns and operates two desalination plants in Sun City—the Menifee Desalter and the Perris I Desalter—which treat brackish groundwater through reverse osmosis to achieve potable water standards. In addition to the potable system, EMWD maintains a regional recycled water system that provides tertiary-treated recycled water to customers for agricultural, landscape irrigation, environmental, and industrial use. EMWD's recycled water system consists of four regional RWRFs that treat municipal sewage and produce water for recycling. As stated in the EMWD UWMP, EMWD's recycled water distribution system includes 135 miles of large diameter transmission pipelines, 6,000 acre-feet of surface storage reservoirs (10 separate sites), and 4 regional pumping plants.

EMWD's UWMP includes plans for provision of water (including drought scenarios) for EMWD's service area. The plan uses regional population, land use plans, and projections of future growth as the basis of planning for future water supply and demonstrating compliance with state water conservation goals and policies. To track new developments, EMWD

updates a geographic information system database that tracks proposed development quarterly. While EMWD is constantly updating its water supply portfolio and developing local resources to meet future demand, it comprehensively updates its UWMP on a 5-year basis to include all new land use patterns and development.

According to the EMWD UWMP, EMWD has the supply needed to meet current and projected water demands through 2040 during normal, historic single-dry, and historic multiple-dry year periods. The conclusion is based on the assurances of MWD that it would be able to supply member agency demands; the reliability of local groundwater supplies achieved through groundwater management plans; and the development of recycled water resources. Therefore, according to the MWD UWMP and the EMWD UWMP, there is available water to meet all of the region's anticipated demand, even in historic single-dry, and historic multiple-dry years, as shown in Table 4.15-2.

Table 4.15-2. Supply and Demand Comparison (Acre-Feet per Year)

Supply and Demand		2020	2025	2030	2035	2040
Average Year (Retail and Wholesale Combined)						
Supply totals		197,901	218,700	235,800	252,600	268,200
Demand totals		197,901	218,700	235,800	252,600	268,200
Difference		0	0	0	0	0
Historic Single-Dry Year (Retail and Wholesale Combined)						
Supply totals		224,800	248,600	268,100	287,200	305,000
Demand totals		224,800	248,600	268,100	287,200	305,000
Difference		0	0	0	0	0
Historic Multiple-Dry Years Scenario (Retail and Wholesale Combined)						
First Year	Supply totals	224,800	248,600	268,100	287,200	305,000
	Demand totals	224,800	248,600	268,100	287,200	305,000
	Difference	0	0	0	0	0
Second Year	Supply totals	191,000	210,100	225,600		244000
	Demand totals	191,000	210,100	225,600		244000
	Difference	0	0	0	0	0
Third Year	Supply totals	201,500	220,100	236,200	251,500	266600
	Demand totals	201,500	220,100	236,200	251,500	266600
	Difference	0	0	0	0	0

Source: EMWD 2016.

Recycled water production and sales reduce the demand for imported water and provide a sustainable supply. EMWD's continued investment in improved facilities will continue to grow the market for recycled water, and innovative planning and recycled water management will allow EMWD's recycled water supply to bring an even greater benefit to the service area. In addition to the development of local resources, EMWD promotes the efficient use of water. Through the implementation of local ordinances, conservation programs, and an innovative tiered pricing structure, EMWD is reducing demand by retail accounts. Reducing demand allows existing and proposed water supplies to stretch farther and reduces the potential for water supply shortage (EMWD 2016).

While Policy INF-2.3 of the Murrieta General Plan 2035 states that it is a policy of the City to require installation of recycled water systems for landscaping unless there is an exemption from the applicable water district, EMWD has determined that the project is not a candidate for recycled water due to the absence of recycled water infrastructure within the project area (EMWD 2019a).

Project Vicinity

Within the immediate project vicinity, there is an existing 18-inch water line located within Clinton Keith Road. As part of the Vineyard I project, a 12-inch water line would be constructed within the future Warm Springs Parkway, which would be extended further within Warm Springs Parkway as part of the project. Upon final build-out, the project site would receive water from this future 12-inch water line within Warm Springs Parkway by way of the 18-inch wastewater line within Clinton Keith Road.

Stormwater

Surface runoff from the project site flows toward a network of improved and natural streams, storm channels, storm drains, and catch basins. These facilities are maintained by the Riverside County Flood Control and Water Conservation District and the City. Regional master-planned facilities are owned and maintained by the Riverside County Flood Control and Water Conservation District, and all non-master-planned facilities are maintained by the City. The drainage facilities in the vicinity of the project site flow to Warm Springs Creek through tributary creeks, including south-trending Stone Creek, approximately 1,200 feet west of the site, and a southeast-trending creek approximately 1,500 feet northeast of the project site. Warm Springs Creek in turn flows into Murrieta Creek approximately 5 miles south of the project site. Murrieta Creek extends approximately 14 miles to the Santa Margarita River, which eventually drains to the Pacific Ocean. Both Warm Springs and Murrieta Creeks remain in a semi-natural state, with areas of substantial native vegetation occurring along portions of each.

To minimize detrimental effects of stormwater pollution, the City implements a Stormwater Management Plan that identifies methods to reduce potential stormwater runoff and the contribution of pollutants to the storm drain system from industrial, commercial, residential, and municipal sources (City of Murrieta 2011a).

Project Vicinity

Within the immediate project vicinity, there are three existing off-site storm drains that currently receive stormwater runoff from the project site. The points at which these storm drains begin (i.e., where runoff from the project site is collected) are individually marked as Point of Compliance (POC) A, POC-B, and POC-C on Figure 3-5, Proposed Storm Drain System. POC-A marks the beginning of a 24-inch storm drain located within the intersection of Clinton Keith Road and the vacated Antelope Road, southwest of the project site. Stormwater flows are collected via catch basins and conveyed west into a storm drain line within Interstate 215. POC-B marks the beginning of a 48-inch storm drain located southeast of the project site, along the eastern border of the Vineyard I site. Stormwater flows are collected via a culvert and conveyed east through the adjacent residential development. POC-C marks the beginning of a 36-inch storm drain line located at the eastern terminus of Cape Aire Way. Stormwater flows are collected via a catch basin with grates and are conveyed east through the adjacent residential development.

As part of the project, an 18-inch off-site storm drain line would be installed underground from the project site's southwestern terminus towards POC-A, and a 24-inch off-site storm drain line would be installed underground from the project site's northeastern terminus towards POC-C. As part of the Vineyard I development, drainage improvements would be made along the Vineyard I site's eastern boundary such that stormwater flows discharged from the project site's southwestern bio-retention basin could be conveyed south towards POC-C without the need for additional off-site improvements.

Solid Waste

Solid Waste Collection and Disposal Systems

The collection, transport, and disposal of solid waste and recyclables from business uses in the City are provided by Waste Management Incorporated. The majority of solid waste generated within the City for construction and operation is disposed of at El Sobrante Landfill (Ramaiya, pers. comm. 2019). The El Sobrante Landfill is located midway between Lake Elsinore and Corona along Interstate 15. Badlands Sanitary Landfill and Lamb Canyon Landfill also dispose of a portion of the City's solid waste. These three landfills have a combined remaining capacity of 161 million tons, as detailed in Table 4.15-3.

Table 4.15-3. Existing Landfills

Landfill	Location	Estimated Close Date	Maximum Permitted Daily Load (tons/day)	Maximum Permitted Capacity (cubic yards)	Current Remaining Capacity (cubic yards)
El Sobrante Landfill	10910 Dawson Canyon Road Corona, California	2051	16,054	209.9 million	143.9 million as of April 2018
Badlands Landfill	31125 Ironwood Avenue Moreno Valley, California	2022[1]	4,800	34.4 million	15.7 million as of January 2015
Lamb Canyon Landfill	16411 Lamb Canyon Road (SR-79) San Jacinto, California	2029	5,000	38.9 million	19.2 million as of January 2015
		Total	**25,854**	**283.2 million**	**178.8 million**

Sources: CalRecycle 2019a, 2019b, 2019c.
Note: The Riverside County Department of Waste Resources is currently in the planning process of expanding the disposal footprint from 150 acres to 396 acres (in multiple stages), thereby providing an additional 50 years of landfill capacity (RCDWR 2019).

Electric Power

Southern California Edison (SCE) provides electricity to the project. SCE, a subsidiary of Edison International, serves approximately 180 cities in 11 counties across central and Southern California. According to the California Public Utilities Commission (CPUC), approximately 84 billion kilowatt-hours of electricity were used in SCE's service area in 2017. Demand forecasts anticipate that approximately 75 billion kilowatt-hours of electricity will be used in SCE's service area in 2020 (CPUC 2018). In 2017, the non-residential electricity demand was 8,346,000 megawatt-hours for the County (ECDMS 2019).

SCE receives electric power from a variety of sources. According to CPUC's 2018 California Renewables Portfolio Standard Annual Report, 32% of SCE's power came from eligible renewables, such as biomass/waste, geothermal, small hydroelectric, solar, and wind sources (CPUC 2018). The California Energy Commission estimates that about 29% of the state's electricity retail sales in 2017 came from renewable energy (ECDMS 2019). The California Renewables Portfolio Standard (RPS) Program establishes a goal for California to increase the amount of electricity generated from renewable energy resources to 20% by 2010, and to 33% by 2020. Recent legislation revised the current RPS target for California to obtain 50% of total retail electricity sales from renewable sources by 2030, with interim targets of 40% by 2024, and 45% by 2027 (CPUC 2016).

The City is served by a total of three existing substations, with the substation serving the project site being the Auld Substation, located east of the project site at the southwest intersection of Clinton Keith Road (SCE 2020a). The Auld Substation transforms an incoming 115-kilovolt (kV) electrical current into a 12 kV current, which is distributed to the substation's end users via a network of underground and aboveground electrical lines. The Auld Substation has a total generation capacity of 35.19 megawatts (MW), and currently generates 31.77 MW.

In order to ensure to ensure projected supply meets demand, SCE tracks planned development and coordinates with the California Independent System Operator. The California Independent System Operator is an independent grid operator that manages the flow of electricity across 80% of California (including the project site). Every 5 minutes, the California Independent System Operator forecasts electrical demand and dispatches the lowest cost generator to meet demand while ensuring enough transmission capacity for delivery of power.

Project Vicinity

Within the immediate vicinity of the project site, existing 12 kV electrical lines are located within Clinton Keith Road and the portion of Antelope Road south of Linnel Lane to the project's northern boundary.

SCE has determined that portions of its existing infrastructure serving the project area are near or at their operating limits, and SCE is in the planning process to construct improvements in the area to maintain sufficient capacity for system reliability (SCE 2020b). SCE has initiated the process to expand transmission in the general project area. Notably, the Valley South Subtransmission Line Project, which will serve the project area, has been approved and is under construction.

The Valley South Subtransmission Project will upgrade the existing electrical infrastructure in the project area and improve overall electrical reliability. Construction of this transmission project is anticipated to be completed in late 2020. Upon completion, the Valley South Subtransmission Project would add electric capacity to serve long-term forecasted electrical demand requirements in the "electrical needs area" of Menifee, Murrieta (including the project site), Temecula, Wildomar, and portions of unincorporated communities of southwestern Riverside County.

The Valley Ivyglen Subtransmission Line Project and the Fogarty Substation Project are other approved SCE projects under construction that will increase the capacity of SCE's system in the greater project area. SCE will continue to monitor development in the greater project area, and will plan for other expanded transmission projects as needed. Any potential impacts associated with construction of other additional future transmission facilities (if needed) will be analyzed in accordance with CEQA by the CPUC, which is the lead agency tasked with approval of projects involving construction of investor-owned utilities infrastructure.

Natural Gas

Natural gas service is provided by the Southern California Gas Company (SoCalGas). The territory serviced by SoCalGas encompasses approximately 20,000 square miles and more than 500 communities. In the California Energy Demand mid-energy demand scenario, natural gas demand is projected to have an annual growth rate of 0.03% in SoCalGas's service territory. As of 2017, approximately 7.2 billion therms were used in SoCalGas's service area per year, or 19.7 million therms per day. At project build-out (2021), natural gas demand is anticipated to be approximately 7.9 billion therms per year, or 21.6 million therms per day, in SoCalGas's service area (CEC 2018b). The total capacity of natural gas available to SoCalGas in 2016 is estimated to have been 3.9 billion cubic feet per day. In 2021, the total capacity available is also estimated to be 3.9 billion cubic feet per day[1] (California Gas and

[1] One cubic foot of natural gas has approximately 1,020 BTUs of natural gas or 1.02 kBTUs of natural gas.

Electric Utilities 2016). This amount is approximately equivalent to 3.98 billion thousand British thermal units (kBTU) per day, 39.8 million therms per day. Over the course of a year, the available capacity would therefore be 14.5 billion therms per year, which is well above the existing and future anticipated natural gas demand in the area serviced by SoCalGas.

Project Vicinity

Within the immediate vicinity of the project site, there is an existing 6-inch gas line located within Clinton Keith Road (Excel Engineering 2019). As part of the Vineyard I project, this line would be extended within the future Warm Springs Parkway, and would be extended further within Warm Springs Parkway as part of the project. Upon final build-out, the project site would receive gas from this future gas line within Warm Springs Parkway.

Telecommunications

There are a number of service providers in the City that provide telecommunications services (i.e., landline phone service, internet service, and cable television service), including Frontier Communications and Time Warner Cable. These companies are private companies that provide connections to their communication systems on an as-needed basis, and maintain existing infrastructure in the vicinity of the project site. Telecommunication services to the project site would be provided by Frontier Communications (landline phone service and internet service) and Time Warner Cable (cable television service).

Project Vicinity

Within the immediate vicinity of the project site, Frontier Communications maintains an existing telephone line within Clinton Keith Road, and Time Warner Cable maintains an existing cable television line within Clinton Keith Road and within Antelope Road. As part of the Vineyard I project, the Frontier telephone line would be extended within the future Warm Springs Parkway, and as part of the proposed project it would be extended further within Warm Springs Parkway. The Time Warner Cable television line would be extended onto the project laterally from Antelope Road.

4.15.2 Relevant Plans, Policies, and Ordinances

Federal

Clean Water Act

In 1972, the federal Water Pollution Control Act (Clean Water Act [CWA]) was amended to prohibit the discharge of pollutants to navigable waters of the United States unless the discharge is in compliance with a National Pollutant Discharge Elimination System (NPDES) permit. The CWA focused on tracking point sources, primarily from wastewater treatment facilities and industrial waste dischargers, and required implementation of control measures to minimize pollutant discharges. The CWA was amended again in 1987, adding Section 402(p), to provide a framework for regulating municipal and industrial stormwater discharges. In November 1990, the U.S. Environmental Protection Agency published final regulations that establish application requirements for specific categories of industries, including construction projects that encompass 5 acres or more of land. The Phase II Rule became final in December 1999, expanding regulated construction sites to those 1 acre or larger. The regulations require that stormwater and non-stormwater runoff associated with construction activity that discharges either directly to surface waters or indirectly through Municipal Separate Storm Sewer Systems must be regulated by an NPDES permit.

National Pollutant Discharge Elimination System

The City is under the jurisdiction of the San Diego Regional Water Quality Control Board (RWQCB) Region 9, which implements the NPDES permit for San Diego, Imperial, and Riverside Counties. The Municipal NPDES permit, a requirement under the CWA, addresses pollution from urban runoff that impacts water quality of receiving waters (such as streams and lakes). Under the NPDES permit, developers must implement measures to reduce urban runoff during all phases of development: planning, construction, and existing uses. Requirements include incorporating best management practices (BMPs) to reduce runoff from construction and current uses, reporting any violations to the San Diego RWQCB, and education regarding the negative water quality impacts of urban runoff.

Resource Conservation and Recovery Act

The Resource Conservation and Recovery Act (40 CFR 268, Subpart D) contains regulations for municipal solid waste landfills and requires states to implement their own permitting programs that include federal landfill criteria. The federal regulations address the location, operation, design, and closure of landfills, as well as groundwater monitoring requirements.

State

Porter-Cologne Water Quality Control Act

In the State of California, the State Water Resources Control Board (SWRCB) and nine RWQCBs are responsible for implementing the CWA and the California Porter-Cologne Water Quality Control Act (Porter-Cologne Act). The Porter-Cologne Act authorizes the SWRCB to implement programs to control polluted discharges into state waters. In compliance with the Porter-Cologne Act, the nine RWQCBs establish the wastewater concentrations of a number of specific hazardous substances in treated wastewater discharge.

Sanitary Sewer General Waste Discharge Requirements

On May 2, 2006, the SWRCB adopted a General Waste Discharge Requirement (Order No. 2006-0003) for all publicly owned sanitary sewer collection systems in California with more than 1 mile of sewer pipe. The order provides a consistent statewide approach to reducing sanitary sewer overflows by requiring public sewer system operators to take all feasible steps to control the volume of waste discharged into the system in order to prevent sanitary sewer waste from entering the storm sewer system, and to develop a sewer system management plan. The General Waste Discharge Requirement also requires that storm sewer overflows be reported to the SWRCB using an online reporting system. EMWD's most recent sewer system management plan was approved by EMWD's Board of Directors in 2019 (EMWD 2019b). The sewer system management plan provides EMWD staff with an operational plan to safely operate its wastewater treatment system, and includes protocols to satisfy state regulatory requirements.

Senate Bill 610 and Senate Bill 221: Water Supply Assessments

Senate Bills (SB) 610 and 221, amended into state law effective January 1, 2002, require the linkage between certain land use decisions made by cities and counties and water supply availability. The statutes require detailed information regarding water availability and reliability with respect to certain developments to be included in the administrative record to serve as evidentiary basis for an approval action by the city or county on such projects. Under SB 610, a water supply assessment must be furnished to the local government for inclusion in any environmental documentation for certain types of projects, as defined in Water Code Section 10912 [a] and as subject to CEQA. A fundamental source document for compliance with SB 610 is the UWMP. The UWMP can be

used by the water supplier to meet the standard for SB 610. SB 221 applies to the Subdivision Map Act, requiring applicants, per a tentative map, to verify that the public water supplier has sufficient water available to serve the proposed development.

California Code of Regulations Title 24, Part 11

In 2008, the California Building Standards Commission adopted the nation's first green building standards. The California Green Building Standards Code, Part 11 of Title 24, is commonly referred to as CALGreen, and establishes minimum mandatory standards as well as voluntary standards pertaining to the planning and design of sustainable site development, energy efficiency, water conservation, material conservation, and interior air quality. The CALGreen standards took effect in January 2011 and instituted mandatory minimum environmental performance standards for all new construction of residential and nonresidential buildings. CALGreen standards are updated periodically. The latest version (CBSC 2019) became effective on January 1, 2020.

Mandatory CALGreen standards pertaining to water, wastewater, and solid waste include the following (24 CCR Part 11):

- Mandatory reduction in indoor water use through compliance with specified flow rates for plumbing fixtures and fittings.
- Mandatory reduction in outdoor water use through compliance with a local water-efficient landscaping ordinance or the California Department of Water Resources' Model Water Efficient Landscape Ordinance.
- Diversion of 65% of construction and demolition waste from landfills.

California Code of Regulations Title 20

Title 20 of the California Code of Regulations requires manufacturers of appliances to meet state and federal standards for energy and water efficiency. Performance of appliances must be certified through the California Energy Commission to demonstrate compliance with standards. New appliances regulated under Title 20 include, but are not limited to, refrigerators, freezers, air conditioners, dishwashers, clothes washers and dryers, cooking products, televisions, and consumer audio and video equipment. Title 20 presents protocols for testing for each type of appliance covered under the regulations, and appliances must meet the standards for energy performance, energy design, water performance, and water design. Title 20 contains three types of standards for appliances: federal standards for federally regulated appliances, state standards for federally regulated appliances, and state standards for non-federally regulated appliances.

Executive Order B-29-15

In response to the ongoing drought in California, Executive Order (EO) B-29-15 (April 2015) set a goal of achieving a statewide reduction in potable urban water usage of 25% relative to water use in 2013. The term of the EO extended through February 28, 2016, although many of the directives became permanent water-efficiency standards and requirements. The EO includes specific directives that set strict limits on water usage in the state. In response to EO B-29-15, the California Department of Water Resources modified and adopted a revised version of the Model Water Efficient Landscape Ordinance that, among other changes, significantly increases the requirements for landscape water use efficiency and broadens its applicability to include new development projects with smaller landscape areas.

Assembly Bills 939 and 341: Solid Waste Reduction

The California Integrated Waste Management Act of 1989 (Assembly Bill [AB] 939) was enacted as a result of a national crisis in landfill capacity, as well as a broad acceptance of a desired approach to solid waste management of reducing, reusing, and recycling. AB 939 mandated local jurisdictions to meet waste diversion goals of 25% by 1995 and 50% by 2000, and established an integrated framework for program implementation, solid waste planning, and solid waste facility and landfill compliance. AB 939 requires cities and counties to prepare, adopt, and submit to the California Department of Resources Recycling and Recovery (CalRecycle) a source reduction and recycling element to demonstrate how the jurisdiction will meet the diversion goals. Other elements included encouraging resource conservation and considering the effects of waste management operations. The diversion goals and program requirements are implemented through a disposal-based reporting system by local jurisdictions under California Integrated Waste Management Board (CIWMB) regulatory oversight. Since the adoption of AB 939, landfill capacity is no longer considered the statewide crisis it once was. AB 939 has achieved substantial progress in waste diversion, program implementation, solid waste planning, and protection of public health, safety, and the environment from landfill operations and solid waste facilities.

In 2011, AB 341 was passed, requiring CalRecycle to require that local agencies adopt strategies that will enable 75% diversion of all solid waste by 2020.

Assembly Bill 1327: California Solid Waste Reuse and Recycling Access Act of 1991

AB 1327, which was established in 1991, required CalRecycle to develop a model ordinance for the use of recyclable materials in development projects. Local agencies were then required to adopt the model ordinance, or an ordinance of their own, governing adequate areas for collection and loading of recyclable materials in development projects.

Senate Bill 1374: Construction and Demolition Waste Reduction

SB 1374 requires that annual reports submitted by local jurisdictions to CIWMB include a summary of the progress made in diversion of construction and demolition waste materials. In addition, SB 1374 required the CIWMB to adopt a model ordinance suitable for adoption by any local agency that required 50% to 75% diversion of construction and demolition waste materials from landfills by March 1, 2004. Local jurisdictions are not required to adopt their own construction and demolition ordinances, nor are they required to adopt CIWMB's model by default. However, adoption of such an ordinance may be considered by CIWMB when determining whether to impose a fine on a jurisdiction that has failed to implement its Source Reduction and Recycling Element.

Assembly Bill 1826: Mandatory Commercial Organics Recycling

In October 2014, Governor Brown signed AB 1826 Chesbro (Chapter 727, Statutes of 2014), requiring businesses to recycle their organic waste on and after April 1, 2016, depending on the amount of waste generated per week. (Organic waste is defined as food waste, green waste, landscape and pruning waste, nonhazardous wood waste, and food-soiled paper waste that is mixed in with food waste.) This law also requires local jurisdictions across the state to implement an organic waste recycling program to divert organic waste generated by businesses, including multi-family residential dwellings that consists of five or more units. This law phases in the mandatory recycling of commercial organics over time. In particular, the minimum threshold of organic waste generation by businesses decreases over time, which means an increasingly greater proportion of the commercial sector will be required to recycle organic waste.

California Code of Regulations, Titles 14 and 27

Title 14 (Natural Resources, Division 7) and Title 27 (Environmental Protection, Division 2 [Solid Waste]) of the California Code of Regulations govern the handling and disposal of solid waste and operation of landfills, transfer stations, and recycling facilities.

Protection of Underground Infrastructure

California Government Code, Section 4216 et seq., requires an excavator to contact a regional notification center (e.g., Underground Service Alert or Dig Alert) at least 2 days prior to excavation of any subsurface installations. Any utility provider seeking to begin a project that could damage underground infrastructure can call Underground Service Alert Southern California, the regional notification center for Southern California. Underground Service Alert will notify the utilities that may have buried lines within 1,000 feet of a project site. Representatives of the utilities, once notified, are required to mark the specific locations of their facilities within the work area prior to the start of project activities.

Local

Water Quality Control Plans

The Porter-Cologne Act, Section 13000, directs each RWQCB to develop a water quality control plan (Basin Plan) for all areas within its region. The Basin Plan is the basis for each RWQCB's regulatory program. The project site is located within the purview of the San Diego RWQCB, Region 9, and the proposed project must comply with applicable elements of the Basin Plan for Region 9. The Basin Plan gives direction on the beneficial uses of state waters, describes the water quality that must be maintained, and provides programs necessary to achieve the standards established in the Basin Plan.

Stormwater Pollution Prevention Plans

The SWRCB administers the NPDES permit program regulating stormwater from construction activities for projects with a disturbed area of 1 acre or more. The SWRCB has issued a statewide general NPDES permit for stormwater discharges from construction sites (Order No. 2009-0009-DWQ, as amended; NPDES No. CAS000002). Under this Statewide General Construction Activity permit, discharges of stormwater from construction sites with a disturbed area of 1 acre or more are required to either obtain individual NPDES permits for stormwater discharges or be covered by the Statewide General Construction Activity permit. In order to obtain coverage under the Statewide General Construction Activity permit, a Notice of Intent must be filed with the SWRCB, and a stormwater pollution prevention plan must be developed and implemented. The stormwater pollution prevention plan must be prepared prior to ground disturbance and must be implemented during construction. The stormwater pollution prevention plan must also list BMPs to be implemented on the construction site to protect stormwater runoff and must contain a visual monitoring program, a chemical monitoring program, and a monitoring plan if the site discharges directly to a water body listed on the state's list of impaired waters.

EMWD Facilities Master Plan and Capital Improvement Plan Efforts

EMWD addresses its long-term planning efforts through the development of a long-term capital plan, which serves as a fundamental roadmap of required water, recycled water, and water reclamation facilities needed to support the build out of existing jurisdictional general plans throughout its service area. EMWD's Long-Term Capital Plan relies on EMWD's four facilities master plans, which include the Water Facilities Master Plan, Recycled Water Facilities Master Plan, Wastewater Facilities Master Plan, and Regional Water Reclamation Facilities Master Plan.

These four facilities master plans are based on historical and projected demands in the EMWD's service area, and are used to assess EMWD's ability to meet future and current needs, assess the need for system upgrades, and identify future system improvements needed to satisfy current and future user demand. The four facilities master plans are used as the basis for developing a 5-Year, 10-Year, and Build-Out Capital Improvement Program (CIP). Within EMWD's CIPs, EMWD identifies the water, sewer, recycled water, and other infrastructure projects that will be necessary to accommodate future build-out of the jurisdictional General Plans in its service area. Additionally, each year, EMWD updates its CIPs based on the then-current available growth information, which includes a comprehensive list of all development projects in its service area. This process ensures the list of CIP projects needed to accommodate growth are developed just in time, while allowing EMWD to be flexible and responsive to development patterns. CIP projects are subject to approval by EMWD's Board of Directors, and EMWD, as the lead agency, is responsible for environmental review pursuant to CEQA as projects are implemented.

Urban Water Management Plans

Urban water purveyors are required to prepare and update a UWMP every 5 years. UWMPs are prepared by California's urban water suppliers to support long-term resource planning and ensure adequate water supplies. Every urban water supplier that either delivers more than 3,000 AFY of water annually or serves more than 3,000 connections is required to assess the reliability of its water sources over a 20-year period under normal-year, dry-year, and multiple-dry-year scenarios in an UWMP. UWMPs must be updated and submitted to the California Department of Water Resources every 5 years for review and approval. The proposed project site is within the area addressed by the EMWD UWMP. The site is also located within the area covered by the MWD UWMP, another relevant water planning document. The EMWD UWMP takes into account the projections and findings of the MWD UWMP. The UWMP Act (California Water Code Section 10631) specifies the data necessary to document the existing and projected future water demand over a 20-year planning horizon and requires that the projected demands be presented in 5-year increments.

Integrated Regional Water Management Plans

UWMPs serve as building blocks for integrated regional water management plans (IRWMPs). IRWMPs define a clear vision and strategy for the sustainable management of water resources within a specific region delineated by one or more watersheds. IRWMPs generally contain an assessment of current and future water demand, water supply, water quality, and environmental needs. They address the challenges for delivering a stable and clean supply of water for the public, addressing stormwater and urban runoff water quality, providing flood protection, meeting water infrastructure needs, maximizing the use of reclaimed water, enhancing water conservation, and promoting environmental stewardship.

During the planning process, all stakeholders, including water distributors and purveyors, regional waterworks and sanitation districts, local public works departments, environmental organizations, nonprofits, and other vested interests work together to develop common goals, objectives, and strategies. Since water-related issues are addressed on a regional, watershed basis, these plans are instrumental in building consensus among the various stakeholders in the development and prioritization of an action plan that is complementary and leverages inter-jurisdictional cooperation, resources, and available funding. The project site is within the Upper Santa Margarita IRWMP area. The IRWMP for this area was last updated in 2014.

Riverside County Flood Control and Water Conservation District – Master Drainage Plans and Area Drainage Plans

Stormwater from the project site would ultimately flow into Warm Springs Creek and Murrieta Creek, which are regional master-planned facilities owned and maintained by the Riverside County Flood Control and Water Conservation District (RCFCWCD 2020). Master-planned facilities that are owned and operated by the Riverside County Flood Control and Water Conservation District are subject to the district's Master Drainage Plans and Area Drainage Plans. Master drainage plans addresses the current and future drainage needs of a given community and were created with the intention of providing for the orderly development of the County's drainages. Master Drainage Plans also establish Area Drainage Plan fees for a given community, which prevent existing taxpayers from having to shoulder the burden of land development costs. Accordingly, an Area Drainage Plan is a financing mechanism used to offset taxpayer costs for proposed drainage facilities. The fees are imposed on new development within the Area Drainage Plan area. Because the project would contribute stormwater into Warm Springs Creek and Murrieta Creek (which are facilities within the Murrieta Valley and Warm Springs Valley sub-watersheds and part of the Murrieta Creek Area Drainage Plan), the project would be responsible for payment of fees pursuant to the Murrieta Creek Area Drainage Plan (RCFCWCD 1986).

California Integrated Waste Management Act

The California Integrated Waste Management Act of 1989, also known as AB 939, requires that each city or county prepare a new integrated waste management plan. The act further required each city to prepare a Source Reduction and Recycling Element by July 1, 1991. Each Source Reduction and Recycling Element includes a plan for achieving a solid waste reduction goal of 25% by January 1, 1995, and 50% by January 1, 2000. A number of changes to the municipal solid waste diversion requirements under the Integrated Waste Management Act were adopted, including a revision to the statutory requirement for 50% diversion of solid waste. In 2011, AB 341 was passed, requiring CalRecycle to require local agencies to include strategies to enable the diversion of 75% of all solid waste by 2020. In 2017, the City's and County's reported waste diversion rate were in compliance with disposal rate requirements in the Integrated Waste Management Act (Ramaiya, pers. comm. 2019; CalRecycle 2019d).

Landscaping Standards and Water Efficient Landscaping

The City Municipal Code Section 16.28 – Landscaping Standards and Water Efficient Landscaping, is in place to promote water efficient landscaping and conservation through the use of appropriate technology and management. The following list identifies general provisions of this ordinance (Ord. 443 Section 3, 2010; Ord. 182 Section 2 (part), 1997):

A. All landscape plan approvals are subject to and dependent upon the applicant complying with all applicable city ordinances, codes, regulations, and adopted policies.
B. If the water purveyor for a proposed project has adopted more restrictive water efficient landscaping requirements, all landscaping and irrigation plans submitted shall comply with the water purveyor's requirements. Said plans shall be accompanied by a written document from the water purveyor delineating the more restrictive requirements.
C. Landscape design shall facilitate the implementation of landscape maintenance practices which foster long-term water conservation and plant viability. These practices may include, but not be limited to, scheduling irrigation based on established industry standards, conducting irrigation audits and establishing a water budget to limit the amount of water applied per landscape acre.

D. Landscaping for fuel modification zones shall be subject to standards required by the City's Fire Department, and they shall include plant materials, plant spacing, and irrigation as directed by the Fire Department, in consultation with the Community Development Department, and/or Community Services Department.

E. Landscaping adjacent to the Western Riverside County Multi-Species Habitat Conservation Plan ("MSHCP") conservation areas shall avoid invasive species as listed in the MSHCP.

F. To the extent feasible, existing mature trees that represent the existing significant landscaping elements shall be preserved as identified in Chapter 16.42 (Tree Preservation).

G. In the event covenants, conditions, and restrictions are required by the city for any permit subject to this chapter, a condition shall be incorporated into any project approval prohibiting the use of water-intensive landscaping and requiring the use of low water use landscaping pursuant to the provisions of this chapter in connection with common area/open space landscaping. Additionally, such a condition shall also require the covenants, conditions, and restrictions to incorporate provisions concerning landscape irrigation system management and maintenance. Covenants, conditions, and restrictions shall not prohibit use of low-water use plants. Covenants, conditions, and restrictions shall not prohibit the replacement of natural turf with less water-intensive plant species.

The following EMWD water conservation policies, practices, and procedures were originally adopted in 1991, and have been periodically modified to provide long-term water reliability for existing and future customers (EMWD 2019c):

1. Hosing down driveways and other hard surfaces is prohibited except for health or sanitary reasons.
2. Repair water leaks within 48 hours of occurrence.
3. Irrigate landscape only between 9:00 p.m. and 6:00 a.m. except when:
   a. manually watering;
   b. establishing new landscape;
   c. temperatures are predicted to fall below freezing;
   d. it's for very short periods of time to adjust or repair an irrigation system.
4. Unattended irrigation systems using potable water are prohibited unless they are limited to no more than fifteen (15) minutes watering per day, per station. This limitation can be extended for:
   a. Very low flow drip irrigation systems when no emitter produces more than two (2) gallons of water per hour.
   b. Weather based controllers or stream rotor sprinklers that meet 70% efficiency.
   c. Run-off or over watering is not permitted in any case.
5. Irrigation systems operate efficiently and avoid over watering or watering of hardscape and the resulting runoff.
6. Excessive water flow or runoff is prohibited.
7. Decorative fountains must be equipped with a recycling system.
8. Allowing water to run while washing vehicles is prohibited.
9. Install new landscaping with low-water demand trees and plants. New turf shall only be installed for functional purposes.
10. Watering during rain is prohibited.
11. The requirements listed above should be followed at all times.

Mandatory Water-Efficient Landscaping Requirements

EMWD's water conservation policies, practices, and procedures also include Mandatory Water-Efficient Landscaping Requirements, identified below (EMWD 2019c):

- EMWD requires a separate dedicated meter for all landscape areas greater than or equal to 3,000 square feet, except for single family residential accounts.
- The efficient use of water should be considered in the design of any new landscape area. The District [EMWD] will calculate an Annual Maximum Allowable Water Budget (AMAWB) for customers that request a new account.
- Prior to the issuance of a meter, the new customer shall calculate a water budget for each landscape area and submit it to the District [EMWD] for review.
- New accounts that have to comply with similar or more stringent water use efficiency measures imposed by County and/or City Ordinances, do not need to comply with the above requirements, but do need to provide information about the landscape areas to the District [EMWD].

Water Shortage Contingency Plan (Title 5, Article 10 EMWD Administrative Code)

In accordance with Water Code 10632 requirements, EMWD is responsible for conserving the available water supply, protecting the integrity of water supply facilities, and implementing a contingency plan in times of drought, supply reductions, failure of water distribution systems, or emergencies.

Therefore, EMWD adopted the Water Shortage Contingency Plan to regulate the delivery and consumption of water use during water shortages. EMWD's Board of Directors has the authority to initiate or terminate the water shortage contingency measures described in the Water Shortage Contingency Plan.

EMWD will implement an appropriate stage based on current water conditions, such as the following:

- EMWD water supply conditions and storage levels.
- Statewide water supply conditions.
- Local water supply and demand conditions.
- MWD Water Supply Allocation Plan implementation or other actions requiring a reduction in water demand.
- Actions by surrounding agencies.

Higher stages will be implemented as shortages continue and/or if customer response does not bring about desired water savings. Restrictions, penalties, and enforcement will build on each other as higher stages are implemented.

City of Murrieta – Sewer Connection Fees

In the City, each water district is responsible for collecting connection and user fees for the purpose of increasing the strength or quantity of wastewater discharged from connected facilities. The connection fee is a capital facilities fee that is imposed in an amount sufficient to construct an incremental expansion of the sewer system to accommodate a development project. Payment of connection fees is required before sewer connection permits are issued.

City of Murrieta Solid Waste/Recyclable Materials Storage

The City Municipal Code Ordinance 16.18.150 provides standards for the provision of solid waste and recyclable material storage areas in compliance with state law (California Solid Waste Reuse and Recycling Access Act, Public Resources Code Sections 42900 through 42911). The ordinance requires the following minimum storage area for nonresidential structures: 12 square feet for solid waste and 12 square feet for recycling (total 24 square feet) per 5,000 square feet of a nonresidential structure. Every 25,000 square feet beyond 100,000 square feet requires an additional 48 square feet for solid waste and 48 square feet for recyclables (City of Murrieta 2004).

Murrieta General Plan 2035 Goals and Policies

The Murrieta General Plan 2035 contains goals and policies relevant to water, sewer, stormwater, and energy infrastructure. The Infrastructure Element establishes goals and policies for effective service and facilities planning and maintenance (City of Murrieta 2011a). The Conservation Element contains goals and policies related to the efficient use of resources provided by utilities in the City (City of Murrieta 2011b). The following goals and policies pertaining to municipal utilities and resources may be applicable to the proposed project (City of Murrieta 2011a, 2011b):

Infrastructure Element

Goal INF-1 New development and redevelopment is coordinated with the provision of adequate infrastructure for water, sewer, storm water, and energy.

- **Policy INF-1.1** Encourage future development to occur in areas where infrastructure for water, sewer, and storm water can most efficiently be provided.
- **Policy INF-1.2** Discourage development in areas without connections to existing infrastructure, unless infrastructure is being provided.
- **Policy INF-1.4** Ensure that new development and redevelopment provides infrastructure for water, sewer, and storm water that adequately serves the proposed uses, and that has been coordinated with affected infrastructure providers.
- **Policy INF-1.5** Continue to require new development and redevelopment to provide verification that energy utilities are able to accommodate the additional demand for service.
- **Policy INF-1.7** Encourage the preparation and updates of master plans by the appropriate providers or agencies to conduct detailed long-range planning to ensure the efficient provision of public services, infrastructure, and/or utilities.
- **Policy INF-1.8** Consult with water districts and Riverside County Flood Control and Water Conservation District (RCFCWCD) to ensure that fee structures are sufficient for new development and redevelopment to pay its fair share of the cost of infrastructure improvements for water, sewer, and storm water.
- **Policy INF-1.11** Ensure sufficient levels of storm drainage service are provided to protect the community from flood hazards and minimize the discharge of materials into the storm drain system that are toxic or which would obstruct flows.

Policy INF-1.13 Cooperate in regional programs to implement the National Pollutant Discharge Elimination System program.

Policy INF-1.14 Continue to participate with other agencies on public education and outreach materials for countywide distribution to focus on public education and business activities with the potential to pollute. Distribute Best Management Practices (BMP) guidance for business activities, including but not limited to, mobile detailing, pool maintenance, restaurant cleaning operations, and automotive service centers.

Policy INF-1.17 Consider incorporating water quality features into new or redevelopment projects with sufficient land area. These features could address both project-specific and other local impacts.

Policy INF-1.18 Minimize the adverse effects of urbanization upon drainage and flood control facilities.

Policy INF-1.19 Encourage the City and the Riverside County Flood Control and Water Conservation District to improve the storm drain system in a way that respects the environment.

Policy INF-1.21 Encourage the use of specific plans, development agreements, or mechanisms that specify the nature, timing, cost, and financing mechanisms to be used to fund water, wastewater, and/or storm drainage improvements and services.

Goal INF-2 Infrastructure for recycled water is expanded throughout Murrieta for irrigation and other non-potable uses.

Policy INF-2.3 Continue to require installation of recycled water systems for landscaping, unless there is an exemption from the applicable water district.

Conservation Element

Goal CSV-1 A community that conserves, protects, and manages water resources to meet long-term community needs, including surface waters, groundwater, imported water supplies, storm water, and waste water.

Policy CSV-1.2 Promote the maximization of water supplies through conservation, water recycling, and groundwater recharge.

Goal CSV-2

Policy CSV-2.1 Ensure that all developments comply with water efficiency requirements, as mandated by the applicable Building Code.

Policy CSV-2.4 Promote water efficient landscaping practices through outreach efforts, project review, and enforcement of City, regional or State code requirements.

Goal CSV-3 A community that participates in a multi-jurisdictional approach to protecting, maintaining, and improving water quality and the overall health of the watershed.

Policy CSV-3.2 Promote storm water management techniques that minimize surface water runoff in public and private developments.

Policy CSV-3.3 Utilize low-impact development (LID) techniques to manage storm water through conservation, on-site filtration, and water recycling, and continue to ensure compliance with the NPDES permit

4.15.3 Thresholds of Significance

The significance criteria used to evaluate the project impacts to utilities and service systems are based on Appendix G of the CEQA Guidelines. According to Appendix G of the CEQA Guidelines, a significant impact related to utilities and service systems would occur if the project would:

1. Require or result in the relocation or construction of new or expanded water, or wastewater treatment, or stormwater drainage, electric power, natural gas, or telecommunications facilities or expansion of existing facilities, the construction or relocation of which could cause significant environmental effects.
2. Have sufficient water supplies available to serve the project from existing entitlements and resources, and reasonably foreseeable future development during normal, dry and multiple dry years or are new or expanded entitlements needed.
3. 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.
4. Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals.
5. Comply with federal, state, and local management and reduction statutes and regulations related to solid waste.

4.15.4 Impacts Analysis

Would the project require or result in the relocation or construction of new or expanded water, or wastewater treatment, or storm water drainage, electric power, natural gas, or telecommunications facilities or expansion of existing facilities, the construction or relocation of which could cause significant environmental effects?

Construction of New Utility Lines

Less-than-Significant Impact. As discussed above in Section 4.15.1, Existing Conditions, existing utility service lines are located within the vicinity of the project site. As part of the project, utility service lines, including those for water, wastewater, stormwater drainage, electric power, natural gas, and telecommunications services would be extended from their current locations nearby the project site to the proposed buildings. Given that the activity of connecting utilities from their current locations (i.e., within Clinton Keith Road and Antelope Road) to the project site would require ground disturbance and the use of heavy machinery associated with trenching, the installation of these utility service lines could potentially result in environmental effects. However, the extension of these utility service lines is part of the proposed project analyzed herein. As such, any potential environmental impacts related to these components of the proposed

project are already accounted for in this draft EIR as part of the impact assessment conducted for the entirety of the project. Additionally, the project would be required to comply with all regulatory requirements and mitigation measures outlined within this draft EIR for the purposes of mitigating impacts associated with trenching activities and the use of heavy machinery. For example, as described in Section 4.8, Hydrology and Water Quality, of this EIR, project construction would occur in accordance with the requirements of the NPDES General Construction Permit (Order No. R9-2010-0016) and the Murrieta Municipal Code, which require the implementation of BMPs and pollutant control measures to minimize pollutants and reduce runoff to levels that comply with applicable water quality standards. As a result, no adverse physical effects beyond those already disclosed in this draft EIR would occur as a result of implementation of the project's proposed utility system connections.

Capacity of Water, Wastewater Treatment, Storm Water Drainage, Electric Power, Natural Gas, and Telecommunications Facilities

Less-than-Significant Impact. As discussed in further detail below, other than lateral connections to nearby utility mains, the project would not require the relocation or construction of new or expanded water, wastewater treatment, stormwater drainage, electric power, natural gas, or telecommunications facilities or expansion of existing facilities for the purposes of servicing the project. As such, impacts would be less than significant.

Water Service

A Master Water Study (Appendix J-1) was prepared to assist EMWD in its evaluation of the impacts of the proposed project and certain of the immediately adjacent related projects (i.e., Vineyard I and Vineyard III) on existing water service in the project area. The Master Water Study included an estimation of projected water usage by the three projects and a hydraulic analysis to evaluate the performance of the existing water distribution system with the additional water demand. Water demand calculations were completed in accordance with the EMWD Water System Planning & Design Principal Guidelines and Criteria (EMWD 2007).

Under the future demand conditions of the projects evaluated in the Master Water Study, the existing waster distribution system showed no deficiencies. Calculations indicated the greatest demand would occur when maximum daily demand and fire flows combined. Under this scenario, the Master Water Study found that the existing water distribution system would be able to provide a residual 50.5 pounds per square inch of pressure, well above required the minimum requirement of 20 pounds per square inch residual, as required by EMWD's Water System Planning & Design Principal Guidelines and Criteria. As a result, the project would not directly require or result in the relocation or construction of new or expanded water facilities, the construction or relocation of which could cause significant environmental effects. As such, impacts are considered less than significant, and no mitigation is required.

Wastewater Collection Facilities

A master sewer capacity study (Appendix J-1) was prepared to assist EMWD in its evaluation of the impacts of the proposed project and certain of the immediately adjacent related projects (i.e., Vineyard I and Vineyard III) on existing sewer infrastructure in the project area. The master sewer capacity study included a calculation of sewage generation by existing developments in the project area and a hydraulic analysis to evaluate the performance of the existing sewage conveyance system with the additional input of the project. The master sewer capacity study follows a methodology provided in the EMWD 2006 Master Plan Update.

Under the future conditions of the project and the related projects, sewage would be conveyed via new on-site sewer laterals with connection to an existing 8-inch sewer pipe within Clinton Keith Road, and subsequently to a 15-inch pipe in Whitewood Road, south of the project site. Based on the hydraulic analysis performed in the master sewer capacity study, total future sewage generation at the downstream connection point in Whitewood Road is calculated to be 2.212 cubic feet per second. With the capacity of the existing 15-inch-diameter sewer line in Whitewood Road known to be 2.392 cubic feet per second, the master sewer capacity study concluded that the existing lines are adequate to serve the project and the adjoining related projects (Vineyard I and Vineyard III). Therefore, impacts would be less than significant. No mitigation is required.

Wastewater Treatment Facilities

The project would include the construction of a new commercial development, which would result in a net increase in wastewater flows. As discussed in Section 4.15.1, EMWD manages wastewater for the proposed project service area. While the majority of the project's wastewater would be treated at the Perris Valley RWRF, interconnections between the local collections systems serving each treatment plant allow system operators to route wastewater to other RWRFs for operational flexibility and improved reliability. In fiscal year 2018/2019, the Perris Valley RWRF treated 15,468 acre-feet of wastewater flows and has a permitted capacity of 28,000 AFY. All together, the four RWRFs treated 50,439 acre-feet of wastewater flows in fiscal year 2018/2019; they have a combined capacity of 81,800 AFY.

Project wastewater discharges would be typical of the wastewater already generated at nearby properties; it would not include large quantities of unusual industrial/hazardous discharges that can interfere with the ability of a treatment plant to meet the water quality requirements for its discharges. Furthermore, wastewater disposal is heavily regulated, and the San Diego RWQCB, in connection with the NPDES permit, have imposed requirements on the treatment of wastewater. Wastewater produced by the proposed project would meet these requirements through treatment at EMWD's RWRF. According to the master sewer capacity analysis (Appendix J-2) prepared for the project and adjacent related projects, the project is anticipated to generate approximately 41,981 gallons of wastewater per day, which is equivalent to approximately 47.0 AFY. In the context of the total volume of wastewater generated by the City, and the wastewater conveyed to the Perris Valley RWRF, the addition of 47 AFY to a wastewater system with 33,135 AFY of additional capacity would be nominal and could be accommodated in the existing facilities. Additionally, because the project is consistent with the City's General Plan, the project will have been accounted for by EMWD as part of its long-term capital planning process, which includes plans to accommodate future build-out of the jurisdictional General Plans in its service area. EMWD updates its CIP on an annual basis based on current available growth information, which includes a comprehensive list of all development projects in its service area, including the project. As discussed previously, EMWD has taken the project into consideration, and has determined in the Design Conditions Plan that it has the capacity to treat wastewater generated by the project in addition to its existing commitments (EMWD 2019a).

Because there is adequate wastewater treatment capacity within EMWD's wastewater treatment system, the project would not directly require or result in the relocation or construction of new or expanded wastewater treatment facilities, the construction or relocation of which could cause significant environmental effects. Therefore, impacts would be less than significant. No mitigation is required.

Stormwater Drainage

Upon project implementation, the impervious areas of the project site would increase. Due to the proposed increase of impervious materials on the project site, there is potential for stormwater runoff volumes and/or stormwater runoff rates

to increase upon project implementation. However, under existing conditions, stormwater infiltration opportunities are limited due to the dense, generally impermeable bedrock that underlies the project site. Upon project implementation, the same site conditions would continue to preclude on-site infiltration of stormwater.

The project is required to be designed so that post-development stormwater runoff would be less than or equal to existing conditions. Two bioretention basins and other low-impact development BMPs, including tree wells, planter boxes, underground detention basins, and spill interceptor trenches, are proposed as part of the project. The basins were designed with low-flow thresholds in order to meet peak-flow frequency and flow-duration controls. Based on the two water quality master plans prepared for the project, the resulting mitigated outflows associated with the design storm would be equal to or less than the pre-developed outflows, or within the 10% tolerance (Appendix G-3; Appendix G-4). The design storm is the rainfall amount and distribution in space and time used to determine a design flood or design peak discharge. Once stormwater exits the biofiltration basins, it would pipe flow to the public storm drain system.

For these reasons, upon implementation of the required water quality management plans for the project, stormwater volumes from the site would be equivalent to existing conditions or would be reduced upon project implementation relative to existing conditions. While stormwater drainage improvements would occur as previously described, these improvements are considered part of the proposed project and are analyzed in this EIR for potential environmental effects. As such, implementation of the proposed project would not increase the volume and/or rate of stormwater flows that enter the existing storm drain system and may even decrease the volume and/or rate of stormwater flows relative to existing conditions. The project would not result in expansion of any existing off-site facilities or in the construction or relocation of new off-site facilities. Upon implementation of the proposed water quality management plans, impacts associated with new stormwater drainage facilities would be less than significant, and no mitigation is required.

Electric Power, Natural Gas, and Telecommunication Facilities

As part of development of the project, new connections to the project site would be required for electric power, gas lines, and telecommunication facilities. However, such upgrades would be confined to the lateral connections to the project site from surrounding streets and not any centralized facilities.

Electrical power service would be provided to the project site via the existing 12 kV electrical lines within Antelope Road, which the project would connect to laterally via underground collector lines. As stated in Section 4.15.1, Existing Conditions, SCE has stated that the existing electrical infrastructure within the greater project area is operating near or at its capacity. As a result, SCE is in the process of constructing the Valley South Subtransmission Line Project, which will increase the operating capacity and reliability of electrical infrastructure within the "electrical needs area" of the Valley South Subtransmission Line Project, which includes the project site. Construction of the Valley South Subtransmission Line Project is anticipated to be completed in late 2020. Upon completion of the Valley South Subtransmission Project, which CPUC approved on December 16, 2016, existing infrastructure in the greater project area would be able to adequately serve the project.

The project is estimated to have a total electrical demand of 2,555 megawatt-hours per year. For comparison, non-residential electricity demand in 2017 was 8,346,000 megawatt-hours for the County (ECDMS 2019). The proposed project would result in a minimal increase (0.000306%) in electricity consumption. In addition, SCE tracks planned development and coordinates with the California Independent System Operator to ensure projected supply meets demand. In addition, within 2 years of operation, the project will generate electricity from solar panels (estimated at 1,128,400 kilowatt-hours per year), which will be delivered to SCE and offset electrical requirements.

The project would be built in accordance with the current Title 24 standards at the time of construction and CALGreen standards. Therefore, due to the minimal increase in electricity usage generated by the project, incorporation of sustainability measures, installation of solar panels, increase in efficiency of building code regulations, planning efforts undertaken by SCE, and grid management efforts by the California Independent System Operator, SCE would have the ability to accommodate the proposed project and not require the construction or expansion of electrical facilities.

Natural gas service would be provided by the existing 6-inch line located with Clinton Keith Road. A new lateral gas main extension would be constructed from its location within Clinton Keith Road to the project site concurrent with construction of the project. Natural gas consumption during operation would be required for various purposes, including, but not limited to, building heating and cooling. SoCalGas confirmed availability of natural gas supply in the project vicinity to serve the project. As discussed in Section 4.16, Energy, default natural gas generation rates in CalEEMod for the proposed land use and climate zone were used to calculate the project's energy usage. According to these estimations, the project would consume approximately 2.7 billion BTUs per year. The non-residential natural gas consumption for the County in 2017 was 139.1 billion BTUs (ECDMS 2019). For disclosure, the project's natural gas consumption during operation would be 0.0019% of the County's non-residential natural gas consumption total; therefore, there would be available supply to meet the project's demand.

Telecommunication lines would be extended onto the project site from their existing locations within the vicinity of the project site. Given the nature of telecommunication lines, once telecommunication lines are extended to the project site, no additional telecommunication line construction is anticipated to be required.

For the reasons discussed above, impacts associated with upgrades of electric, natural gas, and telecommunication lateral connections to the project site would be less than significant, and no mitigation is required.

Would the project have sufficient water supplies available to serve the project from existing entitlements and resources, and reasonably foreseeable future development during normal, dry and multiple dry years or are new or expanded entitlements needed?

Less-than-Significant Impact. The proposed project would be served by EMWD, which serves an area of approximately 555 square miles in western Riverside County. EMWD has four sources of water supply: local groundwater, desalinated groundwater, recycled water, and imported water from MWD.

As an urban water supplier, EMWD is required to assess the reliability of its water supply service for a 20-year period under normal, single-dry and multiple-dry year conditions. Based on historical extraction and estimated population growth rates, the projected water supply and demand for the normal and single- and multiple-dry year scenarios were calculated for the EMWD UWMP, as provided in Section 4.15.1. As shown in Table 4.15-1 in Section 4.15.1, EMWD has the ability to meet current and projected water demands through 2040 during historic multiple-dry year periods using imported water from MWD, groundwater, recycled water, and conservation methods. As indicated above and in the EMWD UWMP, the EMWD UWMP has determined these resources to be reliable, based upon the assurances of MWD that it would be able to supply member agency demands, the reliability of local groundwater supplies achieved through groundwater management plans, and the development of recycled water resources.

To ensure that planning efforts for future growth are comprehensive, EMWD incorporates regional projections into the EMWD UWMP using census data and proposed development projects and land uses within EMWD's borders, as well as current demographic information such as household size, as the basis of planning for future water supply and demonstrating compliance with state water conservation goals and policies. The EMWD UWMP identifies

residential consumption as the dominant demand for EMWD according to the general plans for the County and local cities and identifies the likelihood of increase of commercial developments, especially along the major transportation corridors through EMWD's boundary (Interstate 15, Interstate 215, Highway 79, and Highway 74). As of 2015, commercial demands accounted for about 6% of EMWD's retail service area water demand; this is anticipated by the EMWD UWMP to increase over time.

The proposed project is consistent with the underlying City land use designations for the project site, which has a Murrieta General Plan 2035 designation of Commercial and a zoning designation of Regional Commercial. As such, the EMWD UWMP projections include commercial uses at the project site. According to the Master Water Study (Appendix J-1) prepared for the project, the projected water demand for the project is anticipated to be 52,040 gallons per day, which equates to 57.2 AFY of potable water. While the proposed project would involve an intensification of uses on the project site, the increased water use would be minor and incremental in the context of the total water portfolio managed by EMWD. By way of comparison, gross water demand from the proposed project would equate to approximately 0.04% of the service provider's total projected water supplies (including recycled water) in 2020, which is around the time of project build-out. In 2040, gross water demand from the proposed project would equate to 0.03% of projected potable water supplies, which is approximately 20 years into project operation.

As part of development process, EMWD has prepared a Design Conditions Plan (formerly referred to as a Plan of Service), which provides specifications as to how the project would be connected to EMWD's water and wastewater system, and is based on the Master Water Study (Appendix J-1) and Master Sewer Study (Appendix J-2) prepared for the project. As detailed in the Design Conditions Plan and substantiated in the Master Water Study, EMWD has indicated that it has planned for sufficient supplies of potable water to serve the project. Additionally, per the Design Conditions Plan and Master Water Study, no new water facilities or infrastructure would be required to accommodate the project, aside from the on-site infrastructure improvements and necessary utility connections and any associated improvements.

Furthermore, the proposed project would incorporate site-specific water efficiency measures to ensure that water is conserved to the extent feasible. Water use reduction would be a central focus of project design. The project applicants would incorporate project design features that involve the implementation of water efficiency practices, including outdoor water use reduction, indoor water use reduction, building-level water metering, and others. Landscaping would include low-water plants and turf of a low-water-use variety. Plumbing facilities would be designed to reduce water consumption. Low-flow fixtures would be installed that would meet or exceed CALGreen requirements, and sub-metering would be used to monitor water demands.

For the reasons described above, the project would have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple-dry years. Impacts would be less than significant, and no mitigation is required.

Would the project 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?

Less-than-Significant Impact. As previously described, the majority of wastewater generated by the project would be conveyed from the project site to EMWD's Perris Valley RWRF. In 2015, the Perris Valley RWRF treated 15,088 AFY of wastewater and has a treatment capacity of 28,000 AFY. As such, the recently expanded Perris Valley RWRF operates with approximately 8,000 AFY of excess capacity. According to the Master Sewer Study (Appendix J-2) prepared for the project, the project is anticipated to generate approximately 47.0 AFY of wastewater per year. In

the context of the Perris Valley RWRF's excess capacity (approximately 8,000 AFY) and EMWD's overall existing capacity (approximately 33,135 AFY), wastewater generated by the project would be nominal. Additionally, per the Design Conditions Plan and as substantiated by the Master Sewer Study (Appendix J-2), EMWD has indicated that it has sufficient capacity within its wastewater collection and treatment system to treat wastewater generated by the project without the need for new wastewater facilities or infrastructure, aside from the on-site infrastructure improvements and necessary utility connections and any associated improvements (EMWD 2019a). For these reasons, the project would result in a determination by the wastewater treatment provider that would serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments. Impacts would be less than significant, and no mitigation is required.

Would the project generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?

Construction

Less-than-Significant Impact. Construction of the project would result in the generation of solid waste such as scrap lumber, concrete, residual wastes, packing materials, plastics, and soils. According to the EPA's "Estimating 2003 Building-Related Construction and Demolition Amounts" paper on waste generation rates during construction and demolition (EPA 2009), the average overall waste generation rate of nonresidential construction was found to be 4.34 pounds of waste per square foot constructed. Table 4.15-4, Project-Generated Construction Waste Estimate, provides an estimate of waste generated during on-site construction activities.

Table 4.15-4. Project-Generated Construction Waste Estimate

Pad	Size (Square Feet)	Unit (Pound/Square foot)	Total (Pounds/Tonnage)
Costco	153,362	4.34	665,591/333
Costco Gas Station	12,684	4.34	55,049/28
Vineyard II Development	72,000	4.34	312,480/156
		Total	**1,033,120/517**

Source: EPA 2009.

As demonstrated in Table 4.15-4, it is anticipated that approximately 1,033,120 pounds (517 tons) of solid waste would be generated during construction of the project.

Per CALGreen, 75% of construction and demolition waste must be diverted from landfills starting in 2020. As such, at least 75% of all construction debris from the site would be diverted. The CALGreen Code requirements include preparing a construction waste management plan that identifies materials to be diverted from disposal by efficient usage, recycling, reuse on the project, or salvage for future use or sale; determining whether materials will be sorted on site or mixed; and identifying diversion facilities where the materials collected will be taken. In addition, the CALGreen Code requires that 100% of trees, stumps, rocks, and associated vegetation and soils resulting primarily from land clearing be reused or recycled. Pursuant to the construction waste management plan that would be prepared for the project, wastes would be transported to local construction waste recyclers. The County of San Bernardino Construction & Demolition Waste Recycling Guide & Directory (County of San Bernardino 2015) lists construction recyclers located throughout Southern California, including wood recyclers located in Romoland, Murrieta, and Lake Elsinore; and asphalt, concrete, and rock recyclers located in Romoland and Hemet.

The remaining 25% of construction material (approximately 129 tons) that is not required to be recycled would either be disposed of or voluntarily recycled at a solid waste facility with available capacity. As described in Section 4.15.1, the El Sobrante Landfill has a remaining capacity of 143.9 million cubic yards and is expected to remain open throughout project construction. Additionally, there are other facilities that process construction and demolition waste in the County that collectively have a maximum daily capacity of 283.2 million cubic yards per day. Construction of the proposed project is expected to conclude in November 2021. As such, any construction and demolition debris requiring disposal at an inert waste landfill would be sufficiently accommodated by existing landfills.

For the reasons stated above, project construction would not generate solid waste in excess of state or local standards or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals (e.g., CALGreen standards). Impacts would be less than significant.

Operations

Less-than-Significant Impact. Once operational, the proposed project would produce solid waste on a regular basis, in association with operation and maintenance activities. Anticipated solid waste generation attributable to the proposed project is shown in Table 4.15-5. The solid waste generation rates assume compliance with AB 341.

Table 4.15-5. Anticipated Solid Waste Generation

Project Components	Size Metric	Units of Size Metric	Rate (tons per size metric per year)[1]	Solid Waste Generation (tons per year)
Costco	1,000 square feet	153.362	4.3	659.5
Costco Gasoline/Service Station	Pump	32	3.01	96.35
Vineyard II Retail Pads	1,000 square feet	31.4	1.05	33.0
Fitness Center	1,000 square feet	37.0	5.70	210.9
Fast Food Restaurant with Drive Through	1,000 square feet	3.6	11.52	41.5
			Total	**1,041.3**

1 **Source:** CAPCOA 2017.

As described in Section 4.15.1, the City's commercial uses are currently served by Waste Management for solid waste collection and disposal. The majority of solid waste generated within the City for construction and operation is disposed of at El Sobrante Landfill (Ramaiya, pers. comm. 2019). This landfill has a remaining capacity of 143 million cubic yards, a maximum permitted capacity of 209 million cubic yards, and is expected to remain open through 2051 (CalRecycle 2019a). El Sobrante Landfill has a maximum daily permitted throughput of 16,054 tons per day, and in December 2019, received an average of 11,650 tons of waste per day (CalRecycle 2020), resulting in an average excess capacity of approximately 4,404 tons per day. Assuming that waste from the project site would be collected weekly, El Sobrante Landfill would receive approximately 20 tons of waste once per week. The net solid waste that is anticipated to be produced by the project would equate to approximately 0.4% of the landfill's average excess capacity of its permitted daily load. As such, the proposed project's solid waste generation would be minimal to negligible relative to available landfill capacity. Solid waste from the City is also disposed at the Badlands Landfill, which has a remaining capacity of 15.7 million cubic yards and a maximum permitted capacity of 34.4 million cubic yards, and is expected to remain open through at least January 1, 2022 (CalRecycle 2019b). In addition, the Riverside County Department of Waste Resources is currently in the planning process to expand the disposal footprint from 150 acres to 396 acres (in multiple stages), thereby providing an additional 50 years of landfill

capacity (RCDWR 2019). Between the existing and planned capacities of landfills that serve the City, it is anticipated that there would be adequate capacity to accommodate the waste disposal needs of the project.

The Countywide Integrated Waste Management Plan includes an assessment of the County's ability to accommodate solid waste disposal demands throughout a 15-year planning horizon. As shown in the County's latest annual report for the Countywide Integrated Waste Management Plan, there are numerous scenarios through which the County could meet the disposal needs of all jurisdictions. Future disposal needs are calculated through 2031 based on employment, population, and taxable sales projections based on long-term forecasts for the County. (All scenarios would meet the County's projected disposal needs except for a scenario in which out-of-county landfills are not used.) The Countywide Integrated Waste Management Plan is updated to include strategies for the County and local jurisdictions to continue meeting long-term needs and to maintain adequate disposal capacities. As such, the County is required to continue identifying ways to meet its disposal needs well into the future.

Once the Badlands and El Sobrante Landfills reach capacity, additional landfills and strategies are required to be identified so that disposal needs continue to be met. Further, according to the latest annual report for the Countywide Integrated Waste Management Plan, there are landfills used by the County with up to 100 years of remaining life. For example, the Prima Desecha Sanitary Landfill in Orange County is expected to remain open for another 85 years; the Mesquite Regional Landfill in Imperial County is expected to remain open for another 100 years; and the Simi Valley Landfill in Ventura County is expected to remain open for another 67 years. As such, in the event of closure of the Badlands and El Sobrante landfills, other landfills in the region would be able to accommodate solid waste from the proposed project, and regional planning efforts would ensure continued landfill capacity into the foreseeable future.

For the reasons described above, project operations would not generate solid waste in excess of state or local standards or of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals (e.g., Countywide Integrated Waste Management Plan). Impacts would be less than significant, and no mitigation is required.

Would the project comply with federal, state, and local management and reduction statutes and regulations related to solid waste?

Less-than-Significant Impact. During both construction and operation, the project would comply with all federal, state, and local laws. Additionally, the City is required to comply with the solid waste reduction and diversion requirements set forth in AB 939, AB 341, AB 1327, and AB 1826 (see Section 4.15.2, Relevant Plans, Policies, and Ordinances). Specifically, AB 1826 requires businesses that generate a specified amount of organic waste per week to arrange for recycling services for that organic waste.[2] Currently, businesses that generate 2 cubic yards or more of organic solid waste per week are required to arrange for organic waste recycling services. Waste Management, the project's waste collection and disposal provider, would provide the project with recycling, and if required, organic waste recycling services, to assist the project in compliance with the applicable solid waste regulations.

In addition, as described above, waste diversion and reduction during project construction and operations would be completed in accordance with CALGreen standards, County diversion standards, and the Countywide Integrated Waste Management Plan. As a result, the proposed project would comply with federal, state, and local management and reduction statutes and regulations related to solid waste. Impacts are considered less than significant.

[2] Organic waste is defined as food waste, green waste, landscape and pruning waste, nonhazardous wood waste, and food-soiled paper waste that is mixed in with food waste.

4.15.5 Mitigation Measures

Impacts to utilities and services would be **less than significant**. No mitigation measures are required.

4.15.6 Level of Significance After Mitigation

Impacts to utilities and services from the proposed project would be **less than significant**.

4.15.7 Cumulative Impacts

Water and Wastewater

Less-than-Significant Impact. Development of the project, in combination with the related projects (i.e., the Vineyard I and Vineyard III projects) and the cumulative projects (as listed in Table 3-2, Cumulative Projects, of Chapter 3), would cumulatively increase land-use intensities in the area, resulting in increased water usage. The project, related projects, and cumulative projects would be served by the EMWD. As such, the development of the project, related projects, and cumulative projects would increase the amount of water used in the EMWD's service area.

The EMWD UWMP states that EMWD and other water agencies in Southern California have planned for the provision of regional water for the growing population, including drought scenarios for its service area over a 20-year period. The plan includes a new water demand forecast prepared for the major categories of demand and uses regional population, demographic projections, the dry climate, and historical water use to develop these forecasts. These projections consider land use, water development programs and projects, and water conservation. As discussed above, according to the EMWD UWMP, EMWD has the supply needed to meet the demand of its customers through 2040. The conclusion is considered reliable by EMWD based on the assurances of MWD that it would be able to supply member agency demands, the reliability of local groundwater supplies achieved through groundwater management plans, and the development of recycled water resources.

Furthermore, all cumulative projects would meet requirements to incorporate site-specific water efficiency measures. Compliance with CALGreen and other regulatory requirements would be required for new development, which would require new development to install high-efficiency appliances and incorporate water conservation measures throughout. This would ensure that the related projects and cumulative projects, as well as the proposed project, do not result in wasteful or inefficient use of limited water resources. As such, and because the related projects and cumulative projects are generally consistent with regional growth patterns and projections, there would be sufficient water supplies available to serve the project and related projects from existing entitlements and resources, without the requirement for new or expanded entitlements.

Cumulative projects that are not consistent with the applicable jurisdictional general plans would be required to undergo environmental review pursuant to CEQA, which would involve a water supply assessment of current and future water supplies, and if required, mitigation for impacts related to obtaining expanded entitlements. Additionally, EMWD updates a geographic information system database that tracks proposed development quarterly and is consistently updating its water supply portfolio and developing local resources to meet future demand. Because the project, related projects, and cumulative projects are either consistent with the jurisdictional general plans (and thereby included in regional water demand forecasts) or would be accounted for by EMWD as part of its development tracking efforts, there would be sufficient water supplies available to serve the project and

related projects from existing entitlements and resources, without the requirement for new or expanded entitlements, and cumulative impacts would be less than significant.

The project, related projects, and cumulative projects would cumulatively incrementally increase the amount of wastewater that is generated in the area. However, as previously described, the project would generate approximately 47 AFY of wastewater, which would represent approximately 0.1% of the Perris Valley RWRF's capacity. Additionally, the newly upgraded Perris Valley RWRF has been designed such that it could be expanded to treat up to 100 million gallons per day of wastewater if demand grew to require such capacity. EMWD addresses its long-term planning efforts through the development of a long-term capital plan, which serves as a fundamental roadmap of required water, recycled water, and water reclamation facilities needed to support the build out of existing jurisdictional general plans throughout its service area. EMWD's Long-Term Capital Plan relies on EMWD's four facilities master plans, which include the Water Facilities Master Plan, Recycled Water Facilities Master Plan, Wastewater Facilities Master Plan, and Regional Water Reclamation Facilities Master Plan. These four facilities master plans are based on historical and projected demands in the EMWD's service area, and are used to assess EMWD's ability to meet future and current needs, assess the need for system upgrades, and identify future system improvements needed to satisfy current and future user demand. The four facilities master plans are used as the basis for developing a 5-Year, 10-Year, and Build-Out CIP. Within EMWD's CIPs, EMWD identifies the water, sewer, recycled water, and other infrastructure projects that will be necessary to accommodate future build-out of the jurisdictional General Plans in its service area.

Additionally, each year, EMWD updates its CIP based on the then-current available growth information, which includes a comprehensive list of all development projects in its service area, including the project, related projects, and cumulative projects. This process ensures the list of CIP projects needed to accommodate growth are developed just in time, while allowing EMWD to be flexible and responsive to development patterns. CIP projects are subject to approval by EMWD's Board of Directors, and EMWD, as the lead agency, is responsible for environmental review pursuant to CEQA as projects are implemented. As cumulative increases in wastewater treatment demand within the service area require facility upgrades, EMWD would include service connection fees in their capital improvement plans. Such fees would ensure that capital improvements are completed sufficiently to accommodate increased wastewater inflows associated with the project area. As such, due to EMWD's long-term planning efforts, EMWD would have adequate capacity to serve the project's, related projects', and cumulative projects' projected demand in addition to the provider's existing commitments using existing entitlements and infrastructure, and cumulative impacts would be less than significant.

Completion of the related projects would involve construction of water distribution and wastewater conveyance infrastructure (i.e., pipes, valves, meters, etc.) on the related project sites. For the project and the related projects, connections would be made to nearby off-site lines in the adjacent rights-of-way. The construction of the laterals would be temporary and limited to trenching to the depth of the underground utility lines and project construction would occur in accordance with all applicable regulatory requirements. As discussed in Section 4.15.4, other than the lateral connections from the related project sites to nearby existing utility mains, neither the project nor the related projects would require or result in construction or expansion of new off-site infrastructure like a need for new water treatment plants, and upgrades of lateral connections to related project sites would not create a cumulatively considerable impact. To account for cumulative effects on infrastructure facilities directly serving the project, the master water study and sewer study also accounted for the projected water and wastewater treatment demands of the project and related projects, and found that the project and the related projects in the immediate vicinity of the project site would not directly require or result in the relocation or construction of new or expanded water facilities. In addition, all other cumulative development would be required to comply with all applicable regulations, including CEQA, which would ensure that future development would not be allowed to proceed without

adequate infrastructure and availability of water and sewer treatment capacity in place. Accordingly, there would not be a need for new entitlements, resources, and/or water or sewer treatment facilities that are not already being planned to accommodate regional growth forecasts and cumulative impacts related to adequacy of water and waste water infrastructure; sewer treatment would be less than significant.

Storm Drainage Facilities

Less-than-Significant Impact. The proposed project is located in an area of the City where many of the adjacent properties are developed. New development projects in the City, including the proposed project, would be subject to the most recent City Stormwater Management Plan and the Regional Municipal Separate Storm Sewer System Permit, which requires the identification of methods to reduce potential stormwater runoff and contribution of pollutants to the storm drain system. The proposed project in particular includes bioretention basins and other low-impact development BMPs, including tree wells, planter boxes, and underground detention basins to manage and treat stormwater flows. Upon project implementation, stormwater runoff from the project site would be less than or equal to runoff that occurs under existing conditions. As such, the project would not contribute to a cumulative effect. For the related projects, stormwater runoff would be expected to be equal to or less than runoff under existing conditions, which can be achieved through the implementation of BMPs similar to those of the project. Therefore, it is unlikely that downstream flood control improvements would be required as a condition of related project completion. As a result, cumulative impacts associated with upgrades of sewer lateral connections to related project sites would be less than significant, and no mitigation is required.

Solid Waste

Less-than-Significant Impact. Development of related projects would increase land use intensities in the area, resulting in increased solid waste generation in the service area for Riverside County landfills. AB 939 mandates that cities divert 75% of the total solid waste generated away from landfills. In order to maintain state requirements of diverting 75% of solid waste and to offset impacts associated with solid waste, the proposed project, related projects, and cumulative projects would each be required to implement waste reduction, diversion, and recycling during both construction and operation and to comply with the City's Integrated Waste Management Plan. Through compliance with City and state solid waste diversion requirements, and due to the recycling collection process that would, as a result of the foregoing laws and regulation, be part of each of the related and cumulative project's design, cumulative impacts would be less than significant.

Electric Power, Natural Gas, and Telecommunication

Less-than-Significant Impact. The development of the project and the related projects would add to demands for energy and would increase requirements for telecommunication technology infrastructure. As stated in Section 4.15.1, SCE has stated that the existing electrical infrastructure within the greater project area is operating near or at its capacity. As a result, SCE is in the process of constructing the Valley South Subtransmission Line Project, which will increase the operating capacity and reliability of electrical infrastructure within the "electrical needs area" of the Valley South Subtransmission Line Project, which includes the project site and related project sites. Construction of the Valley South Subtransmission Line Project is anticipated to be completed in late 2020 and would improve SCE's infrastructure in the greater project area. Upon completion, SCE would be able to adequately serve the project and the related projects in the project area. Additionally, SCE would continue its long-term planning efforts and plan for the provision of upgrades to its regional electrical distribution network as needs develop. Typically, upgrades to utility networks fall under the jurisdiction of CPUC and would be subject to environmental review as electrical projects are proposed.

As part of the project and as part of the other related projects, natural gas and telecommunication lines would be extended onto the project site and related projects from their existing locations within the vicinity of the project site, resulting in localized less-than-significant impacts. Similarly, the other related projects would result in localized impacts that are reduced to less-than-significant impacts through compliance with local regulations, such as the Regional Municipal Separate Storm Sewer System permit and NPDES General Construction Permit. Additionally, the related projects would be subject to review on a case-by-case basis. Should the applicable service provider determine that upgrades or extensions of infrastructure be required, any such upgrades would be included within each project's environmental review. As a result, cumulative impacts associated with upgrades of electric, natural gas, and telecommunication facilities would be less than significant.

Conclusion

Overall, given the water availability and conservation and recycling measures disclosed by the EMWD UWMP, capacity at Perris Valley RWRF, capacity of public and private landfills serving the County, and availability of water and energy supplies, adequate wastewater, solid waste, water and energy supplies exist for the related projects and cumulative projects without the need for construction of new infrastructure other than laterals proximate to the various project sites. Combined with cumulative development, the project would result in an increase to energy, solid waste, and water and wastewater service demands, but these increases are accommodated within the existing utility and service system (as described above). Additionally, compliance with regulations governing water, solid waste, wastewater, and energy supplies would reduce demands for utilities and service systems. Lastly, with regard to water quality, related projects and cumulative projects would be required to implement practices that would ensure stormwater flows and stormwater quality are appropriately managed and treated. As such, cumulative impacts related to utilities and service systems would be less than significant.

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4.16 Energy

This section describes the existing setting related to energy, identifies associated regulatory requirements, and evaluates potential energy impacts related to implementation of the proposed Costco/Vineyard II Retail Development Project (project). This analysis is based on emission calculations and California Emissions Estimator Model (CalEEMod) outputs presented in the Air Quality and Greenhouse Gas Emissions Analysis Technical Report prepared for the project (Appendix B).

4.16.1 Existing Conditions

Electricity

According to the U.S. Energy Information Administration (EIA), California used approximately 257,268 gigawatt hours of electricity in 2017 (EIA 2019a). By sector in 2017, commercial uses utilized 46% of the state's electricity, followed by 35% for residential uses, and 19% for industrial uses (EIA 2019a). Electricity usage in California for differing land uses varies substantially by the type of uses in a building, type of construction materials used in a building, and the efficiency of all electricity-consuming devices within a building. Due to the state's energy efficiency building standards and efficiency and conservation programs, California's electricity use per capita in the commercial sector is lower than any other state except Hawaii (EIA 2018).

Southern California Edison (SCE) provides electricity to the project. SCE, a subsidiary of Edison International, serves approximately 180 cities in 11 counties across central and Southern California. According to the California Public Utilities Commission (CPUC), approximately 84 billion kilowatt-hours of electricity were used in SCE's service area in 2017. Demand forecasts anticipate that approximately 75 billion kilowatt-hours of electricity will be used in SCE's service area in 2020 (CPUC 2018).

SCE receives electric power from a variety of sources. According to CPUC's *2018 California Renewables Portfolio Standard Annual Report*, 32% of SCE's power came from eligible renewables, such as biomass/waste, geothermal, small hydroelectric, solar, and wind sources (CPUC 2018). The California Energy Commission (CEC) estimates that about 29% of the state's electricity retail sales in 2017 came from renewable energy (ECDMS 2016). The California Renewables Portfolio Standard (RPS) Program establishes a goal for California to increase the amount of electricity generated from renewable energy resources to 20% by 2010, and to 33% by 2020. Recent legislation revised the current RPS target for California to obtain 50% of total retail electricity sales from renewable sources by 2030, with interim targets of 40% by 2024, and 45% by 2027 (CPUC 2016).

Natural Gas

According to the CEC, California used approximately 12,571 million therms[1] of natural gas in 2017 (EIA 2019b). In 2017 (the most recent year for which data is available), by sector, industrial uses utilized 37% of the state's natural gas, followed by 32% from electric power, 19% from residential, 11% from commercial, and 1% from transportation uses (CEC 2018a). While the supply of natural gas in the United States and production in the lower 48 states has increased greatly since 2008, California produces little, and imports 90% of its supply of natural gas (EIA 2019b).

[1] One therm is equal to 100,000 BTU or 100 kBTU.

The Southern California Gas Company (SoCalGas) provides the project with natural gas service. The territory serviced by SoCalGas encompasses approximately 20,000 square miles and more than 500 communities. In the California Energy Demand mid-energy demand scenario, natural gas demand is projected to have an annual growth rate of 0.03% in SoCalGas's service territory. As of 2017, approximately 7.2 billion therms were used in SoCalGas's service area per year or 19.7 million therms per day. At project buildout (2021), natural gas demand is anticipated to be approximately 7.9 billion therms per year in SoCalGas's service area (CEC 2018b). The total capacity of natural gas available to SoCalGas in 2016 is estimated to have been 3.9 billion cubic feet per day. In 2021, the total capacity available is also estimated to be 3.9 billion cubic feet per day[2] (California Gas and Electric Utilities 2016). This amount is approximately equivalent to 3.98 billion thousand British thermal units (kBtu) per day or 39.8 million therms per day. Over the course of a year, the available capacity would therefore be 14.5 billion therms per year, which is well above the existing and future anticipated natural gas demand in the area serviced by SoCalGas. Within the immediate vicinity of the project site, there is an existing 6-inch gas line located within Clinton Keith Road (Excel Engineering 2019).

Petroleum

According to the CEC, California used approximately 18.6 billion gallons of petroleum in 2017 (EIA 2019c). This equates to a daily use of approximately 51 million gallons of petroleum. By sector, transportation uses utilize approximately 85.5% of the state's petroleum, followed by 11.1% from industrial, 2.5% from commercial, 0.9% from residential, and 0.01% from electric power uses (EIA 2018). In California, petroleum fuels refined from crude oil are the dominant source of energy for transportation sources. Petroleum usage in California includes petroleum products such as motor gasoline, distillate fuel, liquefied petroleum gases, and jet fuel. Production of petroleum in the United States was 9.7 million barrels per day during April 2015, which was the highest output since April 1971 (CEC 2016a).

4.16.2 Relevant Plan, Policies, and Ordinances

Federal

Federal Energy Policy and Conservation Act

In 1975, Congress enacted the Federal Energy Policy and Conservation Act, which established the first fuel economy standards for on-road motor vehicles in the United States. Pursuant to the act, the National Highway Traffic Safety Administration is responsible for establishing additional vehicle standards. In 2012, new fuel economy standards for passenger cars and light trucks were approved for model years 2017 through 2021 (77 FR 62624–63200). Fuel economy is determined based on each manufacturer's average fuel economy for the fleet of vehicles available for sale in the United States.

Energy Independence and Security Act of 2007

On December 19, 2007, the Energy Independence and Security Act of 2007 (EISA) was signed into law. In addition to setting increased corporate average fuel economy standards for motor vehicles, the EISA includes the following other provisions related to energy efficiency:

- Renewable Fuel Standard (RFS) (Section 202)
- Appliance and Lighting Efficiency Standards (Sections 301–325)
- Building Energy Efficiency (Sections 411–441)

[2] One cubic foot of natural gas has approximately 1,020 Btus of natural gas or 1.02 kBtus of natural gas.

This federal legislation (the RFS) requires ever-increasing levels of renewable fuels to replace petroleum (EPA 2017). The U.S. Environmental Protection Agency is responsible for developing and implementing regulations to ensure that transportation fuel sold in the United States contains a minimum volume of renewable fuel. The RFS program regulations were developed in collaboration with refiners, renewable fuel producers, and many other stakeholders.

The RFS program was created under the Energy Policy Act of 2005 and established the first renewable fuel volume mandate in the United States. As required under the act, the original RFS program (RFS1) required 7.5 billion gallons of renewable fuel to be blended into gasoline by 2012. Under the EISA, the RFS program was expanded in several key ways that lay the foundation for achieving significant reductions in greenhouse gas (GHG) emissions from the use of renewable fuels, reducing imported petroleum, and encouraging the development and expansion of the renewable fuels sector in the United States. The updated program (RFS2) includes the following:

- EISA expanded the RFS program to include diesel, in addition to gasoline.
- EISA increased the volume of renewable fuel required to be blended into transportation fuel from 9 billion gallons in 2008 to 36 billion gallons by 2022.
- EISA established new categories of renewable fuel, and set separate volume requirements for each one.
- EISA required the U.S. Environmental Protection Agency to apply lifecycle GHG performance threshold standards to ensure that each category of renewable fuel emits fewer GHGs than the petroleum fuel it replaces.

Additional provisions of the EISA address energy savings in government and public institutions, research for alternative energy, additional research in carbon capture, international energy programs, and the creation of "green" jobs.

State

Warren–Alquist Act

The California Legislature passed the Warren–Alquist Act in 1974, which created the CEC. The legislation also incorporated the following three key provisions designed to address the demand side of the energy equation:

- It directed the CEC to formulate and adopt the nation's first energy conservation standards for both buildings constructed and appliances sold in California.
- The act removed the responsibility of electricity demand forecasting from the utilities, which had a financial interest in high-demand projections, and transferred it to a more impartial CEC.
- The CEC was directed to embark on an ambitious research and development program, with a particular focus on fostering what were characterized as non-conventional energy sources.

State of California Energy Action Plan

The CEC and CPUC approved the first State of California Energy Action Plan in 2003. The plan established shared goals and specific actions to ensure the provision of adequate, reliable, and reasonably priced electrical power and natural gas supplies; it also identified cost-effective and environmentally sound energy policies, strategies, and actions for California's consumers and taxpayers. In 2005, the CEC and CPUC adopted a second Energy Action Plan to reflect various policy changes and actions of the prior 2 years.

At the beginning of 2008, the CEC and CPUC determined that it was not necessary or productive to prepare a new energy action plan. This determination was based, in part, on a finding that the state's energy policies have been significantly influenced by the passage of Assembly Bill (AB) 32, the California Global Warming Solutions Act of 2006 (discussed below). Rather than produce a new energy action plan, the CEC and CPUC prepared an "update" that examines the state's ongoing actions in the context of global climate change.

Senate Bill 1078 (2002)

Senate Bill (SB) 1078 established the California RPS Program and required that a retail seller of electricity purchase a specified minimum percentage of electricity generated by eligible renewable energy resources as defined in any given year, culminating in a 20% standard by December 31, 2017. These retail sellers include electrical corporations, community choice aggregators, and electric service providers. The bill relatedly required the CEC to certify eligible renewable energy resources, design and implement an accounting system to verify compliance with the RPS by retail sellers, and allocate and award supplemental energy payments to cover above-market costs of renewable energy.

Senate Bills 107 (2006), X1-2 (2011), 350 (2015), and 100 (2018)

SB 107 (2006) accelerated the RPS established by SB 1078 by requiring that 20% of electricity retail sales be served by renewable energy resources by 2010 (not 2017). Additionally, SB X1-2 (2011) requires all California utilities to generate 33% of their electricity from eligible renewable energy resources by 2020. Specifically, SB X1-2 sets a three-stage compliance period: by December 31, 2013, 20% had to come from renewables; by December 31, 2016, 25% had to come from renewables; and by December 31, 2020, 33% will come from renewables.

SB 350 (2015) requires retail seller and publicly owned utilities to procure 50% of their electricity from eligible renewable energy resources by 2030, with interim goals of 40% by 2024 and 45% by 2027.

SB 100 (2018) increased the standards set forth in SB 350. The bill establishes that 44% of the total electricity sold per year to retail customers in California be secured from qualifying renewable energy sources by December 31, 2024, with that number increasing to 52% by December 31, 2027, and 60% by December 31, 2030. SB 100 states that it is the policy of the state that eligible renewable energy resources and zero-carbon resources supply 100% of the retail sales of electricity to California. This bill requires that the achievement of 100% zero-carbon electricity resources do not increase the carbon emissions elsewhere in the western grid and that the achievement not be achieved through resource shuffling.

Consequently, utility energy generation from non-renewable resources is expected to be reduced based on implementation of the 60% RPS in 2030. Therefore, any project's reliance on non-renewable energy sources would also be reduced.

Assembly Bill 1007 (2005)

AB 1007 (2005) required the CEC to prepare a statewide plan to increase the use of alternative fuels in California (State Alternative Fuels Plan). The CEC prepared the plan in partnership with the California Air Resources Board (CARB) and in consultation with other state agencies, plus federal and local agencies. The State Alternative Fuels Plan assessed various alternative fuels and developed fuel portfolios to meet California's goals to reduce petroleum consumption, increase alternative fuels use, reduce GHG emissions, and increase in-state production of biofuels without causing a significant degradation of public health and environmental quality.

Assembly Bill 32 (2006) and Senate Bill 32 (2016)

In 2006, the State Legislature enacted AB 32, the California Global Warming Solutions Act of 2006. AB 32 requires California to reduce its GHG emissions to 1990 levels by 2020. In 2016, the Legislature enacted SB 32, which extended the horizon year of the state's codified GHG reduction planning targets from 2020 to 2030, requiring California to reduce its GHG emissions to 40% below 1990 levels by 2030. In accordance with AB 32 and SB 32, CARB prepares scoping plans to guide the development of statewide policies and regulations for the reduction of GHG emissions. Many of the policy and regulatory concepts identified in the scoping plans focused on increasing energy efficiencies, using renewable resources, and reducing the consumption of petroleum-based fuels (such as gasoline and diesel). As such, the state's GHG emissions reduction planning framework creates co-benefits for energy-related resources. Additional information on AB 32 and SB 32 is provided in Section 4.6.2 in Section 4.6, Greenhouse Gas Emissions, of this Environmental Impact Report (EIR).

California Building Standards

Part 6 of Title 24 of the California Code of Regulations was established in 1978 and serves to enhance and regulate California's building standards. Part 6 establishes energy efficiency standards for residential and non-residential buildings constructed in California to reduce energy demand and consumption. Part 6 is updated periodically to incorporate and consider new energy efficiency technologies and methodologies. The 2016 Title 24 building energy efficiency standards, which became effective on January 1, 2017, further reduce energy used in the state. In general, single-family homes built to the 2016 standards are anticipated to use approximately 28% less energy for lighting, heating, cooling, ventilation, and water heating than those built to the 2013 standards, and non-residential buildings built to the 2016 standards will use an estimated 5% less energy than those built to the 2013 standards (CEC 2015). The 2016 Title 24 standards are the current applicable building energy efficiency standards, and became effective on January 1, 2017. The 2019 standards will continue to improve upon the 2016 standards for new construction of, and additions and alterations to, residential and nonresidential buildings. The 2019 standards will go into effect on January 1, 2020.

Title 24 also includes Part 11, the California Green Building Standards (CALGreen). The CALGreen standards took effect in January 2011, and instituted mandatory minimum environmental performance standards for all ground-up, new construction of commercial, low-rise residential, and state-owned buildings, as well as schools and hospitals. The 2016 CALGreen standards became effective on January 1, 2017. The mandatory standards require the following:

- 20% mandatory reduction in indoor water use
- 50% diversion of construction and demolition waste from landfills
- Mandatory inspections of energy systems to ensure optimal working efficiency

Integrated Energy Policy Report

The CEC is responsible for preparing integrated energy policy reports that identify emerging trends related to energy supply, demand, conservation, public health and safety, and maintenance of a healthy economy. The CEC's *2015 Integrated Energy Policy Report* discusses the state's policy goal to require that new residential construction be designed to achieve zero net energy standards by 2020, and that new non-residential construction be designed to achieve zero net energy standards by 2030 (CEC 2016a), which is relevant to this EIR. Refer to Section 4.6.2 of this EIR for additional information on the state's zero net energy objectives and how the state's achievement of its objectives would serve to beneficially reduce the project's GHG emissions profile and energy consumption.

State Vehicle Standards

In response to the transportation sector accounting for more than half of California's carbon dioxide (CO_2) emissions, AB 1493 was enacted in 2002. AB 1493 required CARB to set GHG emissions standards for passenger vehicles, light-duty trucks, and other vehicles determined by the state board to be those whose primary use is noncommercial personal transportation in the state. The bill required that CARB set GHG emissions standards for motor vehicles manufactured in 2009 and all subsequent model years. The 2009 through 2012 standards resulted in a reduction in approximately 22% of GHG emissions compared to emissions from the 2002 fleet, and the 2013 through 2016 standards resulted in a reduction of approximately 30%.

In 2012, CARB approved a new emissions-control program for model years 2017 through 2025. The program combines the control of smog, soot, and global-warming gases with requirements for greater numbers of zero-emissions vehicles into a single package of standards called Advanced Clean Cars. By 2025, when the rules would be fully implemented, new automobiles would emit 34% fewer global-warming gases and 75% fewer smog-forming emissions (CARB 2011).

Although the focus of the state's vehicle standards is on the reduction of air pollutants and GHG emissions, one co-benefit of implementation of these standards is a reduced demand for petroleum-based fuels.

Sustainable Communities Strategy

The Sustainable Communities and Climate Protection Act of 2008, or SB 375, coordinates land use planning, regional transportation plans, and funding priorities to help California meet its GHG emissions reduction mandates. As codified in California Government Code Section 65080, SB 375 requires metropolitan planning organizations (e.g., Southern California Association of Governments) to include a Sustainable Communities Strategy in their regional transportation plan. The main focus of the Sustainable Communities Strategy is to plan for growth in a fashion that will ultimately reduce GHG emissions, but the strategy is also part of a bigger effort to address other development issues, including transit and vehicle miles traveled (VMT), which influence the consumption of petroleum-based fuels.

Local

City of Murrieta General Plan 2035

The Conservation Element of the City of Murrieta's (City) General Plan 2035 includes the goals and policies that result in co-benefits related to energy conservation. The following goals and policies from the Conservation Element may be applicable to the project (City of Murrieta 2011a):

GOAL CSV-2 Murrieta promotes compliance with requirements from the State and appropriate agencies regarding comprehensive water conservation measures in buildings and landscaping.

Policy CSV-2.1 Ensure that all developments comply with water efficiency requirements, as mandated by the applicable Building Code.

GOAL CSV-12 Energy conservation and the generation of energy from renewable sources is prioritized as part of an overall strategy to reduce GHG emissions.

Policy CSV-12.1 Ensure that all developments comply with energy efficiency requirements as mandated by the applicable Building Code.

Policy CSV-12.3 Support the on-site installation and use of renewable energy generation systems for residential, commercial, institutional, and industrial uses.

GOAL CSV-13 Solid waste is diverted from landfills through waste reduction, re-use, and recycling.

Policy CSV-13.1 Continue to comply with the landfill diversion requirements of the Integrated Waste Management Program.

Policy CSV-13.2 Ensure that non-residential and multi-family developments provide readily accessible areas for recycling (at a minimum) paper, corrugated cardboard, glass, plastics and metals, as required by California law.

GOAL CSV-14 A community that encourages and incentivizes the sustainable development of buildings and neighborhoods, particularly with respect to durability, energy and water use, and transportation impacts.

Policy CSV-14.1 Ensure all applicable construction projects comply with the California State Green Building Standards Code.

Policy CSV-14.2 Encourage the integration of other principles of green building into development standards and guidelines, looking for opportunities to realize other benefits such as improved health and increased bicycle transportation.

City of Murrieta Climate Action Plan

Adopted as part of the City's General Plan 2035, the City's Climate Action Plan (CAP) (City of Murrieta 2011b), which was prepared following CEQA Guidelines Section 15183.5, provides a framework for reducing GHG emissions and managing resources to best prepare for a changing climate. With respect to evaluation of projects under CEQA, the CAP states, "Projects that demonstrate consistency with the strategies, actions, and emission reduction targets contained in the CAP would have a less than significant impacts on climate change" (City of Murrieta 2011b). The City's CAP also suggests best practices for implementation and makes recommendations for measuring progress.

The City's CAP is intended to address the main sources of the emissions that cause climate change, which include emissions from the energy consumed in buildings and for transportation. The purpose of the City's CAP is to guide the development, enhancement, and implementation of actions that would reduce the City's GHG emissions by 15% below existing (2009) levels by 2020.

4.16.3 Thresholds of Significance

Appendix G of the CEQA Guidelines (14 CCR 15000 et seq.) provide guidance for evaluating whether a development project may result in significant impacts with regard to energy. Based on Appendix F and Appendix G of the CEQA Guidelines, a project could have a significant impact on energy conservation if the project would:

1. Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation.
2. Conflict with or obstruct a state or local plan for renewable energy or energy efficiency.

4.16.4 Impacts Analysis

Would the project result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?

Less-than-Significant Impact. The project would consume energy resources during project construction and operation and would intensify development on the project site as compared to the existing site condition. The project also includes project design features that will reduce energy consumption as stated below.

Project Design Features

To reduce energy use associated with construction and operation of the project to the extent feasible, Costco Wholesale (Costco) would incorporate the following project design features (PDFs) into the new facility (**PDF-AQ/GHG-1**):

a. New and renewable building materials shall be extracted and manufactured within the region whenever possible, reducing transportation emissions.
b. The project shall use pre-manufactured building components, including structural framing and metal panels, to help minimize waste during construction.
c. The main building structure shall be constructed with a pre-engineered system that uses 100% recycled steel materials and is designed to minimize the amount of material utilized.
d. Roof material shall be 100% recycled standing seam metal panel, designed to maximum efficiency for spanning the structure.
e. Exterior skin metal shall be 100% recycled.
f. Construction waste shall be recycled whenever possible.
g. Floor sealant contains no volatile organic compounds (VOCs) and represents over 80% of the floor area.
h. LED lamps shall be installed in the parking lots.
i. Parking lot and exterior lights shall be controlled by the building's automated energy management system.
j. Pre-manufactured metal wall panels with insulation carry a higher Resistance Value (more commonly known as R-Value), and greater solar reflectivity shall be installed to help conserve energy. Building heat absorption is further reduced by a decrease in the thermal mass of the metal wall when compared to a typical masonry block wall.
k. Costco would design the roofing structure to accommodate the additional structural load of the solar panels to allow for the flexibility for possible future installation.
l. The project shall plant native, drought-tolerant vegetation that would use less water than other common species.
m. The project shall install an irrigation system that uses deep-root watering bubblers for parking lot trees to minimize usage and ensure that water goes directly to the intended planting areas.
n. High-efficiency restroom fixtures shall be installed.
o. Building envelopes shall be insulated to meet or exceed current energy code requirements.
p. Heating, ventilation, and air conditioning (HVAC) comfort systems shall be controlled by a computerized building management system to maximize efficiency.

q. HVAC units shall be high-efficiency, direct-ducted units.
r. HVAC units shall not use hydrochlorofluorocarbons.
s. Interior lighting shall be controlled by the overall project energy management system.
t. Gas water heaters shall be direct vent and high efficiency.
u. Extensive recycling/reuse program shall be implemented for warehouse and office space including tires, cardboard, grease, plastics, and electronic waste.
v. All Costco trucks shall be equipped with an engine idle shut off timer.
w. Three electric vehicle (EV) charging stations shall be installed in the parking lot.
x. Within 2 years of opening the Costco Warehouse, a 708-kilowatt photovoltaic system shall be installed, which would generate a system output of 1,128,400 kilowatt-hours per year.
y. Stalls designated as Clean Air Vehicle/Van Pool would encourage use of such vehicles by employees and customers.

Vineyard II Retail Development would incorporate the following PDFs into the new facilities (**PDF-AQ/GHG-2**):

a. Design the roofing structure to accommodate the additional structural load of the solar panels to allow for the flexibility for possible future installation.
b. LED lamps shall be installed in the parking lots and outdoor lighting fixtures.
c. Parking lot and exterior lights shall be controlled by a time clock and photo cell device to turn lights off at dawn.
d. Fourteen EV charging stations shall be installed in the parking lot, four of which shall be tied to a solar source from the roofs of two buildings at the time of opening.
e. Electrical outlets on site shall allow recharging of battery-operated landscape maintenance equipment by landscape maintenance staff.
f. Each trash enclosure in the retail center shall have a recycling bin slot for each tenant.
g. Non-potable irrigation lines shall be installed in preparation for future recycled water.

Implementation of the project would increase the demand for electricity and natural gas at the project site and petroleum consumption in the region during construction and operation; however, through implementation of project design features and mitigation measures and consistency with current regulations and policies, the project would not be wasteful or inefficient or unnecessarily consume energy resources, as further described below.

Electricity

Construction Use

Temporary electric power for as-necessary lighting and electronic equipment (e.g., computers inside temporary construction trailers, HVAC) would be provided by SCE. The amount of electricity used during construction would be minimal; typical demand would stem from the use of electrically powered hand tools and several construction trailers by managerial staff during the hours of construction activities. The majority of the energy used during construction would be from petroleum. The electricity used for construction activities would be temporary and minimal; therefore, impacts would be less than significant.

Operational Use

The project's operational phase would require electricity for multiple purposes including, but not limited to, building heating and cooling, lighting, and appliances, including refrigeration, electronics, equipment, and machinery. Energy would also be consumed during operation of the project related to water usage, solid waste disposal, and electric vehicle trips. SCE has confirmed availability of electricity supply in the project vicinity to serve the project. CalEEMod version 2016.3.2 was used to analyze electrical usage during operation; the default value for electricity consumption for the retail and commercial land uses was applied for the project (CAPCOA 2017). Default electricity generation rates in CalEEMod for the proposed land use and climate zone were used. The electricity use for non-residential buildings was calculated in CalEEMod using energy intensity value (electricity use per square foot per year) assumptions, which were based on the California Commercial End-Use Survey database (CEC 2006).

The project is estimated to have a total electrical demand of 2,555 megawatt-hours per year. The non-residential electricity demand in 2017 was 8,346,000 megawatt-hours for Riverside County (County) (ECDMS 2016). SCE, which will provide electricity for the project, is compliant with existing regulations regarding generation of power from renewable sources. In addition, within 2 years of operation, the project will generate electricity from solar panels (estimated at 1,128,400 kilowatt-hours per year), which will be delivered to SCE and offset electrical requirements. The project would be built in accordance with the current Title 24 standards at the time of construction and CALGreen standards. Therefore, due to the generation of electricity by the project as a result of the installation of solar panels, incorporation of sustainability measures, and the inherent increase in efficiency of building code regulations, the project would not result in a wasteful use of energy. Impacts related to operational electricity use would be less than significant.

Natural Gas

Construction Use

Natural gas is not anticipated to be required during construction of the project. Fuels used for construction would primarily consist of diesel and gasoline, which are discussed under the subsection "Petroleum," below. Any minor amounts of natural gas that may be consumed as a result of project construction would be temporary and negligible, and would not have an adverse effect; therefore, impacts would be less than significant.

Operational Use

Natural gas consumption during operation would be required for various purposes, including, but not limited to, building heating and cooling. SoCalGas confirmed availability of natural gas supply in the project vicinity to serve the project.

Default natural gas generation rates in CalEEMod for the proposed land use and climate zone were used. According to these estimations, the project would consume approximately 2.7 billion British thermal units per year. The non-residential natural gas consumption for the County in 2017 was 139.1 billion British thermal units (ECDMS 2016). For disclosure, the project's natural gas consumption during operation would be 0.0019% of the County's non-residential natural gas consumption total; therefore, there would be available supply to meet the project's demand.

Although natural gas consumption would increase due to the implementation of the project, the building envelope, HVAC, and other systems would be designed to maximize energy performance as detailed in **PDF-AQ/GHG-1** and **PDF-AQ/GHG-2**. The project is subject to statewide mandatory energy requirements as outlined in Title 24, Part 6, of the California Code of Regulations. Prior to project approval, the applicant would ensure that the project would

meet Title 24 requirements applicable at that time, as required by state regulations through their plan review process. Thus, the natural gas consumption of the project would not be considered inefficient or wasteful, and impacts would be less than significant.

Petroleum

Construction Use

Petroleum would be consumed throughout construction of the project. Fuel consumed by construction equipment would be the primary energy resource expended over the course of construction, and VMT associated with the transportation of construction materials and construction worker commutes would also result in petroleum consumption. Heavy-duty construction equipment associated with construction activities and haul trucks involved in relocating dirt around the project site are assumed to use diesel fuel. Construction workers would travel to and from the project site throughout the duration of construction. It is assumed that construction workers would travel to and from the project site in gasoline-powered vehicles.

Heavy-duty construction equipment of various types would be used during project construction. CalEEMod was used to estimate construction equipment usage; results are included in Appendix B of this EIR. Based on that analysis, diesel-fueled construction equipment would operate for an estimated 51,587 hours, as summarized in Table 4.16-1.

Table 4.16-1. Hours of Operation for On-Site Construction Equipment

Phase	Hours of Equipment Use
Costco	
Site Preparation	2,408
Grading	6,528
Building Construction	6,188
Paving	912
Architectural Coating	222
Vineyard II	
Site Preparation	380
Phase 1 Grading and Trenching	4,680
Phase 1 Building Construction	12,753
Phase 1 Paving	720
Phase 1 Architectural Coating	120
Phase 2 Precise Grading and Footing Trenching	6,026
Phase 2 Building Construction	5,742
Phase 2 Architectural Coating	640
Phase 2 Paving	180
Warm Springs Parkway	
Grading	3,120
Paving	968
Total	**51,587**

Source: Appendix B

Fuel consumption from construction equipment was estimated by converting the total CO_2 emissions from each construction phase to gallons using conversion factors for CO_2 to gallons of gasoline or diesel. The conversion factor for gasoline is 8.78 kilograms per metric ton CO_2 per gallon, and the conversion factor for diesel is 10.21 kilograms per metric ton CO_2 per gallon (The Climate Registry 2018). The estimated diesel fuel use from construction equipment is shown in Table 4.16-2.

Table 4.16-2. Construction Equipment Diesel Demand

Phase	Pieces of Equipment[a]	Equipment CO_2 (MT)[a]	kg CO_2/ Gallon[b]	Gallons
Costco				
Site Preparation	7	71.88	10.21	7,039.76
Grading	6	177.18	10.21	17,353.81
Building Construction	9	105.39	10.21	10,322.34
Paving	6	19.02	10.21	1,863.10
Architectural Coating	1	4.72	10.21	462.63
Vineyard II				
Site Preparation	5	13.65	10.21	1,336.50
Phase 1 Grading and Trenching	9	191.84	10.21	18,789.36
Phase 1 Building Construction	17	280.61	10.21	27,483.57
Phase 1 Paving	3	9.51	10.21	931.70
Phase 1 Architectural Coating	1	2.55	10.21	250.08
Phase 2 Precise Grading and Footing Trenching	6	170.20	10.21	16,670.24
Phase 2 Building Construction	10	114.56	10.21	11,219.99
Phase 2 Architectural Coating	4	2.55	10.21	250.08
Phase 2 Paving	1	16.38	10.21	1,604.05
Warm Springs Parkway				
Grading	6	84.69	10.21	8,294.89
Paving	6	20.76	10.21	2,033.63
			Total	**115,577.22**

Sources:
[a] Appendix B
[b] The Climate Registry 2018.
Notes: CO_2 = carbon dioxide; MT = metric ton; kg = kilogram.

Fuel consumption from worker and vendor trips was estimated by converting the total CO_2 emissions from the construction phase to gallons using the conversion factors for CO_2 to gallons of gasoline or diesel. Worker vehicles are assumed to be gasoline fueled, and vendor/hauling vehicles are assumed to be diesel fueled.

Calculations for total worker, vendor, and hauler fuel consumption are provided in Table 4.16-3, Table 4.16-4, and Table 4.16-5.

Table 4.16-3. Construction Worker Vehicle Gasoline Demand

Phase	Trips	Vehicle CO_2 (MT)[a]	kg CO_2/Gallon[b]	Gallons
Costco				
Site Preparation	774	4.77	8.78	542.88
Grading	2,040	12.36	8.78	1,407.29
Building Construction	14,014	84.30	8.78	9,601.83
Paving	285	1.70	8.78	193.21
Architectural Coating	1,147	6.83	8.78	777.60
Vineyard II				
Site Preparation	130	0.80	8.78	91.18
Phase 1 Grading and Trenching	1,495	9.04	8.78	1,029.17
Phase 1 Building Construction	23,544	140.14	8.78	15,961.47
Phase 1 Paving	240	1.43	8.78	162.71
Phase 1 Architectural Coating	860	5.12	8.78	583.03
Phase 2 Precise Grading and Footing Trenching	1,965	11.70	8.78	1,332.15
Phase 2 Building Construction	18,792	111.86	8.78	12,739.89
Phase 2 Architectural Coating	300	5.12	8.78	583.03
Phase 2 Paving	860	1.79	8.78	203.38
Warm Springs Parkway				
Grading	975	6.00	8.78	683.87
Paving	330	2.03	8.78	231.46
			Total	45,208.83

Sources:
[a] Appendix B.
[b] The Climate Registry 2018.
Notes: CO_2 = carbon dioxide; MT = metric ton; kg = kilogram.

Table 4.16-4. Construction Vendor Truck Diesel Demand

Phase	Trips	Vehicle CO_2 (MT)[a]	kg/CO_2/Gallon[b]	Gallons
Costco				
Site Preparation	0	0.00	10.21	0.00
Grading	0	0.00	10.21	0.00
Building Construction	6,006	81.05	10.21	7,938.37
Paving	0	0.00	10.21	0.00
Architectural Coating	0	0.00	10.21	0.00
Vineyard II				
Site Preparation	0	0.00	10.21	0.00
Phase 1 Precise Grading and Trenching	0	0.00	10.21	0.00
Phase 1 Building Construction	9,265	124.73	10.21	12,216.86
Phase 1 Paving	0	0.00	10.21	0.00
Phase 1 Architectural Coating	0	0.00	10.21	0.00
Phase 2 Mass Grading and Trenching	0	0.00	10.21	0.00
Phase 2 Building Construction	7,395	99.56	10.21	9,751.07
Phase 2 Architectural Coating	0	0.00	10.21	0.00

Table 4.16-4. Construction Vendor Truck Diesel Demand

Phase	Trips	Vehicle CO_2 (MT)[a]	kg/CO_2/Gallon[b]	Gallons
Phase 2 Paving	0	0.00	10.21	0.00
Warm Springs Parkway				
Grading	0	0.00	10.21	0.00
Paving	0	0.00	10.21	0.00
			Total	**29,906.30**

Sources:
[a] Appendix B
[b] The Climate Registry 2018.
Notes: CO_2 = carbon dioxide; MT = metric ton; kg = kilogram.

Table 4.16-5. Construction Haul Truck Diesel Demand

Phase	Trips	Vehicle CO_2 (MT)[a]	kg CO_2/Gallon[b]	Gallons
Costco				
Site Preparation	0	0.00	10.21	0.00
Grading	8,413	154.76	10.21	15,157.41
Building Construction	0	0.00	10.21	0.00
Paving	0	0.00	10.21	0.00
Architectural Coating	0	0.00	10.21	0.00
Vineyard II				
Site Preparation	0	0.00	10.21	0.00
Phase 1 Precise Grading and Trenching	2,038	73.46	10.21	7,194.72
Phase 1 Building Construction	0	0.00	10.21	0.00
Phase 1 Paving	0	0.00	10.21	0.00
Phase 1 Architectural Coating	0	0.00	10.21	0.00
Phase 2 Precise Grading and Trenching	0	0.00	10.21	0.00
Phase 2 Building Construction	0	0.00	10.21	0.00
Phase 2 Architectural Coating	0	0.00	10.21	0.00
Phase 2 Paving	0	0.00	10.21	0.00
Warm Springs Parkway				
Grading	100	3.63	10.21	355.09
Paving	250	9.06	10.21	887.73
			Total	**22,352.13**

Sources:
[a] Appendix B
[b] The Climate Registry 2018.
Notes: CO_2 = carbon dioxide; MT = metric ton; kg = kilogram.

As shown in Tables 4.16-2 through 4.16-5, the project is estimated to consume 213,044 gallons of petroleum during the construction phase. By comparison, approximately 12.2 billion gallons of petroleum would be consumed in California over the course of the project's construction phase based on the California daily petroleum consumption estimate of approximately 52.9 million gallons per day (CEC 2016b). Also, for comparison, countywide total petroleum use by vehicles is expected to be 1.0 billion gallons per year by 2019 (CARB 2018). For disclosure, the project's petroleum consumption during the construction phase would be 0.002% of the state's consumption over the course of the project's

construction phase. The project would be required to comply with CARB's Airborne Toxics Control Measure, which restricts heavy-duty diesel vehicle idling time to 5 minutes, CARB's Truck and Bus Regulation, and federal fuel efficiency requirements, which would minimize fuel consumption. Also, in accordance with **MM-AQ-1** (see Section 4.2, Air Quality), the project would utilize Tier 4 Final construction equipment (except where the project applicant establishes to the satisfaction of the City that Tier 4 Final equipment is not reasonably available), which would reduce petroleum usage. Therefore, because petroleum use during construction would be temporary and relatively minimal in comparison to overall usage, and would not be wasteful or inefficient, impacts would be less than significant.

Operational Use

Mobile sources for the project would primarily be motor vehicles (automobiles, light-duty trucks, and heavy-duty delivery trucks) traveling to and from the project site. Motor vehicles may be fueled with gasoline, diesel, or alternative fuels. Based on the Transportation Impact Analysis prepared for the project by Kittelson & Associates Inc., the proposed development is anticipated to generate 8,378 new Costco and gasoline dispensing facility daily employee, customer, and delivery trips (including 33.3% of weekday pass-by trips) and 4,402 new Vineyard II daily employee, customer, and delivery trips (including 25.0% of weekday pass-by trips), which was assumed for the weekday trip rate. Project-related traffic was assumed to include a mixture of vehicles in accordance with the model outputs for traffic. Emission factors representing the vehicle mix and emissions for 2021 were used to estimate emissions associated with full buildout of the project. Project delivery truck idling would be limited to 5 minutes in accordance with CARB's adopted Airborne Toxics Control Measure. Transport refrigeration units (TRUs) are designed to maintain the temperature inside delivery truck trailers. Each TRU was assumed to operate for 30 minutes per visit. Based on data from the applicant, Costco would generate 10 truck delivery trips per day, 5 of which would be equipped with TRUs, and 9 fuel delivery trucks per day, and Vineyard II would generate 8 truck delivery trips per week, 3 of which would be equipped with TRUs. The use of forklifts in the loading dock areas would be fueled with compressed natural gas.

Petroleum fuel consumption associated with motor vehicles traveling to and from the project site during operation is a function of VMT. The annual VMT attributable to the project is expected to be 52.79 million VMT per year (see Appendix B, Air Quality and Greenhouse Gas Emissions Calculations). Similar to construction worker and vendor trips, fuel consumption for operation was estimated by converting the total CO_2 emissions from the retail and commercial land use type to gallons using the conversion factors for CO_2 to gallons of gasoline or diesel. The employee and customer vehicles were assumed to be 92% gasoline powered and 8% diesel powered.

Calculations for annual mobile-source fuel consumption are provided in Table 4.16-6.

Table 4.16-6. Petroleum Consumption – Operation (2021)

Fuel	MT CO_2	kg CO_2/Gallon	Gallons
Gasoline	19,441	8.78	2,214,284
Diesel	1,581	10.21	154,807
		Total	**2,369,091**

Sources:
[a] Appendix B.
[b] The Climate Registry 2018.
Notes: CO_2 = carbon dioxide; kg = kilogram; MT = metric ton.

Mobile sources from the project would result in approximately 2.37 million gallons of gasoline per year beginning in 2021. By comparison, California as a whole consumes approximately 19.3 billion gallons of petroleum per year (CEC 2016b). Countywide total petroleum use by vehicles is expected to be 987 million gallons per year by 2021 (CARB 2018).

Over the lifetime of the project, the fuel efficiency of the vehicles being used by the employees is expected to increase as is the number of electric cars in use. As such, the amount of petroleum consumed as a result of vehicular trips to and from the project site during operation would decrease over time. There are numerous regulations in place that require and encourage increased fuel efficiency. For example, CARB has adopted an approach to passenger vehicles by combining the control of smog-causing pollutants and GHG emissions into a single, coordinated package of standards. The approach also includes efforts to support and accelerate the number of plug-in hybrids and zero-emissions vehicles in California (CARB 2013). Additionally, in response to SB 375, CARB adopted the goal of reducing per-capita GHG emissions from 2005 levels by 8% by 2020, and 13% by 2035 for light-duty passenger vehicles in the planning area for the Southern California Association of Governments. The Southern California Association of Governments' *2016–2040 Regional Transportation Plan/Sustainable Communities Strategy* quantified an 8% reduction of petroleum use by 2020 and an 18% reduction by 2030 (SCAG 2016). As such, operation of the project is expected to use decreasing amounts of petroleum over time due to advances in fuel economy. Furthermore, per **MM-AQ-2**, the project would provide transit subsidies for 100% of employees of the project for 3 to 6 months.

In summary, although the project would increase petroleum use during operation as a result of employees and customers traveling to and from the project site and project-related distribution of goods, the use would be a small fraction of the statewide use and, due to efficiency increases, would diminish over time. Given these considerations, petroleum consumption associated with the project would not be considered inefficient or wasteful and would result in a less-than-significant impact.

Conclusion

Implementation of the project would increase the demand for electricity and natural gas at the project site and petroleum consumption in the region during construction and operation. However, the electrical and natural gas consumption demands of the project during construction and operation would conform to the state's Title 24 and to CALGreen standards, which implement conservation measures. Further, as discussed in the impacts analysis sections of Sections 4.15, Utilities and Service Systems, and 4.6, Greenhouse Gas Emissions, the proposed project would not directly require the construction of new energy generation or supply facilities and providers of electricity and natural gas are in compliance with regulatory requirements that assist in conservation, including requirements that electrical providers achieve state-mandated renewal energy production requirements. The project's petroleum consumption demands during construction and operation would conform with CARB's Airborne Toxics Control Measure. Furthermore, the project would implement **Mitigation Measure (MM) AQ-1** and **MM-AQ-2**, which would further increase fuel efficiency of vehicles used in connection with the project over the lifetime of the project. With compliance with the above referenced mitigation measures, Title 24 conservation standards, and other regulatory requirements and implementation of the additional sustainable features described in **PDF-AQ/GHG-1** and **PDF-AQ/GHG-2**, the project would not be wasteful or inefficient or unnecessarily consume energy resources during construction or operation and would result in a less-than-significant impact with respect to consumption of energy resources.

Would the project conflict with or obstruct a state or local plan for renewable energy or energy efficiency?

Less-than-Significant Impact. Construction and operation of the project would not conflict with state or local plans for renewable energy or energy efficiency. The project would be consistent with the City's Climate Action Plan strategies, as discussed in Table 4.6-7 of Section 4.6, Greenhouse Gas Emissions; consistent with the City's Climate Action Plan Strategy Goals, as discussed in Table 4.6-8; and consistent with the City's General Plan policies, as discussed in Table 4.6-9. Title 24 of the California Code of Regulations contains energy efficiency standards for residential and non-residential buildings based on a state mandate to reduce California's energy demand. Specifically, Title 24 addresses a number of energy efficiency measures that impact energy used for lighting, water heating, heating, and air conditioning, including the energy impact of the building envelope such as windows, doors, skylights, wall/floor/ceiling assemblies, attics, and roofs.

Part 6 of Title 24 specifically establishes energy efficiency standards for non-residential buildings constructed in the State of California in order to reduce energy demand and consumption. The project would comply with Title 24, Part 6, per state regulations. In addition, the applicant would install the following energy-saving PDFs: (a) LED lamps in the parking lots; (b) parking lot and exterior lights that would be controlled by a photo sensor and time clock; (c) reflective roof material on the Vineyard II building to produce lower heat absorption and thereby lower energy requirements; and, (d) high-efficiency restroom fixtures.

As discussed under the previous threshold, the project would result in an increased demand for electricity, natural gas, and petroleum. Title 24, Part 11, contains voluntary and mandatory energy measures that are applicable to the project under CALGreen. In order to comply with Title 24, Part 11 mandatory compliance, the applicant would do the following: (a) recycle construction waste and use recycled construction materials; (b) insulate building envelopes to exceed current energy code requirements; (c) install electric vehicle charging spaces; (d) generate on-site renewable energy; (e) install high-efficiency HVAC units; and (f) reduce indoor water use by 33%. Compliance with all of these mandatory measures would decrease the consumption of electricity, natural gas, and petroleum.

In addition, energy service to the project site would be provided to meet the needs of the project as required by the California Public Utilities Code, which obligates electricity and natural gas providers to provide service to existing and potential customers. Because the project would comply with Title 24, Part 6 and Part 11, and as further discussed in EIR Section 4.6, the project area's existing distribution facilities have capacity to serve the project during construction and operation, no conflict with existing energy standards and regulations would occur.

The project would comply with regulatory requirements. As such, the project would not conflict with or obstruct an applicable state or local plan for renewable energy or energy efficiency and impacts would be considered less than significant.

4.16.5 Mitigation Measures

No mitigation is required.

4.16.6 Level of Significance after Mitigation

Impacts related to energy would be less than significant. Therefore, no mitigation measures are necessary.

4.16.7 Cumulative Impacts

Cumulative projects that could exacerbate the proposed project's impacts include any projects that could result in wasteful, inefficient, or unnecessary use of energy. Future projects would be subject to CEQA and would require an energy analysis, consistency with existing plans and policies for renewable energy and energy efficiency, and implementation of control measures and mitigation, if necessary, to avoid wasteful, inefficient, or unnecessary consumption of energy resources . Furthermore, the project would minimize construction and operational activities through energy reduction strategies pursuant to **PDF-AQ/GHG-1** and **PDF-AQ/GHG-2**. Therefore, the project's contribution to cumulative impacts would not be cumulatively considerable and cumulative impacts to energy use would be less than significant.

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4.17 Wildfire

This section describes the impacts of the proposed Costco/Vineyard II Retail Development Project (project) on wildfire and its contribution to regional wildfire conditions, identifies associated regulatory requirements, evaluates potential impacts, and identifies mitigation measures related to implementation of the project. Appendix G of the California Environmental Quality Act (CEQA) Guidelines was updated in December 2018 to include questions on wildfire. Thus, this section of this Environmental Impact Report (EIR) was added as a result of that update. Potential wildfire impacts resulting from construction and operation of the project were evaluated based on a review of existing resources and applicable laws, regulations, guidelines, and standards, as well as the Fire Assessment Summary Letter completed for the project and included as Appendix K. This section focuses on the effect of the project on wildfire risk. Fire protection services for the project are addressed in Section 4.11, Public Services.

4.17.1 Existing Conditions

Wildfire is a continuous threat in Southern California, and is particularly concerning in the wildland–urban interface, the geographic area where urban development either abuts or intermingles with wildland or vegetative fuels. The threat of wildland fire in or near the City of Murrieta (City) is high due to the wildland–urban interface areas in and around the City (City of Murrieta 2011a). During the summer season, dry vegetation, prolonged periods of drought, and Santa Ana wind conditions can combine to increase the risk of wildfires.

Wildland fire hazards exist throughout approximately 90% of Riverside County and the City in open space, parklands, and agricultural areas (City of Murrieta 2011a). Undeveloped hillside areas in and adjacent to the City present a potentially serious hazard, including the mountainous areas along the western boundary of the City, wildland areas in the Greer Ranch area in northern Murrieta, and the Hogbacks and Los Alamos area (City of Murrieta 2011a). The project site is located in the northeastern portion of the City, less than 1 mile north of some of these fire-prone wilderness areas within the City.

The project area is characterized as lowlands between the Hogbacks to the southeast and Greer Ranch Hills to the northwest. As discussed in Section 4.5, Geology and Soils, of this EIR, the site's ground surface generally slopes to the south from an elevation of approximately 1,550 feet to 1,520 feet, surrounded by relatively flat land. Existing slopes on site are highly variable due to the previous grading operation.

Fire History

The project area, like all of Riverside County, is subject to seasonal weather conditions that can heighten the likelihood of fire ignition and spread, and considering the site's terrain and vegetation, may result in fast-moving and moderate-intensity wildfire. Fire history is an important component of wildfire analysis. Wildfire history information can provide an understanding of fire frequency, fire type, most vulnerable project areas, and significant ignition sources, amongst others. The California Department of Forestry and Fire (CAL FIRE) maintains the Fire and Resource Assessment Program database, which was used to evaluate the project site's fire history to determine whether large fires have occurred in the project area, and thus the likelihood of future fires. Per the recorded fire history database, the site has not been subject to wildfire (CAL FIRE 2019). Recorded wildfires within 5 miles of the project site range from 31 acres (2007 Wright Fire) to 24,434 acres (1993 California Fire).

Fire Hazard Mapping

CAL FIRE's Fire and Resource Assessment Program database also includes map data documenting areas of significant fire hazards in the state. These maps categorize geographic areas of the state into different Fire Hazard Severity Zones (FHSZs), ranging from moderate to very high. CAL FIRE uses FHSZs to classify anticipated fire-related hazards for the entire state, and includes classifications for State Responsibility Areas, Local Responsibility Areas, and Federal Responsibility Areas. Fire hazard severity classifications take into account vegetation, topography, weather, crown fire production, and ember production and movement. As shown in Figure 4.17-1, Fire Hazard Severity Zones, the project site and surrounding area is designated as a Very High FHSZ within the Local Responsibility Area (CAL FIRE 2009).

Vegetation Communities and Land Covers

Variations in vegetative cover type and species composition have a direct effect on fire behavior. Some plant communities and their associated plant species have increased flammability based on plant physiology (resin content), biological function (flowering, retention of dead plant material), physical structure (leaf size, branching patterns), and overall fuel loading.

A critical factor to consider is the dynamic nature of vegetation communities. Fire presence and absence at varying cycles or regimes affects plant community succession. Succession of plant communities, most notably the gradual conversion of shrublands to grasslands with high frequency fires and grasslands to shrublands with fire exclusion, is highly dependent on the fire regime. Further, biomass and associated fuel loading will increase over time if disturbance or fuel reduction efforts are not diligently implemented.

The vegetation types and land covers in the project area were identified during field assessments conducted for the project site. As detailed in Section 4.3, Biological Resources, the project site is characterized by six vegetation communities and three land cover types: California buckwheat scrub, disturbed California buckwheat scrub, fourwing saltbush scrub, chamise–black sage chaparral, chamise–California buckwheat, Mediterranean California naturalized annual and perennial grasslands, spreading grounds and detention basins, disturbed habitat, and developed land. Figure 3, Biological Resources Map, in Appendix K illustrates the distribution of vegetation communities and land covers in the study area (the project site and a 500-foot buffer), and Table 1 in Appendix K provides a summary of each land cover's extent. The study area consists of 72.08 acres and is dominated by 21 acres of developed land.

Topography/Terrain

Topography influences fire risk by affecting fire spread rates. Typically, steep terrain results in faster fire spread up-slope and slower spread down-slope. Terrain that forms a funneling effect, such as chimneys, chutes, or saddles on the landscape can result in especially intense fire behavior, including faster spread and higher intensity. Conversely, flat terrain tends to have little effect on fire spread, resulting in fires that are driven by vegetation and wind.

The project area is characterized as lowlands between the Hogbacks to the southeast and Greer Ranch Hills to the northwest. As discussed in Section 4.5 of this EIR, the site's ground surface generally slopes to the south from an elevation of approximately 1,550 feet to 1,520 feet, surrounded by relatively flat land. Existing slopes on site are highly variable due to the previous grading operation. The surrounding lands are relatively flat and do not contain slopes typical of exacerbating wildfire risks. Under existing conditions, the vacant property to the north is relatively flat and composed of approximately 20 acres of disturbed sage scrub and grasses. Slope gradients for natural slopes range from 5% to 18%.

Climate, Weather, and Wind

In the City, the summers are hot, arid, and mostly clear and the winters are long, cold, and partly cloudy. During the summer months (late June through September), the average daily temperature is above 83°F, and during the cooler, winter months (late November through March), the average daily temperature is below 69°F. The temperature varies throughout the year but is rarely below 34°F or above 95°F. Like much of Southern California, the City experiences seasonal variation in monthly rainfall throughout the year, with the wetter months lasting from October through April.

The project site, like much of Southern California, is influenced by prevailing wind patterns. Prevailing winds are winds that blow from a single direction over a specific area of the Earth. The predominant average hourly wind speed and direction in the City varies throughout the year. The wind is most often from the west from February through mid-November. The wind is most often from the east for approximately 2.5 months, from mid-November to early February. The windier part of the year lasts for approximately 7 months (mid-November through mid-June), with average wind speeds of more than 5.6 miles per hour (Weather Spark 2020).

4.17.2 Relevant Plans, Policies, and Ordinances

Federal

National Fire Protection Association Codes, Standards, Practices, and Guides

National Fire Protection Association codes, standards, recommended practices, and guides are developed through a consensus standards development process approved by the American National Standards Institute. This process brings together professionals representing varied viewpoints and interests to achieve consensus on fire and other safety issues. National Fire Protection Association standards are recommended guidelines and nationally accepted good practices in fire protection, but are not laws or codes unless adopted as such or referenced as such by the California Fire Code (CFC) or the local fire agency.

Federal Wildland Fire Management Policy

The Federal Wildland Fire Management Policy was developed in 1995, updated in 2001, and again in 2009 by the National Wildfire Coordinating Group, a federal multi-agency group that establishes consistent and coordinated fire management policy across multiple federal jurisdictions. An important component of the Federal Wildland Fire Management Policy is the acknowledgment of the essential role of fire in maintaining natural ecosystems. The Federal Wildland Fire Management Policy and its implementation are founded on the following guiding principles, found in the Guidance for Implementation of Federal Wildland Fire Management Policy (National Wildfire Coordinating Group 2009):

- Firefighter and public safety is the first priority in every fire management activity.
- The role of wildland fire as an essential ecological process and natural change agent will be incorporated into the planning process.
- Fire management plans, programs, and activities support land and resource management plans and their implementation.
- Sound risk management is a foundation for all fire management activities.

- Fire management programs and activities are economically viable, based upon values to be protected, costs, and land and resource management objectives.
- Fire management plans and activities are based upon the best available science.
- Fire management plans and activities incorporate public health and environmental quality considerations.
- Federal, state, tribal, local, interagency, and international coordination and cooperation are essential.
- Standardization of policies and procedures among federal agencies is an ongoing objective.

National Fire Plan

The National Fire Plan, officially titled *Managing the Impacts of Wildfire on Communities and the Environment: A Report to the President In Response to the Wildfires of 2000*, was a presidential directive in 2000 as a response to severe wildland fires that had burned throughout the United States. The National Fire Plan focuses on reducing fire impacts on rural communities and providing assurance for sufficient firefighting capacity in the future. The plan addresses five key points: firefighting, rehabilitation, hazardous fuels reduction, community assistance, and accountability. The plan provides technical, financial, and resource guidance and support for wildland fire management across the United States. The USDA Forest Service and the Department of the Interior are working to successfully implement the key points outlined in the plan (DOI/USDA 2000).

International Fire Code

Created by the International Code Council, the International Fire Code (IFC) addresses a wide array of conditions hazardous to life and property, including fire, explosions, and hazardous materials handling or usage (although not a federal regulation, but rather the product of the International Code Council). The International Fire Code places an emphasis on prescriptive and performance-based approaches to fire prevention and fire protection systems. Updated every 3 years, the International Fire Code uses a hazards classification system to determine the appropriate measures to be incorporated to protect life and property (often times these measures include construction standards and specialized equipment). The International Fire Code uses a permit system (based on hazard classification) to ensure that required measures are instituted (International Code Council 2017).

State

California Government Code

California Government Code Sections 51175 through 51189 provide guidance for classifying lands in California as fire hazard areas and requirements for management of property within those lands. CAL FIRE is responsible for classifying FHSZs based on statewide criteria, and makes the information available for public review. Further, local agencies must designate, by ordinance, Very High FHSZs within their jurisdiction based on the recommendations of CAL FIRE.

Section 51182 sets forth requirements for maintaining property within fire hazard areas, such as defensible space, vegetative fuels management, and building materials and standards. Defensible space around structures in fire hazard areas must consist of 100 feet of fuel modification on each side of a structure, but not beyond the property line unless findings conclude that the clearing is necessary to significantly reduce the risk of structure ignition in the event of a wildfire. Clearance on adjacent property shall only be conducted following written consent by the adjacent owner. Further, trees must be trimmed from within 10 feet of the outlet of a chimney or stovepipe, vegetation near buildings must be maintained, and roofs of structures must be cleared of vegetative materials. Exemptions may apply for buildings with an exterior constructed entirely of nonflammable materials.

California Code of Regulations

Title 14 Natural Resources

Title 14, Division 1.5, Chapter 7, Subchapter 3, Fire Hazard, also sets forth requirements for defensible space if the distances specified above cannot be met. For example, options that have similar practical effects include noncombustible block walls or fences, 5 feet of noncombustible material horizontally around the structure, installing hardscape landscaping or reducing exposed windows on the side of the structure with a less-than-30-foot setback, or additional structure hardening such as those required in the California Building Code (CBC), California Code of Regulations Title 24, Part 2, Chapter 7A.

Title 24 California Building Standards Code

California Building Code

Part 2 of Title 24 contains the CBC. Chapter 7A of the CBC regulates building materials, systems, and/or assemblies used in the exterior design and construction of new buildings located within a fire hazard area. Fire hazard areas as defined by the CBC include areas identified as a FHSZ within a State Responsibility Area or a wildland–urban interface fire area. The purpose of Chapter 7A is to establish minimum standards for the protection of life and property by increasing the ability of structures located in a fire hazard area to resist the intrusion of flames or burning embers projected by a wildfire, and to contribute to a systematic reduction in structural losses from a wildfire. New buildings located in such areas must comply with the ignition-resistant construction standards outlined in Chapter 7A.

California Fire Code

Part 9 of Title 24 contains the CFC, which incorporates by adoption the International Fire Code with necessary California amendments. The purpose of this code is to establish the minimum requirements to safeguard the public health, safety, and general welfare from the hazards of fire, explosion, or dangerous conditions in new and existing buildings, structures, and premises, and to provide safety and assistance to firefighters and emergency responders during emergency operations. Chapter 49 of the CFC contains minimum standards for development in the wildland–urban interface and fire hazard areas.

The CFC and Office of the State Fire Marshal provide regulations and guidance for local agencies in the development and enforcement of fire safety standards. The CFC is updated and published every 3 years by the California Building Standards Commission. The 2016 CFC took effect on January 1, 2017, and the 2019 CFC will take effect on January 1, 2020. The City adopted the 2016 CFC with local amendments in August 2018.

California Public Resources Code

California Public Resource Code, Section 4290, requires minimum fire safety standards related to defensible space that are applicable to residential, commercial, and industrial building construction in State Responsibility Area lands and lands classified and designated as Very High FHSZs. These regulations include road standards for fire apparatus access, standards for signs identifying roads and buildings, fuel breaks and green belts, and minimum water supply requirements. It should be noted that these regulations do not supersede local regulations which equal or exceed minimum regulations required by the state.

California Public Resource Code, Section 4291, requires a reduction of fire hazards around buildings located adjacent to a mountainous area, forest-covered lands, brush-covered lands, grass-covered lands, or land that is covered in flammable material. It is required to maintain 100 feet of defensible space around all sides of a

structure, but not beyond the property line unless required by state law, local ordinance, rule, or regulations. Further, California Public Resource Code, Section 4291 requires the removal of dead or dying vegetative materials from the roof of a structure, and trees and shrubs must be trimmed from within 10 feet of the outlet of a chimney or stovepipe. Exemptions may apply for buildings with an exterior constructed entirely of nonflammable materials.

Fire Hazard Severity Zones

CAL FIRE maps FHSZs based on fuel loading, slope, fire history, weather, and other relevant factors as directed by California Public Resources Code, Sections 4201–4204, and California Government Code Sections 51175–51189. FHSZs are ranked from Moderate to Very High, and are categorized for fire protection within a Federal Responsibility Area, State Responsibility Area, or Local Responsibility Area under the jurisdiction of a federal agency, CAL FIRE, or local agency, respectively. As shown in Figure 4.17-1, the project site and surrounding area is designated as a Very High FHSZ within the Local Responsibility Area (CAL FIRE 2009).

California Strategic Fire Plan

The 2018 Strategic Fire Plan for California reflects CAL FIRE's focus on fire prevention and suppression activities to protect lives, property, and ecosystem services, and natural resource management to maintain the state's forests as a resilient carbon sink to meet California's climate change goals and to serve as important habitat for adaptation and mitigation. The Strategic Fire Plan for California provides a vision for a natural environment that is more fire resilient, buildings and infrastructure that are more fire resistant, and a society that is more aware of and responsive to the benefits and threats of wildland fire, all achieved through local, state, federal, tribal, and private partnerships (CAL FIRE 2018). Plan goals include the following:

1. Identify and evaluate wildland fire hazards and recognize life, property and natural resource assets at risk, including watershed, habitat, social and other values of functioning ecosystems. Facilitate the collaborative development and sharing of all analyses and data collection across all ownerships for consistency in type and kind.
2. Promote and support local land use planning processes as they relate to: (a) protection of life, property, and natural resources from risks associated with wildland fire, and (b) individual landowner objectives and responsibilities.
3. Support and participate in the collaborative development and implementation of local, county and regional plans that address fire protection and landowner objectives.
4. Increase fire prevention awareness, knowledge and actions implemented by individuals and communities to reduce human loss, property damage and impacts to natural resources from wildland fires.
5. Integrate fire and fuels management practices with landowner/land manager priorities across jurisdictions.
6. Determine the level of resources necessary to effectively identify, plan and implement fire prevention using adaptive management strategies.
7. Determine the level of fire suppression resources necessary to protect the values and assets at risk identified during planning processes.
8. Implement post-fire assessments and programs for the protection of life, property, and natural resource recovery.

Mutual Aid Agreements

The California Disaster and Civil Defense Master Mutual Aid Agreement, as provided by the California Emergency Services Act, provides statewide mutual aid between and among local jurisdictions and the state. The statewide mutual aid system exists to ensure that adequate resources, facilities, and other supports are provided to jurisdictions whenever resources prove to be inadequate for a given situation. Each jurisdiction controls its own personnel and facilities but can give and receive help whenever needed.

Local

In addition to the relevant plans, policies, and ordinances identified below, Section 4.11 of this EIR provides information on the City's fire protection services.

City of Murrieta General Plan

The following goals and policies from the City of Murrieta General Plan are relevant to the proposed project (City of Murrieta 2011b):

Goal SAF-5 Damage from fire hazards is minimized through preventive measures, education, and fire protection services.

- **Policy SAF-5.1** Continue efforts to reduce fire hazards associated with older buildings, multifamily housing, and fire-prone industrial facilities throughout the City.
- **Policy SAF-5.2** Provide public safety education programs through the Fire Department to reduce accidents, injuries and fires, as well as to train members of the public to respond to emergencies.
- **Policy SAF-5.3** Continue to coordinate fire protection services with Riverside County, CAL FIRE, and all other agencies and districts with fire protection powers.
- **Policy SAF-5.4** Ensure that outlying areas in the City can be served by fire communication systems as new development occurs.
- **Policy SAF-5.5** Require that all dedicated open space or undeveloped areas meet specifications for fire safety.

Goal SAF-7 Reduced incidence of damage to life and property from wildland fires.

- **Policy SAF-7.1** Continue to require development in high fire hazard areas to use fire-resistant building materials and landscaping, and to meet fire chief specifications for fuel modification, access, and water facilities.
- **Policy SAF-7.2** Evaluate all new development to be located in or adjacent to wildland areas to assess its vulnerability to fire and its potential as a source of fire.
- **Policy SAF-7.3** Encourage the use of development features such as roads and irrigated/landscaped open space to buffer homes from wildland fire.

Policy SAF-7.4 Promote community education about preventing wildfire ignition, using fire resistant building features, and creating defensible space around homes.

Policy SAF-7.5 Continue to implement a weed abatement program to reduce fire hazards on private properties.

City of Murrieta Municipal Code

Chapter 15, Part 24 of the City's Municipal Code contains the CFC with local amendments. A city, county, or city and county may establish more restrictive building standards reasonably necessary because of local climatic, geological, or topographical conditions. The code contains provisions for fire prevention and safety, reflecting regulations set forth by the CFC. Murrieta Municipal Code Sections 15.24.270 through 15.24.290 (Sections 4903 through 4907 of the CFC, revised) contain regulations specific to development in fire hazard areas, such as construction methods, fuel modification, setbacks, defensible space, water supply, fire-flow, and emergency access.

Per Section 15.24.270 of the City's Municipal Code (CFC 4903), Planning and Development Services or Murrieta Fire and Rescue (MFR) can require a Fire Protection Plan to be prepared as part of the approval process for any development proposal in a wildland-urban interface fire area. Section 15.24.290 of the City's Municipal Code (CFC 4907) sets forth requirements for the provisioning of defensible space, including structure setbacks and fuel modification. Section 4907.2 indicates that a fuel modification zone (FMZ) shall be required around every building within a hazardous fire area that is designed primarily for human habitation or use. Where setbacks are 100 feet or more from the property line, an FMZ shall be maintained within 100 feet of the building or structure. The area within 50 feet of a building or structure shall be cleared of vegetation that is not fire resistant and re-planted with fire-resistant plants. In the area between 50 to 100 feet from a building, all dead and dying vegetation shall be removed. Native vegetation may remain in this area provided that the vegetation is modified so that combustible vegetation does not occupy more than 50% of the square footage of this area. Weeds and annual grasses shall be maintained at a height not to exceed 6 inches. The chips from chipping of vegetation that is done on site may remain if the chips are dispersed so they do not exceed 6 inches in depth. Trees may remain in both areas provided that the horizontal distance between crowns of adjacent trees and crowns of trees and structures is not less than 10 feet.

Where a setback is less than 100 feet from the property line, the person owning or occupying the building or structure shall meet the requirements detailed above, to the extent possible, in the area between the building or structure and the property line. Further, the building official and the fire code official may provide lists of prohibited and recommended plants.

The FMZ shall be located entirely on the subject property unless approved by the Murrieta Planning Department and MFR. This required FMZ may be reduced or increased as required by a fire protection plan.

City of Murrieta Emergency Operations Plan

The City's Emergency Operations Plan (EOP), adopted in June 2017, addresses the planned response to extraordinary emergency situations associated with natural disasters, national security emergencies, and technological incidents affecting the City. The EOP was prepared in order to ensure the most effective allocation of resources for the protection of people and property in the event of an emergency. The City's EOP describes the operations of the City's Emergency Operations Center, which is the central management entity responsible for directing and coordinating the various City departments and other agencies in their emergency response activities. The City's Emergency Operations Center centralizes the collection and dissemination of information during an

emergency, and makes policy-level decisions about response priorities and the allocation of resources. As part of the City's Emergency Management Program, the City's Emergency Operations Center Manager (the Emergency Operations Center Manager in the City is, by order rank, the City Manager, Assistant City Manager, Fire Chief, and Police Chief) is responsible for ensuring the readiness of the Emergency Operations Center (City of Murrieta 2017).

City of Murrieta Development Impact Fee

New development would be required to pay its fair share of the City's Development Impact Fee, a portion of which covers costs associated with fire protection, including fire department staffing and the construction of fire department facilities. The Development Impact Fee amount is determined through evaluation of the need for new public service facilities based on the level of service demanded by a new development (City of Murrieta 2018). As discussed in Section 4.11 of this EIR, the current fee schedule for the City indicates the fee for commercial development is $11.49 per square foot, with allocations distributed to law enforcement, fire protection, road infrastructure, storm drainage, and general facilities.

4.17.3 Thresholds of Significance

The significance criteria used to evaluate the proposed project's impacts related to wildfire are based on Appendix G of the CEQA Guidelines. According to Appendix G of the CEQA Guidelines, a significant impact related to wildfire would occur if the project is located in or near state responsibility areas or lands classified as very high fire hazard severity zone and would:

1. Substantially impair an adopted emergency response plan or emergency evacuation plan;
2. Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire;
3. Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment; or
4. Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes.

4.17.4 Impacts Analysis

As shown in Figure 4.17-1, the project site is located in a Very High FHSZ within the Local Responsibility Area (CAL FIRE 2009). Therefore, the project would be subject to the regulatory framework related to development in FHSZs outlined in Section 4.17.2. The following analysis is based, in part, on the Fire Assessment Summary Letter prepared for the project and included as Appendix K.

Would the project substantially impair an adopted emergency response plan or emergency evacuation plan?

Less-than-Significant Impact. Currently the City has no defined emergency routes; however, Interstate 15 and Interstate 215 may be considered emergency routes, as they traverse the City and connect to multiple major roads (City of Murrieta 2011b). The Interstate 215 freeway travels north to south through the City and is located immediately west of the project site. As analyzed in Section 4.13, Transportation, of this EIR, the project is not anticipated to significantly impact the freeway mainline facilities. Thus, the project would not impact any potential emergency evacuation routes in the City.

The City's EOP is designed to ensure the most effective response and allocation of resources in the event of an emergency, and is intended to facilitate multi-agency and multi-jurisdictional coordination (City of Murrieta 2017). MFR also provides emergency preparedness information and safety tips specific to wildland fires. In the event of a major emergency such as fire, hazardous materials spill, police activity or other situation which may directly impact the City of Murrieta or its residents, the City's Emergency Incident Information website page will contain updated information on the nature of the incident, potential impacts to traffic circulation, possible evacuations, and other pertinent information (City of Murrieta 2011b). The project would not hinder implementation of the City's EOP in the event of an emergency, and emergency response procedures specific to the site would be coordinated through the City.

In addition, the project would be designed to provide adequate vehicular and emergency apparatus access. As discussed in Section 4.13 of this EIR, the project would not result in inadequate emergency access. The project would be required to design, construct, and maintain structures, roadways, and facilities in compliance with applicable local, regional, state, and federal requirements related to fire safety, emergency access, and evacuation plans, as well as building materials, setbacks, and defensible space requirements for development in fire hazard areas (see Section 4.17.2).

As discussed in Section 4.13 of this EIR, mitigation has been proposed to offset any potential impacts to traffic and circulation that could result from project construction or operation. Further, the project would be designed to provide adequate vehicular and emergency apparatus access with multiple points of ingress/egress via driveways off Warm Springs Parkway, Creighton Avenue, and Antelope Road. Drive aisles, turning radii, and all access points would be designed with adequate emergency access. The proposed site plan is subject to approval by the City and the City's Fire Department. Further, the City and the City's Fire Department would review any modifications to existing roadways to ensure that adequate emergency access or emergency response would be maintained. Further, travel distance from the nearest fire station (Fire Station No. 4) and potential impacts to existing emergency services have been addressed in Section 4.11. As discussed in Section 4.11, the project would result in a less-than-significant impact to public services, including fire protection services.

Upon review and approval of the site plan, the project would not conflict with emergency ingress or egress. Further, adherence to regulatory requirements would ensure that the project would not substantially impair an emergency response plan or emergency evacuation plan. Impacts would be less than significant, and no mitigation is required.

Would the project, due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?

Less-than-Significant Impact with Mitigation Incorporated. The project could result in an impact related to exacerbating wildfire risk and thus, exposing project occupants to pollutant concentrations from a wildfire or the uncontrollable spread of a wildfire, if the project were to increase the risk of a wildfire occurring and the climatic, topographic, vegetation, weather conditions, and other factors associated with the project site aid in increasing the severity of such an occurrence. As previously discussed, the project site is located within a Very High FHSZ (Figure 4.17-1) (CAL FIRE 2009; Exhibit 5.17-1, City of Murrieta 2011a) and thus is subject to the regulations governing development in fire hazard areas. The project would be required to design, construct, and maintain structures, roadways, and facilities in compliance with applicable local, regional, state, and federal requirements related to fire safety, emergency access, and evacuation plans, as well as building materials, setbacks, water supply, hydrants, fire-flow, and defensible space requirements for development in fire hazard areas. Included in Section 4.17.2, these local, state, and federal rules, regulations, and policies set forth minimum standards for development strategies, building materials and systems, and fire prevention strategies for development in the wildland–urban interface and fire hazard areas to reduce the risk of structural damage and losses and protect life and property. As local agencies may amend state policies to establish more restrictive building standards reasonably necessary because of local climatic, geological or topographical conditions (CFC 2016), compliance with the

Murrieta Municipal Code would ensure compliance with applicable state policies, rules, or regulations related to development in fire hazard areas, including Chapter 49 of the CFC, California Public Resources Code, Sections 4290 and 4291, and California Government Code Sections 51175 through 51189. A discussion of compliance with these development standards has been included in the following analysis, as well as a summary of the results of the Fire Assessment (Appendix K) completed for the project.

Construction

Construction of the project would introduce potential ignition sources to the project site, including the use of heavy machinery and the potential for sparks during welding activities or other hot work. However, the project would be required to comply with City and state requirements for activities in hazardous fire areas, including fire safety practices, to reduce the possibility of fires during construction activities. Per Section 15.24.250 of the City's Municipal Code, Fuel Modification Zone Requirements, adequate defensible space must be created before bringing any combustible materials on to the project site, and vegetation management must take place throughout the duration of project construction. Implementation of the regulatory standards set forth in the City's Municipal Code would reduce the risk of wildfire ignition and spread on the project site during construction activities. Therefore, with adherence to City Code, project construction would not exacerbate wildfire risk, and impacts related to project construction would be less than significant.

Operation

The project site is surrounded by existing development or proposed development on all sides, with the exception of vacant land to the north. Residential development is located immediately east of the project site, and once the surrounding lands to the south and west are developed with additional commercial retail, as proposed, the likelihood of a wildfire approaching from these directions would be minimal. Nonetheless, the Fire Assessment evaluates the potential fire behavior for two wildfire scenarios: an offshore, wind-driven fire (Santa Ana conditions) approaching the project site from within the grass- and shrub-covered open space area to the north and an onshore, wind-driven fire approaching the project site from within the grass- and shrub-covered vacant land to the west, with assumptions made for the pre-project slope and fuel conditions. The report includes a review of the project area's fire history, vegetation communities, and land cover (these details have been included in Section 4.17.1, Existing Conditions).

The potential fire behavior model was conducted using the BehavePlus fire behavior modeling software package. Fire behavior is affected by topography (slope, aspect, and elevation), weather (wind, air temperature), and seven principal fuel characteristics: fuel loading, fuel size, fuel shape, compactness, horizontal continuity, vertical arrangement, and moisture content and chemical properties, all of which are inputs the fire behavior model considers. The location of the fire scenarios and summary of fire modeling inputs are presented in Figure 4 of Appendix K. The modeling inputs and considerations are also summarized below.

Fire Modeling Behavior Considerations/Inputs

Topography/Terrain

As disclosed in Section 4.17.1, Existing Conditions, the project is currently undeveloped with highly variable slopes due to the mass grading activities associated with the site's previous use as a sand and gravel grading operation. However, the project site would be graded as part of the proposed project. The proposed project would include cut and fill operations and compaction to create a level project site. The surrounding lands are relatively flat and do not contain slopes typical of exacerbating wildfire risks.

Slope gradients for natural slopes range from 5% to 18% (a 15% average slope gradient was used in fire modeling scenario 1 and an 8% average slope grade was used in scenario 2) and graded slopes are assumed to be 50% (2:1 manufactured slopes).

Weather/Wind

Historical weather data for the region was utilized in determining appropriate fire behavior modeling inputs for the project site. The fire behavior model utilizes the 97th percentile (extreme offshore wind conditions) and 50th percentile (onshore wind conditions) fuel moisture and wind speed values obtained from the Santa Rosa Plateau Remote Automatic Weather Station, located approximately 8.9 miles southwest of the project site. The 50th and 97th percentile wind speeds are commonly used for fire behavior modeling to represent typical and extreme fire weather conditions. The wind data is derived from historical weather data resulting in realistic depictions of future wind events. Data from the Remote Automatic Weather Station was evaluated from June 1 through November 30 for each year between 1998 and 2018. Data derived from the Remote Automatic Weather Station included 1-hour, 10-hour, and 100-hour fuel moistures, live herbaceous moisture, live woody moisture, and 20-foot sustained wind speed. 50th and 97th percentile wind speeds and fuel moisture data were used in the BehavePlus fire behavior modeling scenarios.

The analysis conservatively assumes a worst-case scenario wildfire being fanned by 50 mph offshore winds (fire approaching from the north) in untreated sage scrub habitat, and a worst case scenario wildfire being fanned by 21 mph sustained, onshore winds (fire approaching from the west) in untreated grass/scrub habitat.

Fuels

The vegetation types and land covers in the project area, as identified in Section 4.17.1, were derived from field assessments conducted for the project site as part of the Fire Assessment, and then classified into a fuel model. The fuel models were used in the BehavePlus fire behavior modeling runs for existing conditions as follows: fuel model Sh2 (Moderate Load, Dry Climate Shrub) for sage scrub along western property boundary, fuel model Sh5 (High Load, Dry Climate Shrub) for sage scrub at top of slope, and fuel model Gs2 (Moderate load, Dry Climate Grass-Shrub) for grass/sage shrub. Further, while past disturbances (e.g., grass and brush clearance for fuel reduction) have altered fuel beds on some areas of the property, modeling efforts presented herein assume more mature stand conditions for the grass--sage scrub habitats.

Fire Modeling Results

As presented in Appendix K, the analysis utilizing the BehavePlus software package was conducted to evaluate fire behavior variables and to objectively predict flame lengths, fire intensities, fire spread rates, and fire spotting distances under existing conditions. Modeled fire behavior indicated that scenario 1 (a worst-case wildfire being fanned by 50 mph offshore winds and approaching the site from the north in untreated sage scrub habitat (Fuel Model Sh5) would result in a fire spreading at approximately 6.8 mph with the highest flame length values reaching approximately 45 feet in specific portions of the property. Maximum spotting distance for an offshore wind-driven fire is projected to occur at 2.4 miles, downwind. Additionally, scenario 2 (a worst case wildfire being fanned by 21 mph onshore winds and approaching the site from the west in untreated grass/scrub habitat (Fuel Model Gs2) would result in a fire spreading at approximately 0.6 mph with highest flame length values reaching approximately 7.6 feet in specific portions of the property. Maximum spotting distance for an offshore wind-driven fire is projected to occur at 0.4 miles, downwind.

Fuel Modification Zones and Building Materials

Because the modified project site is located in a Very High FHSZ, implementation of fire safety requirements such as ignition-resistant building materials and vegetation management to create defensible space and FMZs would be required. An FMZ is a strip of land where combustible vegetation has been removed and/or modified and partially or totally replaced with more adequately spaced, drought-tolerant, low-fuel-volume plants in order to provide a reasonable level of protection to structures from wildland fire. FMZs are designed to provide vegetation buffers that gradually reduce fire intensity and flame lengths from advancing fire by strategically placing thinning zones and irrigated zones adjacent to each other on the perimeter of the wildland-urban interface exposed structures. An important dual function of the FMZ is to reduce the ability of a fire igniting in developed areas and spreading into wildlands by providing a buffer between developed areas and natural areas. Fires that ignite in a developed area do not easily spread through an FMZ into wildlands.

A typical FMZ consists of at least 100 feet of vegetation thinning or removal, measured in a horizontal plane from the exterior façade of all structures towards the undeveloped areas. Per Section 15.24.290 of the Murrieta Municipal Code (as well as CFC Chapter 49 Section 4906 and 4907; California Public Resources Code, Section 4291; and California Government Code Section 51182), a 100-foot FMZ is required around structures in fire hazard areas, to the extent possible (i.e., not beyond the property line). Based on the site plan, the majority of the project site achieves 100 feet or more of on-site FMZ in the northern portion of the site, which consists of asphalt roadways and parking stalls, and a fully irrigated landscape with City and MFR-approved plant species. However, conceptual building footprints partially protrude into the 100-foot FMZ along the northern boundary. More specifically, the northwestern portion of the Costco warehouse development provides 64 feet of achievable on-site fuel modification.

The distance between a wildfire that is consuming wildland fuel and a building is the primary factor for structure ignition (not including burning embers) (Cohen 2000). Larger flame lengths and widths require wider FMZs to reduce structure ignition (Cohen 1995). For example, structure ignition assessment modeling results indicate that a 20-foot-high flame has minimal radiant heat to ignite a (bare wood) structure beyond 33 feet (horizontal distance). For example, a 70-foot-high flame may require about 130 feet of clearance to prevent structure ignitions from radiant heat (Cohen and Butler 1996). The ignition-resistant exterior walls of the proposed structures would provide greater protection from wildfire than the bare wood structures used in the study. The proposed building materials for project structures include fire-rated split face concrete masonry unit (CMU), metal panel exterior wall designs, seam metal roofing, plaster, and other fire-resistant materials to be implemented on the Costco warehouse building and the Vineyard II retail buildings. Studies indicate that given certain assumptions (e.g., 10 meters of low fuel landscape, no open windows), a wildfire is unlikely to spread to buildings unless the fuel and heat requirements of the building are sufficient for ignition and continued combustion (Alexander et al. 1998; Cohen 1995). Construction materials and methods can prevent or minimize ignitions. Case studies indicate that, with nonflammable roofs and vegetation modification from 10–18 meters (roughly 32–60 feet) in Southern California fires, 85%–95% of the homes survived (Foote and Gilless 1996; Howard et al. 1973). Similarly, post-fire assessments in San Diego County indicate that updated building codes have shown success in preventing structural loss (IBHS 2008). If structures have a sufficiently low ignitability, such as the proposed project's structures, the buildings can survive exposure to wildfire without major fire destruction. Low-ignitability provides the option of reducing the wildland fire threat to structures without extensive wildland fuel reduction.

For the areas of the project site where 100 feet of on-site FMZ is not achievable due to site constraints (i.e., the northwestern portion of the Costco site), the proposed building construction design features would provide adequate separation and radiant heat protection from a wildfire. These design features would include fire-rated split-face CMU and textured insulated metal panel exterior walls along the north side of building; a National Fire

Protection Association 13 Commercial Fire Sprinkler System and fire rated exterior doors, along with asphalt roadways and parking; and a fully irrigated landscape with drought-tolerant, fire resistive plantings. Therefore, the inability to achieve a full 100-foot FMZ in the northwestern portion of the project site is not expected to facilitate wildfire spread, given the proposed fire-resistant building materials.

Additionally, the open space land west of the project site, on the western side of Antelope Road, is proposed for future commercial development. A notice of preparation for this development to the west has been submitted to the City, but it is not known when construction will begin. Development of the site would mitigate the fire risk; however, until such a time that the property to the west is developed, **Mitigation Measure (MM) WF-4** would be required to reduce impacts to less than significant. **MM-WF-4** identifies a 20-foot on-site Costco building setback and the 40-foot wide Antelope Road as a 60-foot "No Build Easement" on the western side of the Costco development, which can be used as the interim FMZ. Once construction of the proposed development to the west begins, it will augment the off-site FMZs. Figure 5 of Appendix K illustrates the FMZs recommended for the project.

Given the low ignitability of the proposed structures and the 64-foot to over-100-foot distance between project structures and vegetative fuels, the project would not facilitate or exacerbate fire spread, and project occupants would not be exposed to extreme heat, the uncontrollable spread of a wildfire, or prolonged pollutant concentrations in the event of a wildfire.

An important component of a fire protection system for this project is the provision for ignition-resistant construction and modified vegetation buffers. The structure ignition-resistance standards detailed in the 2016 CFC and Chapter 7A of the 2016 CBC would enable the structures to withstand the type of wildfire that may occur in the fuels outside the development footprint. FMZ requirements and fully irrigated landscapes with drought-tolerant, fire-resistive plantings would provide a reasonable level of wildfire protection to the ignition-resistant structures.

Based on Appendix K, in compliance with the development standards discussed in Section 4.17.2, the enhanced building features, including an 8-inch split-face CMU and textured insulated metal panel exterior walls along the northern side of the Costco building, along with the commercial interior fire sprinkler system, would provide a functional safety equivalent of a 100-foot FMZ and would be the equivalent or a better level of fire protection compared to placing an 8-foot non-combustible fire wall along the northern boundary.

The Fire Assessment considers the project area's fire history, historical weather and wind data, terrain, and fuels, and concludes that the project would not exacerbate wildfire risks, thereby exposing project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire due to slope, prevailing winds, or other factors. Nonetheless, mitigation measures have been provided to further reduce the risk of wildfire. With implementation of **MM-WF-1** through **MM-WF-4**, impacts related to exacerbation of a wildfire or exposure to pollutant concentrations would be less than significant.

Would the project require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?

Less-than-Significant Impact. The project would involve construction of a new retail development, consisting of a Costco warehouse and fuel station and the Vineyard II development, consisting of a fitness center, a major retail pad and four smaller retail shops, one restaurant, one drive-through fast-food restaurant, two detention basins, and associated parking. The project would require the construction of project driveways and roadways. The project would include development of Warm Springs Parkway, a four-lane road that would run north/south and connect to the existing Clinton Keith Road. It is not anticipated that installation or maintenance of the road would exacerbate fire

risk, since the road would be surrounded by developed land to the east and west and the road would enhance access to the area by firefighters. Further, the project site is located in a predominantly developed area, and would connect to existing utilities.

As discussed in Section 4.15, Utilities and Service Systems, a master water study (Appendix J-2) was completed for the project to analyze the project's effect on water service in the project area. The study found that the project would not directly require or result in the relocation or construction of new or expanded water facilities, the construction or relocation of which could cause significant environmental effects. The master water study included an estimation of projected water usage by the project and a hydraulic analysis to evaluate the performance of the existing water distribution system with the additional water demand of the project. Water demand calculations were completed in accordance with the Eastern Municipal Water District (EMWD) Water System Planning & Design Principal Guidelines Criteria (EMWD 2007). To account for cumulative effects on infrastructure facilities directly serving the project, the master water study also accounted for the projected water use of proposed projects immediately surrounding the project site.

Under the future demand conditions of the project and other proposed projects, the existing water distribution system showed no deficiencies. Calculations indicated the greatest demand would occur when maximum daily demand and fire flows combined. Under this scenario, the master water study found that the existing water distribution system would be able to provide a residual 53 pounds per square inch of pressure, well above the minimum fire flow requirement of 20 pounds per square inch residual, as required by Eastern Municipal Water District's Water System Planning & Design Principal Guidelines Criteria. As a result, the project would not directly require or result in the relocation or construction of new or expanded water facilities.

Additionally, all new power lines serving the project would be undergrounded along Antelope Road, north of the project site. Therefore, the project would not require installation or maintenance of other associated power lines or other utilities that would exacerbate fire risk. The project would require the installation and maintenance of FMZs. However, FMZs are designed to provide vegetation buffers that gradually reduce fire intensity and flame lengths from advancing fire, and would reduce, rather than exacerbate, wildfire risk. FMZs and other vegetation management activities would occur prior to the start of construction and throughout the life of the project. Consequently, the installation of associated infrastructure would not exacerbate fire risk, provided that FMZs and other vegetation management activities are implemented and enforced according to City and state requirements. The proposed FMZs and other vegetation management activities reduce the fire risk by thinning or removing combustible vegetation and implementing a landscape plan with more adequately spaced, drought-tolerant, low-fuel-volume plants in order to provide a reasonable level of protection to structures from wildland fire. Installation of project roads, service utilities, FMZs, drainage and water quality improvements, and other associated infrastructure would not exacerbate wildfire risks provided that the appropriate fire prevention, access, and vegetation management activities are implemented.

Given that the activities involved with installation or maintenance of associated infrastructure would require ground disturbance and the use of heavy machinery associated with trenching, grading, site work, and other construction and maintenance activities, the installation of related infrastructure could potentially result in temporary or ongoing impacts to the environment. However, the installation and maintenance of roads, FMZs, service utilities, and drainage and water quality improvements is part of the project analyzed herein. As such, any potential temporary or ongoing environmental impacts related to these components of the proposed project have been accounted for and analyzed in this EIR as part of the impact assessment conducted for the entirety of the project. Additionally, the project would be required to comply with all regulatory requirements and mitigation measures outlined within this EIR for the purposes of mitigating impacts associated with trenching, grading, site work, and the use of heavy

machinery. No adverse physical effects beyond those already disclosed in this EIR would occur as a result of implementation of the project's associated infrastructure.

Therefore, the installation and maintenance of associated infrastructure would not exacerbate wildfire risk or result in impacts to the environment beyond those already disclosed in this EIR, and impacts would be less than significant.

Would the project expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?

Less-than-Significant Impact. The project site has been utilized for rock, sand, and gravel removal since approximately 2006, and therefore has exposed soil and bedrock and has very limited vegetation. Existing slopes on site are highly variable due to the previous grading operation. As discussed in Section 4.8, Hydrology and Water Quality, existing drainage patterns carry stormwater runoff toward three locations northeast, southeast, and southwest of the project site. Development of the site would result in grading to a level surface, altering the existing drainage pattern of the site. However, the project would not substantially increase the rate or amount of surface runoff in a manner that would result in flooding on or off site. Further, project design would involve use of biofiltration and self-mitigating drainage management areas, where feasible, as hydromodification tools (see Section 4.8 for further details). Due to the proposed grading of the site, the relatively flat surrounding lands, and the fact that the site would be paved for development and parking, it is unlikely that the project would exposed people or structures to downstream flooding or landslides as a result of runoff, post-fire slope instability, or drainage changes. Impacts would be less than significant.

4.17.5 Mitigation Measures

As previously mentioned, due to site constraints, it is not possible to achieve the full 100-foot FMZ width for a portion of the northern side of the Costco structure. As such, the following mitigation measures detail both required elements for construction in a high fire hazard area and additional measures that would mitigate for the non-conforming FMZ. These mitigation measures are based on the analysis results and focus on providing the functional equivalence of a full 100-foot FMZ and provide justification for the reduced FMZ along portions of the northern boundary of the project.

MM-WF-1 The following design features shall be implemented to mitigate potential fire exposure to the northern portion of the development.

- Building construction shall consist of Underwriters Laboratories (UL) Approved Fire-Rated 8-inch split face concrete masonry unit (CMU) and textured insulated metal panel exterior walls along the northern side of the building. It should be noted, exterior walls composed of hollow CMU having a nominal thickness of 8-inches or greater may have a 2-hour fire rating, but can be classified as 4-hour when the hollow spaces are completely filled with grout or a material such as clay slate, slate, or sand;
- The building shall include an interior National Fire Protection Association (NFPA) 13 Commercial Fire Sprinkler System which shall be installed to NFPA installation standards. A supervised fire alarm system shall also be installed pursuant to NFPA 72 and Murrieta Fire and Rescue (MFR) standards and smoke detectors shall be installed at the ceiling throughout the Costco building and in every room;
- Areas requiring ventilation to the outside environment shall require either ember-resistant roof vents or a minimum 1/16-inch mesh to a maximum 1/8-inch mesh for side ventilation (see

2019 California Building Code (CBC) Chapter 7A Section 706A-Vents, or current edition). All vents used for this project shall be approved by MFR;

- The metal trash compactors to be located along the north side of the Costco building shall be fully enclosed. The enclosed metal trash compactors would prevent embers falling onto Class A fuels (e.g., paper) and igniting them. Additionally, the trash compactors shall be behind an 8-inch split face CMU exterior wall and metal gate;
- The uncovered, 30-foot by 25-foot loading area located along the north side of the Costco building shall be used for small delivery trucks;
- An unimpeded, all-weather pathway (minimum three feet wide) shall be included on all sides of the Costco building for firefighter access around the entire perimeter of the structure;
- Any architectural projections or construction, such as canopies, on the north side of the Costco building and within the 100-foot fuel modification zone shall be of non-combustible construction, only.
- Automatic or self-closing doors shall be installed along the northern side of the Costco building and conform to the exterior door assembly standards addressed in CBC Chapter 7A, Section 704A.3.2.3.

MM-WF-2 A fully irrigated landscape planted with drought-tolerant, fire resistive plants, as listed in Table 4.17-1, shall be planted within all fuel modification zones. No undesirable, highly flammable plant species shall be planted, as listed in Table 4.17-2. The landscaping shall be routinely maintained and shall be watered by an automatic irrigation system that will maintain healthy vegetation with high moisture contents that would prevent ignition by embers from a wildfire.

Table 4.17-1. Costco Plant Pallet

Botanical Name	Common Name
Site Trees	
*Arbutus u. '*Marina	Marina Strawberry Tree
*Lagerstroemia x '*Watermelon Red'	Crape Myrtle
Quercus ilex	Holly Oak
*Ulmus parvifolia '*Drake'	Drake Evergreen Elm
Street and Parking Lot Trees	
*Platanus x acerifolia '*Columbia'	London Plane Tree
Site Shrubs	
Caesalpinia gilliesii	Yellow Bird of Paradise
**Callistemon viminalis '*Little John'	Dwarf Bottle Brush
*Dianella caerulea '*Cassa Blue'	Cassa Blue Flax Lily
Juncus mexicanus	Mexican Rush
*Leucophyllum frutescens '*Gr. Cloud'	Green Cloud Texas Ranger
Site Vines	
Macfadyena unguis-cati /	Yellow Trumpet Vine
Site Groundcover	
Baccharis pilularis	*Baccharis pilularis* "Pigeon Point"

Notes:

* Dwarf Bottle Brush shrub is allowed because it is a dwarf variety of the *Callistemon spp.* that is drought tolerant, fire resistive, and is not found under the shrub and groundcover section of the prohibited plant list.

Table 4.17-2. Prohibited Plant List

Botanical Name	Common Name	Comment*
Trees		
Abies species	Fir	F
Acacia species (numerous)	Acacia	F, I
Agonis juniperina	Juniper Myrtle	F
Araucaria species (A. heterophylla, A. araucana, A. bidwillii)	Araucaria (Norfolk Island Pine, Monkey Puzzle Tree, Bunya Bunya)	F
Callistemon species (C. citrinus, C. rosea, C. viminalis)	Bottlebrush (Lemon, Rose, Weeping)	F
Calocedrus decurrens	Incense Cedar	F
Casuarina cunninghamiana	River She-Oak	F
Cedrus species (C. atlantica, C. deodara)	Cedar (Atlas, Deodar)	F
Chamaecyparis species (numerous)	False Cypress	F
Cinnamomum camphora	Camphor	F
Cryptomeria japonica	Japanese Cryptomeria	F
Cupressocyparis leylandii	Leyland Cypress	F
Cupressus species (C. forbesii, C. glabra, C. sempervirens,)	Cypress (Tecate, Arizona, Italian, others)	F
Eucalyptus species (numerous)	Eucalyptus	F, I
Juniperus species (numerous)	Juniper	F
Larix species (L. decidua, L. occidentalis, L. kaempferi)	Larch (European, Japanese, Western)	F
Leptospermum species (L. laevigatum, L. petersonii)	Tea Tree (Australian, Tea)	F
Lithocarpus densiflorus	Tan Oak	F
Melaleuca species (M. linariifolia, M. nesophila, M. quinquenervia)	Melaleuca (Flaxleaf, Pink, Cajeput Tree)	F, I
Olea europaea	Olive	I
Picea (numerous)	Spruce	F
Palm species (numerous)	Palm	F, I
Pinus species (P. brutia, P. canariensis, P. b. eldarica, P. halepensis, P. pinea, P. radiata, numerous others*)*	Pine (Calabrian, Canary Island, Mondell, Aleppo, Italian Stone, Monterey)	F
Platycladus orientalis	Oriental arborvitae	F
Podocarpus species (P. gracilior, P. macrophyllus, P. latifolius)	Fern Pine (Fern, Yew, Podocarpus)	F
Pseudotsuga menziesii	Douglas Fir	F
Schinus species (S. molle, S. terebinthifolius)	Pepper (California and Brazilian)	F, I
Tamarix species (T. africana, T. aphylla, T. chinensis, T. parviflora)	Tamarix (Tamarisk, Athel Tree, Salt Cedar, Tamarisk)	F, I
Taxodium species (T. ascendens, T. distichum, T. mucronatum)	Cypress (Pond, Bald, Monarch, Montezuma)	F
Taxus species (T. baccata, T. brevifolia, T. cuspidata)	Yew (English, Western, Japanese)	F
Thuja species (T. occidentalis, T. plicata)	Arborvitae/Red Cedar	F
Tsuga species (T. heterophylla, T. mertensiana)	Hemlock (Western, Mountain)	F
Groundcovers, Shrubs, and Vines		
Acacia species	Acacia	F, I

Table 4.17-2. Prohibited Plant List

Botanical Name	Common Name	Comment*
Adenostoma fasciculatum	Chamise	F
Adenostoma sparsifolium	Red Shanks	F
Agropyron repens	Quackgrass	F, I
Anthemis cotula	Mayweed	F, I
Arbutus menziesii	Madrone	F
Arctostaphylos species	Manzanita	F
Arundo donax	Giant Reed	F, I
Artemisia species (A. abrotanium, A. absinthium, A. californica, A. caucasica, A. dracunculus, A. tridentata, A. pycnocephala)	Sagebrush (Southernwood, Wormwood, California, Silver, True tarragon, Big, Sandhill)	F
Atriplex species (numerous)	Saltbush	F, I
Avena fatua	Wild Oat	F
Baccharis pilularis	Coyote Bush	F
Bambusa species	Bamboo	F, I
Bougainvillea species	Bougainvillea	F, I
Brassica species (B. campestris, B. nigra, B. rapa)	Mustard (Field, Black, Yellow)	F, I
Bromus rubens	Foxtail, Red brome	F, I
Castanopsis chrysophylla	Giant Chinquapin	F
Cardaria draba	Hoary Cress	I
Carpobrotus species	Ice Plant, Hottentot Fig	I
Cirsium vulgare	Wild Artichoke	F,I
Conyza bonariensis	Horseweed	F
Coprosma pumila	Prostrate Coprosma	F
Cortaderia selloana	Pampas Grass	F, I
Cytisus scoparius	Scotch Broom	F, I
Dodonaea viscosa	Hopseed Bush	F
Eriodictyon californicum	Yerba Santa	F
Eriogonum species (E. fasciculatum)	Buckwheat (California)	F
Fremontodendron species	Flannel Bush	F
Hedera species (H. canariensis, H. helix)	Ivy (Algerian, English)	I
Heterotheca grandiflora	Telegraph Plant	F
Hordeum leporinum	Wild barley	F, I
Juniperus species	Juniper	F
Lactuca serriola	Prickly Lettuce	I
Larix species (numerous)	Larch	F
Larrea tridentata	Creosote bush	F
Lolium multiflorum	Ryegrass	F, I
Lonicera japonica	Japanese Honeysuckle	F
Mahonia species	Mahonia	F
Mimulus aurantiacus	Sticky Monkeyflower	F
Miscanthus species	Eulalie Grass	F
Muhlenbergia species	Deer Grass	F

Table 4.17-2. Prohibited Plant List

Botanical Name	Common Name	Comment*
Nicotiana species (N. bigelovii, N. glauca)	Tobacco (Indian, Tree)	F, I
Pennisetum setaceum	Fountain Grass	F, I
Perovskia atriplicifolia	Russian Sage	F
Phoradendron species	Mistletoe	F
Pickeringia montana	Chaparral Pea	F
Rhus (R. diversiloba, R. laurina, R. lentii)	Sumac (Poison oak, Laurel, Pink Flowering)	F
Ricinus communis	Castor Bean	F, I
Rhus Lentii	Pink Flowering Sumac	F
Rosmarinus species	Rosemary	F
Salvia species (numerous)	Sage	F, I
Salsola australis	Russian Thistle	F, I
Solanum Xantii	Purple Nightshade (toxic)	I
Silybum marianum	Milk Thistle	F, I
Thuja species	Arborvitae	F
Urtica urens	Burning Nettle	F
Vinca major	Periwinkle	I

* F = flammable, I = Invasive

Notes:

1. Plants on this list that are considered invasive are a partial list of commonly found plants. There are many other plants considered invasive that should not be planted in a fuel modification zone and they can be found on The California Invasive Plant Council's Website www.cal-ipc.org/ip/inventory/index.php. Other plants not considered invasive at this time may be determined to be invasive after further study.
2. For the purpose of using this list as a guide in selecting plant material, it is stipulated that all plant material will burn under various conditions.
3. The absence of a particular plant, shrub, groundcover, or tree, from this list does not necessarily mean it is fire resistive.
4. All vegetation used in Fuel Modification Zones and elsewhere in this development shall be subject to approval of the Fire Marshal.
5. Landscape architects may submit proposals for use of certain vegetation on a project specific basis. They shall also submit justifications as to the fire resistivity of the proposed vegetation.

MM-WF-3 Crowns of mature trees, with the exception of oak trees, located within defensible space shall be maintained with a minimum horizontal clearance of 10 feet for fire resistant trees and 30 feet for non-fire resistant trees. Mature trees shall be pruned to remove limbs to maintain a vertical separation of three times the height of the lower vegetation or 6 feet, whichever is less, above the ground surface adjacent to the trees. Dead wood and litter shall be regularly removed from trees. Ornamental trees shall be limited to groupings of 2-3 trees with canopies for each grouping separated horizontally as described in Table 4.17-3 below (City of Murrieta Municipal Code, Chapter 15.24.290, Section 4907).

Table 4.17-3. Required Distance between Tree Canopies

Percent of Slope	Required Distances Between Edge of Mature Tree Canopies[1]
0 to 20	10 feet
21 to 40	20 feet
41 plus	30 feet

[1] Determined from canopy dimensions as described in Sunset Western Garden Book (current edition)

MM-WF-4 Until such a time that the property to the west is developed and the wildfire hazard is mitigated, a 20-foot on-site Costco building setback and the 40-foot wide Antelope Road make up a 60-foot "No Build Easement" on the western side of the Costco development, which shall be used as an interim fuel modification zone. Once construction of the proposed development to the west begins, it will augment the need for off-site fuel modification zones.

4.17.6 Level of Significance After Mitigation

With implementation of **MM-WF-1**, **MM-WF**-2, **MM-WF-3**, and **MM-WF-4**, project impacts related to wildfire would be less than significant.

4.17.7 Cumulative Impacts

As previously discussed, the project site is located within a Very High FHSZ. The nearby related projects that should be considered in terms of cumulative wildfire impacts include the related projects adjacent to the project site that are also located within the Very High FHSZ. These projects include Vineyard I, directly south of the project site, and Vineyard III, directly west of the project site. The proposed project, in combination with these nearby related projects that are immediately south and west of the project site, would convert vacant land within a Very High FHSZ to a developed condition, thereby reducing the available fuels should a wildfire occur. Related projects would also be subject to the regulations listed in Section 4.17.2 that govern construction practices, the use of construction equipment in fire-prone areas, building materials, and more. It is assumed that the related projects would incorporate fire safety measures consistent with the regulatory requirements into their project design, such as ignition-resistant building materials, fire sprinklers, emergency access, fire alarms, defensible space, and FMZs. Compliance with these regulations would mitigate potential wildland fire risks on a project-by-project basis, thereby preempting cumulative effects.

The project area is relatively flat, and it is not anticipated that related projects would combine to result in significant wildfire impacts related to slope, prevailing winds, downstream flooding or landslide, slope instability, or drainage changes. Further, all related projects would be required to avoid conflict with the City's EOP and any emergency evacuation routes in the area.

The combination of related projects in the project area could result in increased calls to the MFR. As discussed in Section 4.11, the MFR has identified a need for a sixth fire station in the eastern portion of the City as a result of increasing development in the area. As shown in Exhibit 12-9 of the City's General Plan, the project site would not be within the proposed service area of the sixth fire station, and would not be directly served by the new station unless other resources are not available to respond first. However, the addition of a sixth station could alleviate some calls to Station No. 4 and result in improved response times for Station No. 4.

New development would be required to pay its fair-share of the City's DIF, a portion of which covers costs associated with the provision of firefighting resources and related staffing, including the construction of fire department facilities. Further, the MFR participates in the California Master Mutual Aid Agreement. In the event of a major fire, outside resources can be brought into the City as needed (City of Murrieta 2011a). As such, the project would not result in cumulatively considerable impacts related to wildfire, and cumulative impacts would be less than significant.

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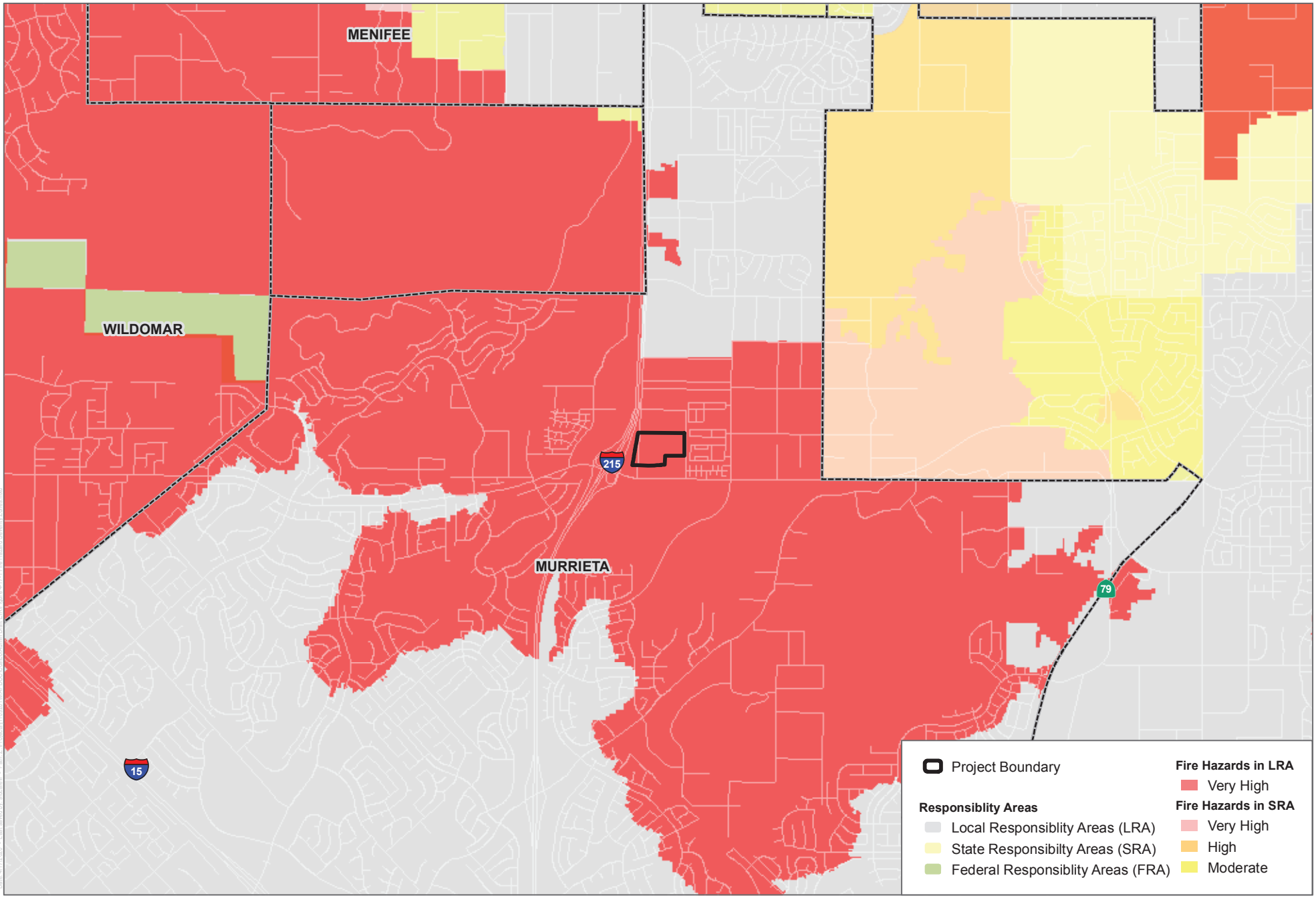
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SOURCE: CAL Fire 2019

DUDEK

0 2,000 4,000 Feet

FIGURE 4.17-1

Fire Hazard Severity Zones

Costco/Vineyard II Retail Development Project, City of Murrieta, California

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5 Other CEQA Considerations

Consistent with California Environmental Quality Act (CEQA) Guidelines Section 15126.2, this section summarizes the findings with respect to the growth-inducing effects, significant irreversible environmental changes, cumulative impacts (when considered with other projects), significant unavoidable environmental impacts, and effects found to be less than significant of the proposed Costco/Vineyard II Development Project (project).

5.1 Growth Inducement and Indirect Impacts

The CEQA Guidelines require that an Environmental Impact Report (EIR) evaluate the growth-inducing impacts of a proposed action (Section 15126.2[d]). A growth-inducing impact is defined by the CEQA Guidelines as follows:

> [T]he ways in which the proposed project could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment. Included in this are projects which would remove obstacles to population growth.... It must not be assumed that growth in any area is necessarily beneficial, detrimental, or of little significance to the environment.

A project can have direct and/or indirect growth-inducement potential. Direct growth inducement would result if a project involved construction of new housing. A project can have indirect growth inducement potential if it would establish substantial unplanned new permanent employment opportunities (e.g., commercial, industrial, or governmental enterprises), or if it would involve a substantial construction effort with substantial short-term employment opportunities or long-term employment opportunities that indirectly stimulate the need for additional housing and services to support the new employment demand. Similarly, under CEQA, a project would indirectly induce growth if it would remove an obstacle to additional growth and development, such as removing a constraint on a required public service. Increases in population could strain existing community service facilities, requiring construction of new facilities that could cause significant environmental impacts.

The proposed project would involve construction of a new commercial retail development, including a Costco Wholesale (Costco) warehouse and fuel station, a fitness center, a major retail pad, four smaller retail shops, one restaurant, and one drive-through fast-food restaurant. Commercial development may induce growth indirectly if it would attract significant numbers of new employees to the area, creating a demand for additional housing. The proposed project would employ 285 employees, which conservatively has been analyzed as new residents to Murrieta (although they may already reside in Murrieta or may travel from other locations to work at the project). The project is not likely to induce substantial indirect population growth within the Murrieta area (see Section 4.10, Population and Housing, for further details).

As of 2017, the majority of residents commute outside of the City of Murrieta (City) for employment, with only 15.3% of residents employed within City limits (SCAG 2019). As such, although this EIR conservatively assumes that all employees of the project would relocate to the City as new residents (see Section 4.10, Population and Housing), in reality it is likely that at least some of the jobs created during construction and operation of the project would be filled by area residents. Nonetheless, if the results of the conservative analysis conducted are realized, and all new jobs are filled by new residents to the City, the resulting growth would not be substantial or unplanned. As discussed in Section 4.10, the increase in population, employment, and housing that could result from the project would be consistent with the growth projections for the City, as projected by the Southern California Association of Governments and the City. Further, as described in the urban decay analysis in Section 5.4.1, the project is

anticipated to address existing retail sales leakage. Retail sales are currently leaking outside of the market area, indicating a shortage in commercial services in the City. Therefore, the project would primarily serve existing demand for commercial services, rather than creating new demand for housing and services.

The project would involve construction of Warm Springs Road from the southern boundary of the project site to the northern site boundary, as well as stormwater, water, and utilities infrastructure to serve the proposed project. This infrastructure would specifically serve the project and would not result in the removal of obstacles to population growth. Other than these connections, the project would be served by existing infrastructure and utilities. Consistent with the City's General Plan, Warm Springs Parkway could be further developed in the future to extend north of the project site; there is also potential for additional commercial development. As indicated on multiple exhibits in the Circulation Element of the City's General Plan (see Exhibits 5-1, 5-3, 5-4), the proposed location and potential extension of Warm Springs Parkway is a planned future roadway alignment. Further, as shown in Exhibit 3-5 of the City's General Plan, the area north of the project site has a land use designation of commercial. Therefore, construction of the proposed section of Warm Springs Parkway would not result in unplanned growth or remove obstacles to unplanned growth, as the potential future extension of the road and addition of commercial development north of the project site are planned for in the City's General Plan.

5.2 Significant and Unavoidable Environmental Impacts

This section was prepared in accordance with Section 15126.2(c) of the CEQA Guidelines, which requires the discussion of any significant impacts upon the environment that cannot be avoided if a project is implemented. These include impacts that can be mitigated but cannot be reduced to a less-than-significant level. An analysis of environmental impacts caused by the proposed project has been conducted and is contained in this EIR. In Chapter 4, Environmental Analysis, 17 issue areas were analyzed in detail. Table 1-1 in Chapter 1, Executive Summary, summarizes the project's impacts, mitigation measures, and levels of significance before and after mitigation. According to the analysis presented in Chapter 4, the proposed project would result in significant unavoidable adverse impacts related to air quality and traffic and circulation, as summarized below.

Air Quality

As discussed in Section 4.2, Air Quality, and shown in Table 4.2-6, daily construction emissions would not exceed the South Coast Air Quality Management District (SCAQMD) significance thresholds for volatile organic compounds (VOC), carbon monoxide (CO), sulfur oxide (SO_x), particulate matter less than 10 microns in diameter (PM_{10}), or particulate matter less than 2.5 microns in diameter ($PM_{2.5}$) during construction in all construction years. However, the daily construction emissions would exceed the SCAQMD significance thresholds for oxides of nitrogen (NO_x) in 2020 and 2021. Additionally, as shown in Table 4.2-7, the combined daily area, energy, and mobile source emissions would not exceed the SCAQMD operational thresholds for CO, SO_x, PM_{10}, and $PM_{2.5}$. However, the project-generated emissions would exceed the SCAQMD operational threshold for VOC and NO_x. Additionally, based on the project-generated construction and operational emissions of NO_x and operational emissions of VOC, the project would result in a cumulatively considerable increase in emissions of nonattainment pollutants. Further, because construction and operation of the project could result in exceedances of the SCAQMD significance thresholds for NO_x, the potential health effects associated with criteria air pollutants, specifically ozone (O_3), are considered potentially significant. Implementation of all feasible mitigation measures would reduce, but not eliminate, these impacts.

As presented in Table 4.2-12, construction emissions would be reduced to below the SCAQMD's thresholds with implementation of **Mitigation Measure (MM) AQ-1**, which requires the use of California Air Resources Board-certified

Tier 4 Final engines. However, the project would exceed significance thresholds of VOC and NO_x during operation even with implementation of **MM-AQ-2**, which requires the provision of preferential parking for electric vehicles, compressed natural gas vehicles, and carpool/vanpool rideshare vehicles, as well as temporary transit subsidies for project employees. Because strategies such as **MM-AQ-2** cannot be quantified due to uncertainty of quantified reductions from usage, the impact related to the project's potential to conflict with or obstruct implementation of the SCAQMD 2016 Air Quality Management Plan would remain significant and unavoidable.

Construction activities would generate emissions in excess of site-specific Localized Significance Thresholds (see Table 4.2-8). Implementation of **MM-AQ-1** would reduce project construction-generated criteria air pollutant emissions to the extent feasible. The emission results after incorporation of **MM-AQ-1** are presented in Table 4.2-13. As shown in Table 4.2-13, maximum daily on-site emissions of PM_{10} and $PM_{2.5}$ would exceed the Localized Significance Threshold; therefore, impacts related to Localized Significance Thresholds would remain significant and unavoidable.

As shown in Table 4.2-10, the construction health risk assessment results from the unmitigated scenario show cancer risks from project construction exceeding the 10 in 1 million threshold. Implementation of **MM-AQ-1** would reduce construction-generated diesel particulate matter emissions to the extent feasible, as presented in Table 4.2-14. Impacts after mitigation would be less than significant.

While implementation of **MM-AQ-1** would reduce NO_x emissions from project construction below the SCAQMD threshold, thereby reducing the project's potential to result in health effects associated with O_3 and NO_x during project construction, the potential for the project to contribute to regional health effects associated with O_3, VOC, and NO_x during project operation would remain significant and unavoidable (see Table 4.2-12) because **MM-AQ-2** cannot be quantified.

The major contributors to maximum operational daily emissions of VOC and NO_x are gasoline dispensing and mobile source emissions. Due to the size and type of the project, it is not feasible to implement mitigation measures to reduce the gasoline dispensing and mobile source emissions. Further, because strategies such as implementation of **MM-AQ-2** cannot be quantified, cumulative operational emissions would also remain significant and unavoidable.

Transportation and Traffic

As discussed in Section 4.13, the following intersections are projected to operate at an unacceptable LOS under 2021 Cumulative Conditions:

- Salida del Sol and Clinton Keith Road (intersection operates at LOS E or F under existing conditions; intersection outside of the City's jurisdiction)
- Elizabeth Lane and Clinton Keith Road (intersection operates at LOS E or F under existing conditions; intersection outside of the City's jurisdiction)
- California Oaks Road and Clinton Keith Road
- Bronco Way and Clinton Keith Road
- Mitchell Road/Murrieta Oaks Avenue and Clinton Keith Road
- Creighton Avenue and Clinton Keith Road (with Creighton access)
- Whitewood Road and Clinton Keith Road
- Max Gillis Boulevard/Briggs Road and Leon Road (intersection outside of the City's jurisdiction)
- Max Gillis Boulevard/Thompson Road and State Route 79 (intersection operates at LOS E or F under existing conditions; intersection outside of the City's jurisdiction)

Three of these intersections operate at an LOS E or F under existing conditions: Salida del Sol and Clinton Keith Road, Elizabeth Lane and Clinton Keith Road, and Max Gillis Boulevard/Thompson Road and State Route 79. Further, the following intersections are located outside of the City's jurisdiction: Salida Del Sol and Clinton Keith Road, Elizabeth Lane and Clinton Keith Road, Max Gills Boulevard/Briggs Road and Leon Road, and Max Gillis Boulevard/Thompson Road and State Route 79 (which is partially in the City). At one of these intersections, Bronco Way and Clinton Keith Road, the impact is resolved with signal timing and coordination. In addition, under 2035 Build-Out Conditions, all intersections analyzed along Warm Springs Parkway and at the I-215 interchange are projected to operate an acceptable LOS with the planned roadway improvements, including lane configurations and traffic control devices.

In the interim, mitigation measures (**MM-TRAF-6** through **MM-TRAF-12**) have been proposed in the form of fair-share payments toward roadway improvements that would help to reduce impacts. With respect to intersections with significant impacts, since implementation of some of the mitigation measures is outside of the lead agency's jurisdiction or implementation of the roadway improvements cannot be guaranteed by project opening or project build-out, the impacts would be cumulatively considerable and would remain significant and unavoidable even with implementation of mitigation measures.

Queuing

Based on the queuing analysis in Section 4.13, with Creighton Avenue access the following movements are projected to have significant queuing impacts under 2021 Cumulative Conditions:

- Nutmeg Street and Clinton Keith Road (westbound left turn [WBL], southbound left turn [SBL])
- California Oaks Road and Clinton Keith Road (WBL)
- Greer Road/Murrieta Oaks Avenue and Clinton Keith Road (WBL)
- Mitchell Road/Murrieta Oaks Avenue and Clinton Keith Road (eastbound left turn [EBL], WBL)
- I-215 SB Ramps and Clinton Keith Road (eastbound right turn)
- Creighton Avenue and Clinton Keith Road (EBL)
- High School West Driveway/Warm Springs Parkway and Clinton Keith Road (EBL)
- Bronco Way and Clinton Keith Road (EBL)
- Whitewood Road and Clinton Keith Road (EBL, northbound left turn [NBL], SBL)
- Whitewood Road and Baxter Road (NBL)

Without Creighton Avenue access, the following additional movements are projected to have significant queuing impacts under 2021 Cumulative Conditions:

- Creighton Avenue and Clinton Keith Road (EBL/U-turn)
- High School West Driveway/Warm Springs Parkway and Clinton Keith Road (EBL)

Mitigation measures (**MM-TRAF-6** through **MM-TRAF-12**) have been proposed in the form of fair-share payments toward roadway improvements that would help to reduce cumulative queuing impacts. However, as discussed above, since implementation of some of the mitigation cannot be guaranteed by project opening or project build-out, certain impacts would be cumulatively considerable and would remain significant and unavoidable even with implementation of mitigation measures.

5.3 Significant Irreversible Environmental Impacts

Section 15126.2(d) of the CEQA Guidelines requires that an EIR analyze the extent to which a project's primary and secondary effects would impact the environment and commit nonrenewable resources to uses that future generations will not be able to reverse. Nonrenewable resources that would be used on site during construction and operation include natural gas, other fossil fuels, water, concrete, steel, and lumber. The proposed project would result in the commitment of such resources. (The proposed project's energy consumption is discussed in greater detail in Section 4.16, Energy.)

Uses of nonrenewable resources during the initial and continued phases of the proposed project may be irreversible, since a large commitment of such resources makes removal or nonuse thereafter unlikely. Primary impacts, and particularly, secondary impacts (such as a highway that provides increased access to a previously inaccessible area) generally commit future generations to similar uses. Also, irreversible damage can result from environmental accidents associated with a project.

Implementation of the proposed project would occur on vacant land in the City of Murrieta. Proposed development would include the irreversible commitment of natural resources, energy, and human resources. Implementation of the proposed project would increase the intensity of the site compared to existing conditions. Ongoing maintenance and operation of the proposed project would entail a further irreversible commitment of energy resources in the form of petroleum products (diesel fuel and gasoline), natural gas, and electricity. The proposed project has incorporated voluntary sustainable design factors, as described in Chapter 3, Project Description. As such, the proposed project is not anticipated to consume substantial amounts of energy in a wasteful manner (see Section 4.15, Utilities and Service Systems, and Section 4.16, Energy, for details), and it would not result in significant impacts from consumption of utilities. However, long-term impacts would result from an increase in vehicular traffic and associated air quality impacts.

5.4 Effects Found Not to Be Significant

Section 15128 of the CEQA Guidelines requires a statement that briefly indicates the reasons that various possible significant effects of a project were determined not to be significant and were therefore not discussed in detail in the EIR. As stated in the CEQA Guidelines, such a statement may be contained in an attached copy of an Initial Study. The Initial Study for the proposed project is included in this EIR as Appendix A. As described and substantiated in Appendix A, the following issue areas were not found to be significant and were not further analyzed in the EIR: agriculture and forestry resources and mineral resources. The project site does not contain any agriculture, forestry resources, or mineral resources as defined by the State Mining and Reclamation Act or the City of Murrieta's General Plan.

Additionally, impacts to land use and planning were discussed in the Initial Study (Appendix A). The Initial Study determined that the project would not physically divide an established community, nor would the project conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including a general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect. The Initial Study did, however, conclude that the project could potentially conflict with an applicable habitat conservation plan or natural community conservation plan, and stated that the Draft EIR would analyze these potential impacts. However, in December 2018, the California Natural Resources Agency adopted final text to a comprehensive update to the CEQA Guidelines (2018 Update). The update moved the

discussion pertaining to habitat conservation plans and natural community conservation plans to the biological resources section. Additionally, the 2018 Update included modifications to the land use planning threshold regarding conflicts with an applicable land use plan, policy, or regulation. Nonetheless, with regard to the conflicts with an applicable land use plan, policy, or regulation, the proposed project would not cause a significant environmental impact due to a conflict with an applicable plan, policy, or regulation, since the project would not conflict with an applicable land use plan, policy, or regulation of an agency with jurisdiction over the project. Furthermore, because the analysis of the project's consistency with habitat conservation plans and natural community conservation plans is discussed in the biological resources section of this EIR, impacts to land use and planning will not be discussed in further detail.

Additional CEQA checklist thresholds that were screened out for other environmental resource areas are described in the Initial Study and are also identified in each resource section. A discussion and analysis of the project's impacts on urban decay in the region is provided below.

5.4.1 Urban Decay

5.4.1.1 Introduction

This section analyzes the potential of the proposed project to result in urban decay impacts. The analysis and findings presented in this section are based on the information contained in the Costco/Vineyard II Center Urban Decay Analysis (Urban Decay Analysis) completed in January 2020 by HR&A Advisors Inc., and included in this EIR as Appendix L. The Urban Decay Analysis evaluates the potential economic impacts of the proposed Costco and Vineyard II retail development and the extent to which the project has the potential to trigger the necessary chain of events that can lead to urban decay. Urban decay has been defined as physical deterioration to properties or structures so prevalent, substantial, and lasting for a significant period of time that it impairs the proper utilization of the properties and structures or the health, safety, and welfare of the surrounding community. Additionally, cumulative impacts associated with other planned and proposed retail projects in the trade area are also considered.

The analysis examines retail supply and demand during three years: 2018, 2020, and 2023. The 2018 estimates characterize the existing retail market. Projections were developed for the year 2023 to estimate market impacts at the point of stabilized occupancy and sales for the project. Projections for 2023 account for projected population growth and changes in retail supply resulting from the construction of currently proposed commercial development in addition to the project. According to the CEQA Guidelines (Section 15358[b]), impacts to be analyzed in an EIR must be "related to physical changes" in the environment. Although the CEQA Guidelines (Section 15131[a]) do not directly require an analysis of a project's social or economic effects because such impacts are not in and of themselves considered significant effects on the environment, the CEQA Guidelines also state the following:

> An EIR may trace a chain of cause and effect from a proposed decision on a project through anticipated economic or social changes resulting from the project to physical changes caused in turn by the economic or social changes. The intermediate economic or social changes caused in turn by economic or social changes need not be analyzed in any detail greater than necessary to trace the chain of cause and effect. The focus of the analysis shall be on the physical changes.

The CEQA Guidelines also provide that physical effects on the environment related to changes in land use, population, and growth rate induced by a project may be indirect or secondary impacts of the project and should be analyzed in an EIR if the physical effects would be significant (see CEQA Guidelines Section 15358[a][2]).

The State of California Fifth District Court of Appeal ruled that CEQA can require analysis of physical urban decay or deterioration resulting from the development of new shopping centers (*Bakersfield Citizens for Local Control v. City of Bakersfield* (2004) 124 Cal. App. 4th 1184).[1] The Appeals Court also ruled that the cumulative impact analysis for the proposed shopping centers should consider all other past, present, and reasonably foreseeable future retail projects within the project's market area.

Urban decay is a physical effect that can result from extended vacancy, deferred maintenance, and abandonment. CEQA describes the role of urban decay in determining the significance of environmental effects caused by a project in Article 5, Section 15064(e):

> Where a physical change is caused by economic or social effects of a project, the physical change may be regarded as a significant effect in the same manner as any other physical change resulting from the project. Alternatively, economic and social effects of a physical change may be used to determine that the physical change is a significant effect on the environment. If the physical change causes adverse economic or social effects on people, those adverse effects may be used as a factor in determining whether the physical change is significant. For example, if a project would cause overcrowding of a public facility and the overcrowding causes an adverse effect on people, the overcrowding would be regarded as a significant effect.

Like most CEQA requirements, this standard is focused on impacts to the physical environment, and, as such, it requires the consideration of conditions of disinvestment that could result in the decay of real property as a result of the defined project.[2]

Project Land Use

The project site is currently a vacant lot located on Clinton Keith Road, east of Interstate (I) 215 in the City. The project consists of an approximately 153,362-square-foot Costco Wholesale warehouse and a Costco gas station with 32 fueling positions and an approximately 72,000-square-foot shopping center consisting of a health and beauty retailer, a pet supply store, a fitness center, restaurants, and miscellaneous small retailers. Table 5-1 provides a summary of the anticipated project elements. The project is anticipated to be completed in 2021 and is anticipated to be completed in one construction phase. The project site is designated as commercial land use according to the City's 2035 General Plan and is zoned for regional commercial. The project site is bordered by Antelope Road to the west, existing residential development to the east, Vista Murrieta High School and a multi-family residential development to the south, and vacant land to the north.

Table 5-1. Estimated Land Use Plan for Project

Land Use	Square Feet
Regional Retail - Costco	
Costco Warehouse and Gas Station	153,362 sf
Community Retail – Vineyard II	
Health and Beauty Retail	11,900 sf

[1] In using the term "urban decay," the Appeals Court specifically noted that "urban decay" is distinct from "urban blight," which, per the California Health & Safety Code (Sections 33030 to 33039) definition, is not applicable to this project.

[2] These conditions are distinct from conditions of blight, which are defined by the California Health & Safety Code (Sections 33030–33039) and set the standards for the adoption of redevelopment project areas.

Table 5-1. Estimated Land Use Plan for Project

Land Use	Square Feet
Pet Supplies	16,000 sf
Fitness Center	37,000 sf
Miscellaneous Small Retail	3,500 sf
Casual Dining	1,200 sf
Fast Food	2,400 sf
Total Development	**225,362 sf**

Source: Appendix L.
Note: sf = square feet.

5.4.1.2 Environmental Setting

Project Market Area

Market areas, or trade areas, have been defined in the Urban Decay Analysis (Appendix L) for the purpose of analyzing the prospective economic impacts of the project. The surrounding Primary Market Area (PMA) and Secondary Market Area (SMA) draw on a range of factors, such as the location of competitive supply, prevailing commute patterns in the region, and physical barriers. According to the International Council of Shopping Centers (ICSC), in general, the trade area should reflect the geography from which 75%–90% of retail sales are generated. Additionally, different stores can have different trade areas based on their individual drawing power and the competitive market context. The delineation of trade areas is more complex than in the past as a result of the proliferation in the variety and volume of shopping centers already present in most trade areas, as well as the variety of consumer markets. Consistent with industry definitions of shopping center market areas, the combined PMA/SMA for the project represents the geographic area in which 90% of the shopping center's repeat customers reside.

I-215 serves as a "feeder" for prospective customers traveling south toward the City. The boundaries of the PMA and SMA are defined in Figure 5-1, Primary and Secondary Market Area Map. This map also highlights the locations of other membership discount retail warehouse stores in the area, which are located in Temecula, Murrieta, and Lake Elsinore. It is assumed that the Costco anchor of the project will be the primary draw for customers located outside the City, since the other retail stores would be more local serving in nature.

The majority of the PMA includes areas within an approximately 15-minute or less drive time from the project site. This area has a current population of approximately 318,260 residents. The majority of the SMA includes areas within an approximately 15 to 20 minute drive time from the project site; communities outside the 20-minute drive time, such as Hemet and its neighbors, were included in the SMA because these communities are somewhat isolated and have limited access to retail destinations. The SMA (exclusive of the PMA) comprises an area with approximately 488,600 residents and includes communities outside the bounds of the PMA stretching as far as Hemet, East Hemet, and Valle Vista. The PMA and SMA were defined in consideration of the existing Costco locations to the south and north of the project site. The project is not expected to generate significant sales from residents of Lake Elsinore or Temecula. However, Costco stores draw from a regional trade area, and the proposed project would likely realize some cross-shopping from those members presently frequenting the existing Temecula, Lake Elsinore, and Moreno Valley warehouses.

Market Area Sales

It is estimated that PMA and SMA residents would generate 90% of the project's sales. By assuming that PMA and SMA residents would compose 90% of the project's sales, this analysis is consistent with the ICSC guidelines and is, in fact, at the conservative end of the 75%–90% range cited by ICSC for a retail trade area. It is assumed that residents coming from tertiary markets would generate the remaining 10% of sales. This tertiary market is likely to come from highway travelers passing through Murrieta on I-215 and from shoppers on pass-by trips.

Population and Household Income

The population in the PMA was approximately 318,263 in 2018, and is estimated to increase to 347,047 in 2023. The population of the combined PMA and SMA was approximately 806,898 in 2018 and is expected to increase to 870,320 by 2023.

Average per-capita income in the PMA is currently $31,360 and is anticipated to increase to $33,201 by 2023. Within the SMA, per-capita income currently averages $26,831 and is expected to grow to $31,616 by 2023.

Current Retail Market Conditions

According to recent retail broker reports for the Inland Empire, the Riverside/San Bernardino metro area represents California's fastest-growing economy, with 260,000 jobs added over the past 5 years. This employment growth has supported the addition of nearly 200,000 residents during the same period, boosting local demand for housing and conveniently located shopping centers. In response, retailers have been increasingly present in the area, and consumer spending continues to escalate. Grocers and personal-service-related companies (namely, fitness centers and smaller gyms) have been notably active of late, occupying roughly 1 million square feet of combined space in 2017. Overall, at least 70% of current new retail space is pre-leased, heightening retailer demand for existing space. This strong pre-leasing activity and stable tenant demand nearly negates the impact of recent heightened construction, since vacancy increases overall have been modest.

Within the area roughly analogous to the combined PMA and SMA, overall retail vacancies stand at 6.4% as of the end of the first quarter of 2018. Over the past four quarters, the vacancy rate in the market has remained relatively steady, with the rate going from 6.4% at the end of the second and third quarters of 2017, to 6.2% at the end of the fourth quarter of 2017, and 6.4% at the end of the first quarter of 2018.

Existing Shopping Centers in the Project Market Area

Grocery, clothing, and general merchandise sales would constitute more than 70% of the projected sales by the project. Grocery-store-anchored shopping centers and centers with significant general merchandise- and apparel-oriented retailers are considered to be competitive with the project.

A total of 26 neighborhood centers, 9 community centers, and 3 power centers are located within 5 miles of the project site. Neighborhood centers are local serving, meaning that the trade areas for these centers are residential neighborhoods within a 5- to 10-minute drive. Community shopping centers have larger trade areas than neighborhood centers, with customers typically traveling 10 to 15 minutes to go to this type of center.

Of the 26 neighborhood centers, seven are anchored by a grocery store and one is anchored by a general merchandise store (Dollar Tree). Overall vacancy for this group is 8.1%; however, of the 26 centers, eight shopping centers currently are experiencing vacancies between 11% and 32.5%. The most potentially vulnerable center of

this group is the Town Center Plaza, located in Murrieta at Jefferson Avenue and Juniper Street. It is a non-anchored neighborhood center located 3.6 miles from the project site. The Town Center Plaza center currently has 14,350 square feet of vacant space for an overall vacancy rate of just under 32.5%.

Community shopping centers located within 5 miles of the project site range from 84,000 square feet to 360,000 square feet. Of the nine community shopping centers, five are anchored by a grocery store and three stores have significant general merchandise retailers. Overall vacancy for this group is 6.6%; however, two shopping centers currently are experiencing vacancies greater than 15%.

The three power centers within 5 miles of the project site range in size from 230,000 to 325,000 square feet. Two centers have large home improvement stores, and two centers have general merchandise retailers. There are no vacant spaces within this group.

There are two community centers located near the project site currently experiencing significant vacancies. The Murrieta Town Center, located at the northwest corner of Alta Murrieta Drive and Murrieta Hot Springs Road in Murrieta is currently experiencing a 24% vacancy. This center, located within 3 miles of the project site, is anchored by Marshalls, Burlington Stores, Ross Dress for Less, Dollar Tree, and Rite Aid. Apparel anchors constitute nearly one-third of the total space of this center. The other community center with significant vacancy in this area, the Murrieta Spectrum, does not have any stores that are oriented to product lines that would be in direct competition with stores proposed for the project site.

The remaining portion of the PMA constitutes an area that is between 5 and 8 miles from the project site. The neighborhood centers in this distance range are located too far from the project site to be negatively impacted by the project. However, the two existing community shopping centers and one power center located in this area may find themselves in direct competition with the proposed Costco store due to the large trade areas that Costco stores pull from. The two community centers have an overall vacancy of 2.6%, while the power center has a vacancy rate under 1%. With low vacancy rates, these centers are not particularly vulnerable to increased competition.

Shopping centers in the SMA, which are generally more than 8 miles from the project site, are too far away from the Costco/Vineyard II project to be negatively impacted.

Primary Competitors

Costco would be the main sales generator for the project. Projected sales at the Costco are anticipated to account for 92% of total project sales. Thus, the PMA/SMA are largely determined by the Costco store.

In California, Costco's primary competitors are Wal-Mart Stores Inc. and Target Corporation. Within this group, Costco and Walmart's Sam's Club stores most closely resemble each other and directly compete for customers. All of these stores have at least a partial grocery store component and the Walmart Supercenter stores include a full grocery store selection. Other grocery stores in the area that are not part of a larger general merchandise store would experience some competitive pressure from Costco as well. However, Costco generally sells no more than 5,000 products at any given time, and because of that limited variety, customers would continue to require smaller stores with a wider variety. This helps to insulate freestanding grocery outlets such as Ralphs, Vons, and Stater Brothers.

As shown in Figure 5-2, Location of Primary and Secondary Competitive Supply, the highest concentration of retail development within the extended PMA and SMA are located within the Cities of Temecula, Murrieta, Lake Elsinore, Menifee, and Hemet. Existing Costco locations in Temecula and Lake Elsinore, and the existing Sam's Club store

located in Murrieta, are considered to be the primary competitive locations for the new Costco store, and Target and Walmart stores are considered secondary competitors. The following stores are considered to be in direct competition with the project:

Costco

- A 148,000-square-foot Costco in Temecula, located just south of the Promenade Temecula shopping center. This store in located in the SMA.
- A 146,000-square-foot Costco in Lake Elsinore, located in a community shopping center at Dexter and Central Avenue. This store is located in the SMA.

Sam's Club

- A 130,000-square-foot Sam's Club in Murrieta, located in the Murrieta Plaza shopping center at the intersection of I-215 and Murrieta Hot Springs. This store is located in the PMA.

Walmart and Walmart Supercenter

- A 141,000-square-foot Walmart located in Murrieta alongside I-215 at Murrieta Hot Springs Road. This store is located in the PMA.
- Two Walmart Supercenters located in Hemet; a 220,000-square-foot store in the Page Plaza shopping center and a 200,000-square-foot store located in the Mount San Jacinto Plaza. These stores are located in the SMA.
- A 185,000-square-foot Walmart Supercenter located in Perris at El Nuevo Road and North Perris Boulevard. This store is located in the SMA.

Target

- Two Target stores, both located in Murrieta:
  - A 162,000-square-foot store located in the Orchard at Stone Creek center, 0.5 miles from the project site. This store is located in the PMA.
  - A 125,000-square-foot store located in the Cal Oaks Plaza, approximately 2.95 mile southwest of the project site. This store is located in the PMA.
- A 178,000-square-foot Target located in Menifee at the Countryside Marketplace community center. This store is located in the SMA.
- A 122,000-square-foot Target located in Hemet at the Hemet Valley Center. This store is located in the SMA.

5.4.1.3 Impacts Analysis

Significance Criteria

For the purposes of this EIR, implementation of the proposed project would have a significant effect related to urban decay if it would:

> Create multiple long-term store vacancies or result in the abandonment of multiple buildings within the retail market served by the proposed project, which results in the physical deterioration of

properties or structures that impairs the proper utilization of the properties or structures, or the health, safety, and welfare of the surrounding community.

In accordance with the CEQA Guidelines, a project's economic impacts on a community are only considered significant if they lead to adverse physical changes in the environment.

Projected Sales for Project

To determine the annual sales performance of the proposed Costco/Vineyard II Retail Development, assumptions were made based on information available in either individual store 10-K reports filed with the Securities and Exchange Commission or the e-Marketer Retail database dated January 2018. The 10-K reports typically include total store square footage and total sales; spreading the sales across the square footage results in national average sales per square foot performance. The e-Marketer Retail publication provides average sales per square foot figures for many national retailers and aggregates the data by specific retail categories. The combined Costco/Vineyard II Retail Development comprises approximately 224,650 square feet of retail space. While not all retailers for the project have been identified, a Costco Warehouse store has been identified as the proposed anchor tenant, and targeted retail categories for most of the spaces have been identified. For the unknown retail space, a generally accepted industry standard average sales per square foot has been assumed.

It is anticipated that the project would be built in one phase with completion estimated for 2021. It generally takes 2 to 3 years to reach stabilized operations, therefore, the year 2023 has been used to represent project stabilization.

Since Costco would be considered the anchor for the project site, a sales-per-square-foot estimate was derived from e-Marketer Retail information for 2018. The results presented indicate a Costco sales estimate in 2018 of $1,121 per square foot. As presented in Appendix L, the Costco sales estimate would be $183.8 million by project stabilization in 2023. The projected sales for the balance of the project site are anticipated to bring total project sales to $199 million in 2023 dollars,[3] as detailed in Table 5-2.

Projected Sales by Category

The new sales generated by the project would be spread across many store merchandising categories due to the range of retailers anticipated. It is necessary to allocate the project sales into appropriate retail categories to determine the potential impact on those specific categories. The sales data source for this study is based on retail categories corresponding to the North American Industry Classification System (NAICS) designation as reported by the publication Esri Market Place Retail Profile. A detailed breakdown of the total project sales by NAICS sales categories anticipated for the project can be found in Appendix L and is summarized below in Table 5-2.

Table 5-2. Estimated Distribution of Project Sales by NAICS Category by Year 2023

Retail Categories	Sales (totals in $ millions)
Electronics and Appliance Stores	$14.7
Lawn & Garden Equipment and Supply Stores	$1.8
Grocery Stores	$73.5
Beer, Wine & Liquor Stores	$7.4

[3] Total estimated sales for the project as if open in 2018 are $171.7 million. Sales estimates have been inflated at a rate of 3% annually to 2023, when it is assumed that the project would have reached stabilized operations.

Table 5-2. Estimated Distribution of Project Sales by NAICS Category by Year 2023

Retail Categories	Sales (totals in $ millions)
Health and Personal Care Stores	$9.7
Gasoline Stations	$29.2
Clothing Stores	$11.5
Shoe Stores	$1.8
General Merchandise Stores	$46.8
Restaurants and Other Eating Places	$2.6
Total	**$199**

Retail Sales Leakage Analysis

As discussed in the Urban Decay Analysis (Appendix L), a statistical-based model was used to estimate retail spending potential for the market area based on population, income, and consumer spending patterns. The model determines the extent to which a market area is or is not capturing its sales potential based on estimated retail sales from stores located in the market area. Retail categories in which spending is not fully captured are called "leakage" categories, and categories in which more sales are captured than are generated by market area residents are called "attraction" categories. Generally, attraction categories signal particular strengths of a retail market, and leakage categories signal weaknesses.

A leakage analysis compares the anticipated purchasing power of area residents to the sales experienced at area stores. If store sales are less than the local purchasing power, it is believed that residents are spending a portion of their sales dollars at store locations outside their local market. This is known as leakage. If sales at local stores exceed the local purchasing power, then the market area is known as a sales importer, meaning that consumers from outside the local market are shopping at local stores. A market experiencing leakage is a market that has an opportunity to add retail stores.

The model captures resident spending on retail goods as well as sales generated by residents from outside the market area. This provides a characterization of the sales performance of the local retail base. This analysis was conducted to aid in identifying the extent to which the Costco/Vineyard II Retail Development may or may not divert sales away from existing market area retailers.

Sales Estimates

Three sales leakage analyses were conducted to assess the retail climate of the PMA and SMA. The first analysis examined the PMA's sales performance relative to its population base to assess the degree to which the PMA is serving the retail needs of its resident population. A second leakage analysis examines the sales performance of the SMA. Finally, the PMA and SMA leakage analyses were combined to reflect the combined Primary and Secondary Market Area (the combined PMA and SMA are shown on Figure 5-1). The leakage analyses were conducted using 2018 sales data and extrapolated to 2023, reflecting the sales estimates for the project assuming the first full year of stabilized store operations in 2023. The consumer expenditure trends for 2023 were assumed to resemble expenditure trends in 2018, with adjustments for interim population growth and inflation. Detailed results of the analyses are available in Appendix L.

The PMA's overall leakage of retail sales in 2018 totaled $1.9 billion. However, a large portion of this leakage was due to one category: automobile dealers. This category currently experiences $599.7 million in sales lost outside the PMA, but it is not a relevant category for comparison with the anticipated tenants of the project site. Several retail categories relevant to the project also experienced leakage in sales. The categories with the most leakage are as follows:

- Clothing and shoe stores with $177.7 million in leakage
- Restaurants and other eating places with $145.3 million in leakage
- General merchandise stores with $108.6 million in leakage
- Health and personal care stores with $132.2 million in leakage
- Electronics and appliance stores with $71.0 million in leakage
- Gas stations and auto supplies with $47.3 million in leakage

The high overall leakage total for the PMA is primarily due to the location of two strong retail markets north and south of the PMA along I-15 (Temecula and Lake Elsinore). These leakage results identify opportunities for new retailing to meet the needs of PMA residents. Note that grocery stores experienced very little leakage in 2018 with only $1.2 million in estimated lost sales.

In 2018, the SMA had overall sales attraction of $1,075,924,000 in surplus sales. Automobile dealers, general merchandise stores, and grocery stores are all strong performers in the SMA.

Finally, the results of the first two analyses were combined to reflect the total PMA and SMA. The PMA and SMA combined had leakage in the categories of automobile dealers; furniture and home furnishings; electronics and appliance stores; specialty food and beer, wine and liquor stores; health and personal care stores; clothing stores; some specialty retail outlets; and restaurants and other eating places. Overall, the combined market area had sales leakage of $824.8 million in 2018. However, this projection does not account for interim development nor reflect 2023 conditions when the project is anticipated to reach stabilization. Therefore, adjustments have been made to the projected retail sales leakage analysis to account for new major retail developments that have opened since the end of 2017. The purpose of these adjustments is to more appropriately estimate the size of the PMA retail base at the time the Costco/Vineyard II Center becomes fully operational in order to more realistically estimate the project's impacts. There would be an estimated $83.2 million in additional sales in 2018 in the combined market area as a result of the following major new retail developments that have opened in the market area since the end of 2017:

- The Shops at the Lakes (Menifee) – estimated 2018 sales of $54.3 million
- Wildomar Square (Wildomar) – estimated 2018 sales of $17.1 million
- The Gateway to Temecula Center (Temecula) – estimated 2018 sales of $11.8 million

This adjustment to the sales base of the combined market area is incorporated into the following analysis of sales impacts.

Sales Impacts within the Project Market Areas

To determine potential sales impacts on existing stores, the analysis evaluates existing supply and demand for retail sales within each NAICS category. Projected population growth and the recapture of existing sales leakage are considered sources of potential demand that may offset the sales impacts associated with the project. The analysis in Appendix L estimates the capture of new resident spending at the project and further assesses the

extent to which the project would capture sales that are currently leaking outside the PMA/SMA. If projected sales at the project are not anticipated to be within the purchasing power of new residents and/or the local recapture of sales currently lost to retailers located outside the market area, then it is assumed that some local stores would be vulnerable to a potential diminution in sales. Estimating the potential sales impact of adding the Costco/Vineyard II Retail Development Project to the PMA and SMA market areas requires the following five-step process:

1. Estimate net new population growth in the PMA and SMA market areas by the year 2023.
2. Estimate the fair-share capture rate for the PMA and SMA store sales (Appendix L, Exhibits A18 and A19).
3. Estimate the PMA and SMA capture rates of their respective area residential spending power (Appendix L, Exhibits A20 and A21).
4. Estimate the Costco/Vineyard II Retail Development sales capture attributed to population growth (Appendix L, Exhibits A22, A23, and A24).
5. Estimate the Costco/Vineyard II Retail Development sales capture of market area sales leakage and the potential for diversion of sales from existing retailers (Appendix L, Exhibit A25)

The following sections summarize the results of the five steps listed above, as illustrated in Appendix L.

Projected Population Growth

The addition of new population and households to the project market area would increase the demand for retail goods in the region. It is estimated that approximately 63,422 new residents will be added to the combined PMA and SMA between 2018 and 2023.

Fair-Share Capture Rate for the Project

In order to estimate how much of market area sales the Costco/Vineyard II Retail Development will be able to capture from the new residents, a baseline fair-share capture rate for the PMA and SMA is determined for each relevant retail category in the project. It is estimated that 80% of PMA sales for the Costco/Vineyard II Retail Development will come from residents of the PMA, while the remaining 20% of PMA sales are estimated to come from sales redirected from the two existing Costco stores in Temecula and Lake Elsinore. As further discussed in Appendix L, the Costco store in Temecula has been highly successful and has been experiencing some level of crowding. Based on this information, it is assumed that some customers would redirect most of their shopping trips to the Costco proposed as part of the project.

As detailed in Appendix L, Exhibit A18, the total sales in the PMA are projected to be $3.1 billion by 2023, including existing retailers, sales estimated for new businesses added to the area, and sales projected for the project. Overall, a stabilized and successful Costco/Vineyard II Retail Development, as proposed, would capture 4.6% of all retail sales originating from within the PMA, or $143.3 million annually.

As detailed in Appendix L, Exhibit A19, the total sales originating from within the SMA are projected to be $7.4 billion by 2023. Because of the large size of this market, and the greater distance between residential areas and the project site, the overall fair-share capture rate for the project would be 0.5% of all SMA-based sales. Based on this capture rate, sales at the Costco/Vineyard II Retail Development from the SMA (exclusive of the PMA) are projected to be approximately $35.8 million annually.

Capture of PMA and SMA Residential Spending Power

As indicated in Appendix L, Exhibit A20, the estimated residential spending power for retail in the year 2023 in the PMA totals $5.6 billion, including existing residents and new residents anticipated to be added to the area. By 2023, without any new store additions to the market other than the Costco/Vineyard II Retail Development, the PMA will capture 56% of residential purchase power. This implies that 56% of PMA residential retail demand is satisfied by retail establishments located in the PMA. The remainder is being spent elsewhere outside of the PMA.

As shown in Appendix L, Exhibit A21, the estimated residential spending power for retail in the year 2023 in the SMA totals $6.6 billion. The SMA retail base is larger than that of the PMA and is expected to generate $7.4 billion in sales. Store sales totals that exceed the spending power of the residential base indicate that a significant amount of sales are from residents of a neighboring market area, namely residents of the PMA that are choosing to do some of their shopping in the SMA. After adjusting for the non-resident sales, it is estimated that stores in the SMA capture 91% of their respective residents' retail spending.

Capture of Demand from New Population

It is estimated that the increase in retail spending power attributable to new residents in the PMA will total $461.7 million by 2023 (28,784 new residents × $16,040 in per capita spending).

As presented in Appendix L, Exhibit A22, PMA retailers are anticipated to capture approximately 56% ($256.6 million) of the new population retail demand. At a capture rate of 4.6% of area-wide sales, by 2023 the project is anticipated to capture $11.7 million of sales attributed to new residents in the PMA. Accounting for sales captured by the project, remaining retail purchasing power of the area's new residents in the PMA totals $245.0 million.

A similar analysis is presented in Appendix L, Exhibit A23, for the SMA. At a capture rate of 0.5% of all SMA-based sales, new residents in the SMA are anticipated to spend $2.0 million at the Costco/Vineyard II Retail Development, which leaves $392.6 million in new resident spending power to be spent elsewhere within the SMA.

Overall, the Costco/Vineyard II Retail Development is projected to capture $13.7 million of its sales from new residents expected to reside in the combined PMA/SMA by 2023.

Recaptured Market Area Retail Leakage by the Project

As shown in Appendix L, Exhibit A25, $179.1 million of the project's $199.0 million in expected annual sales would be attributable to consumers residing in the PMA or SMA, with $13.7 million attributed to new residential growth. After accounting for sales that come from new residents in the market area, there are two possibilities for where the remaining $165.4 million in sales would come from. The first of these is from the recapture of sales lost to other market areas (i.e., leakage). The second possibility is from taking sales away from existing retail stores within the market area.

The estimated amount of sales leakage in each retail category is shown in Appendix L, Exhibit A15. There are two categories, grocery store sales and general merchandise store sales, where no sales leakage is expected to exist. For those categories with leakage (electronics and appliance stores; lawn and garden equipment; beer, wine and liquor stores; health and personal care stores; gas stations and auto supply; clothing and shoe stores; and restaurants and other eating places), the volume of leakage estimated is great enough to satisfy the remaining category demand. In fact, the Costco/Vineyard II Retail Development will only need to capture 5.9% of the available leakage in the identified categories to satisfy these sales.

The potential recaptured leakage of $65.2 million from sales currently occurring outside the project market areas would be to the detriment of stores located outside the PMA and SMA. However, these stores are spread across a large geographic area and it is unlikely that any particular individual retailer would be greatly affected. Spread across such a large geographic area and multitude of retailers, this $65.2 million in recaptured sales would likely cause minor reductions in sales outside of the project market areas, but would be unlikely to cause specific store closures or urban decay.

For grocery and general merchandise goods to be sold at the Costco/Vineyard II Retail Development, there is not enough projected market area leakage to satisfy this newly created supply. Taken together, this represents $100.1 million in annual sales. The remaining retail spending power from new residents, even after allocating a portion of this spending to the project, should be sufficient to easily absorb the Costco/Vineyard II Retail Development project into the market without sales diversion from existing retailers (Appendix L, Exhibit A25).

Potential for Urban Decay

The proposed project would result in a new source of competitive retail supply, but analysis of each retail category suggests that recapture of existing sales leakage and increased demand by new residents in the project market areas would be sufficient to absorb the additional supply without creating conditions that could result in extreme economic competition leading to the threat of urban decay.

The Urban Decay Analysis (Appendix L) represents a conservative analysis, since it assumes the maximum diversion away from existing retailers upon stabilization of the project. Additionally, the analysis does not take into account any prospective market corrections or enhancements, or potential growth in income among the market area's population, resulting in an increase in per-capita spending. Further, the population in the project market areas is projected to continue to increase following implementation of the project.

New growth capture and recapture of leakage totals to $78.9 million, leaving $100.2 million in project sales to be accounted for. The remaining $100.2 million in Costco/Vineyard II Retail Development sales will be absorbed by current and new resident spending in the PMA and SMA beyond what the project is already assumed to capture ($13.7 million). In other words, current and new resident demand is so substantial in 2023, and the existing retail store base is unable to meet that demand, that resident spending power can easily absorb the $100.2 million in project sales. This will not pull sales from other stores because Costco/Vineyard II would be meeting unmet future demand. There is sufficient excess demand in the PMA and SMA to absorb the $100.2 million in sales from Costco/Vineyard II, and still leave $338 million in sales to be absorbed by other new stores. Based on this analysis, the proposed project, when analyzed exclusively from other proposed retail development, is not anticipated to create conditions conducive to urban decay. These findings, summarized in Table 5-3, infer that the project would not likely create conditions that would lead to urban decay, and impacts would be less than significant.

Table 5-3. Potential Sales Impacts on Existing Retailers for Combined Primary and Secondary Market Areas (2023 Dollars)

	Total Impact
Market Area Sales in 2023 Required to Support the Project	$179,135,955
Sales Supported by New Growth in the Market Area Market Area Spending Capacity Attributed to New Growth Project Fair-Share Capture of New Demand	 $651,347,849 $13,745,546
Sales Supported by Re-Capture of Current Leakage	

Table 5-3. Potential Sales Impacts on Existing Retailers for Combined Primary and Secondary Market Areas (2023 Dollars)

	Total Impact
Sales Leakage for Retail Categories Relevant to the Project Leakage Captured by the Project	($1,114,433,957) $65,228,766
Total Sales Supported by New Growth and Recapture of Leakage	$78,974,312
Intermediary Potential Sales Impacts on Existing Retailers	$100,161,643
Remaining Potential Demand from Population Growth to Offset Intermediary Impacts	$437,664,717
Sales Diverted from Existing Retailers	$0

5.4.1.4 Cumulative Impacts

Cumulative urban decay impacts have been assessed for the Costco/Vineyard II Retail Development in combination with currently planned competitive retail projects, or "cumulative projects." The cumulative projects considered are primarily larger neighborhood and community retail centers as well as power centers (see Table 5-4 for a list of cumulative projects considered for the Urban Decay Analysis). Other, smaller retail developments of less than 20,000 square feet were excluded because they are not considered to be competitive with a large shopping center such as the Costco/Vineyard II Retail Development, both in terms of size and tenant mix. The analysis in Appendix L identifies 19 planned or proposed major retail projects in the project market areas, consisting of 10 in Murrieta, six in Menifee, two in Lake Elsinore, and one in Hemet. These 19 projects total to approximately 1.5 million square feet. Because the future tenant mix is unknown for many of the proposed cumulative projects, the analysis estimates a standard tenant mix based on information from the ICSC as well as consultant experience with shopping center planning in California. It should also be noted that the market areas as defined for the Costco/Vineyard II Retail Development project have been used in the cumulative analysis, and separate market areas were not defined for each cumulative project or store. Further, sales from all proposed cumulative projects have been forecasted to 2023 to assess the prospective cumulative impact of the Costco/Vineyard II Retail Development in combination with these projects if all projects were to be completed by 2023, representing a worst-case scenario analysis.

Table 5-4. Cumulative Projects

Project Name	Project Description
PMA – Projects Identified in Murrieta	
The Orchard at Stone Creek	185,000-square-foot addition to an existing shopping center, includes a 78,000-square-foot multiplex theater
Hot Springs Center	24,000-square-foot neighborhood shopping center
Murrieta Marketplace	518,817-square-foot power center consisting of 26,100 square feet of restaurant space, a 136,000-square-foot Home Depot, a gas station, and additional building pads that could house retail or consumer service businesses
Murrieta Gateway	Three industrial buildings with a total of 285,270 square feet, a 150-room hotel, and 43,400 square feet of retail with a gas station
Aldi Grocery Store	Freestanding grocery store
French Valley Crossing	36,300-square-foot neighborhood center
The Triangle	1.76 million square feet (600,000-square-foot office, 800,000-square-foot retail, theater, and hotel with meeting rooms). The current square footage is based on the City's Triangle Specific Plan; however, this project has been in planning for a number

Table 5-4. Cumulative Projects

Project Name	Project Description
	of years and has a great potential to change from original plans. For this analysis it has been assumed 100,000 square feet of retail would be built and operational by 2023.
Murrieta Hospitality Commons	59,840-square-foot hotel consisting of 104 rooms and three restaurants totaling 16,100 square feet, and 10,500 square feet of retail
Vineyard I	78,489-square-foot shopping center and a 91-room hotel
Vineyard III	32,208-square-foot commercial center, consisting of 11,600 square feet of retail, 8,000 square feet of restaurants, a 3,558-square-foot bank and 9,000 square feet of auto related uses
PMA – Projects Identified in Menifee	
Junction at Menifee	309,600-square-foot addition to an existing shopping center
McCall Square	71,000-square-foot neighborhood retail center
McCall Square II	84,000-square-foot neighborhood retail center
Menifee Crossroads	30,500-square-foot addition to an existing shopping center
Menifee Lakes Plaza	150,000-square-foot power center. Proposed tenants include Barons Market, LA Fitness, Raising Cane's, Cafe Rio, and Jamba Juice.
Menifee Plaza	14,000-square-foot neighborhood retail center
SMA – Projects Identified in Hemet	
The Boardwalk	Phase II – 64,000-square-foot addition to an existing shopping center
SMA – Projects Identified in Lake Elsinore	
Artisan Alley at The Diamond	95,000 square feet of retail and restaurant space and a 130-room hotel
Central Plaza	80,000-square-foot community shopping center. Proposed tenants include Marshalls, Sketchers, Five Below, ULTA Beauty, Panera Bread, and Starbucks.

The results in Appendix L, Exhibits A28 and A29, indicate that by 2023, if all cumulative projects are completed as planned, they have the potential to generate additional retail sales totaling $627.3 million originating from the PMA and SMA. Sales estimates for the cumulative projects were derived for each retail category relevant to the project. In deriving these sales estimates, it was assumed that 75% to 95% of sales would originate from the PMA, roughly consistent with the market split assumption used in the analysis for the Costco/Vineyard II Retail Development. For projects located in the SMA, it was assumed that 85% of sales from those projects would originate from the SMA.

Using the same methodology discussed in Section 5.4.1.3, Impacts Analysis, the cumulative analysis estimates the maximum 2023 impact of the Costco/Vineyard II Retail Development in combination with the cumulative projects on existing retailers in the market area, which is presented in Appendix L, Exhibit A32, and summarized below in Table 5-5.

Table 5-5. Potential Sales Impacts from Cumulative Projects for Combined PMA and SMA (2023 dollars)

	Total Impact
Retail Sales Required to Support Planned + Proposed Retail Centers	$700,416,451
Costco / Vineyard II Retail Development Sales Supported by New Growth	$13,745,546
Potential Sales Impacts on Other Retailers	$686,670,906

Table 5-5. Potential Sales Impacts from Cumulative Projects for Combined PMA and SMA (2023 dollars)

	Total Impact	
Sales Supported by Re-Capture of Current Leakage Sales Leakage for Retail Categories Relevant to the Project Leakage Captured by Planned and Proposed Projects	 ($1,114,433,957) $271,054,667	
Intermediary Potential Sales Impacts	$415,616,239	
Retail Categories Where Recapture of Market Area Sales Leakage Will Satisfy the Introduction of New Retail Space Electronics & Appliance Stores Beer, Wine & Liquor Stores Health & Personal Care Stores Gasoline Stations / Auto Supplies Clothing & Clothing Accessories Stores	 100% 100% 100% 100% 100%	
Retail Categories Where Recapture of Market Area Sales Leakage and Demand from Population Growth Will Satisfy the Introduction of New Retail Space Restaurants/Other Eating Places	 100%	
Retail Categories Where There is a Risk of Diverted Sales Lawn & Garden Equipment & Supply Stores Grocery Stores General Merchandise Stores	$ of Diverted Sales $16,120,275 $101,778,991 $54,017,909	Square Feet 37,900 sf 113,100 sf 120,000 sf
Potential Sales Diverted from Existing Retailers	$171,917,175	271,000 sf

As shown in Table 5-5, after the Costco/Vineyard II Retail Development project reaches stabilized operations by 2023 and if all other proposed projects are completed during the same period, an oversupply of retail in lawn and garden equipment stores, grocery stores, and general merchandise stores is projected. Of these, the lawn and garden equipment category is expected to be the most impacted, with approximately $16 million in surplus sales, which represents 47.6% of projected 2023 sales in that category in the PMA and SMA. The grocery stores category would have a projected surplus equal to 5.8% of 2023 sales in the PMA and SMA, and general merchandise stores category would have a projected surplus equal to 2.7% of 2023 sales in the PMA and SMA.

The Costco/Vineyard II Retail Development alone would not cause the surplus sales in the lawn and garden category, as lawn and garden equipment and supplies only make up approximately 1% of the proposed project's sales. However, there are two new Home Depot stores planned in the PMA (which are included in the cumulative project list), along with other stores with lawn and garden sections, which will have a big impact on the lawn and garden retail category.

Table 5-5 presents a conservative analysis, as it does not consider factors such as prospective market corrections or enhancements following the introduction of the cumulative projects into the marketplace or the potential increase in consumer spending pursuant to real income growth or population growth beyond the bounds of this analysis.

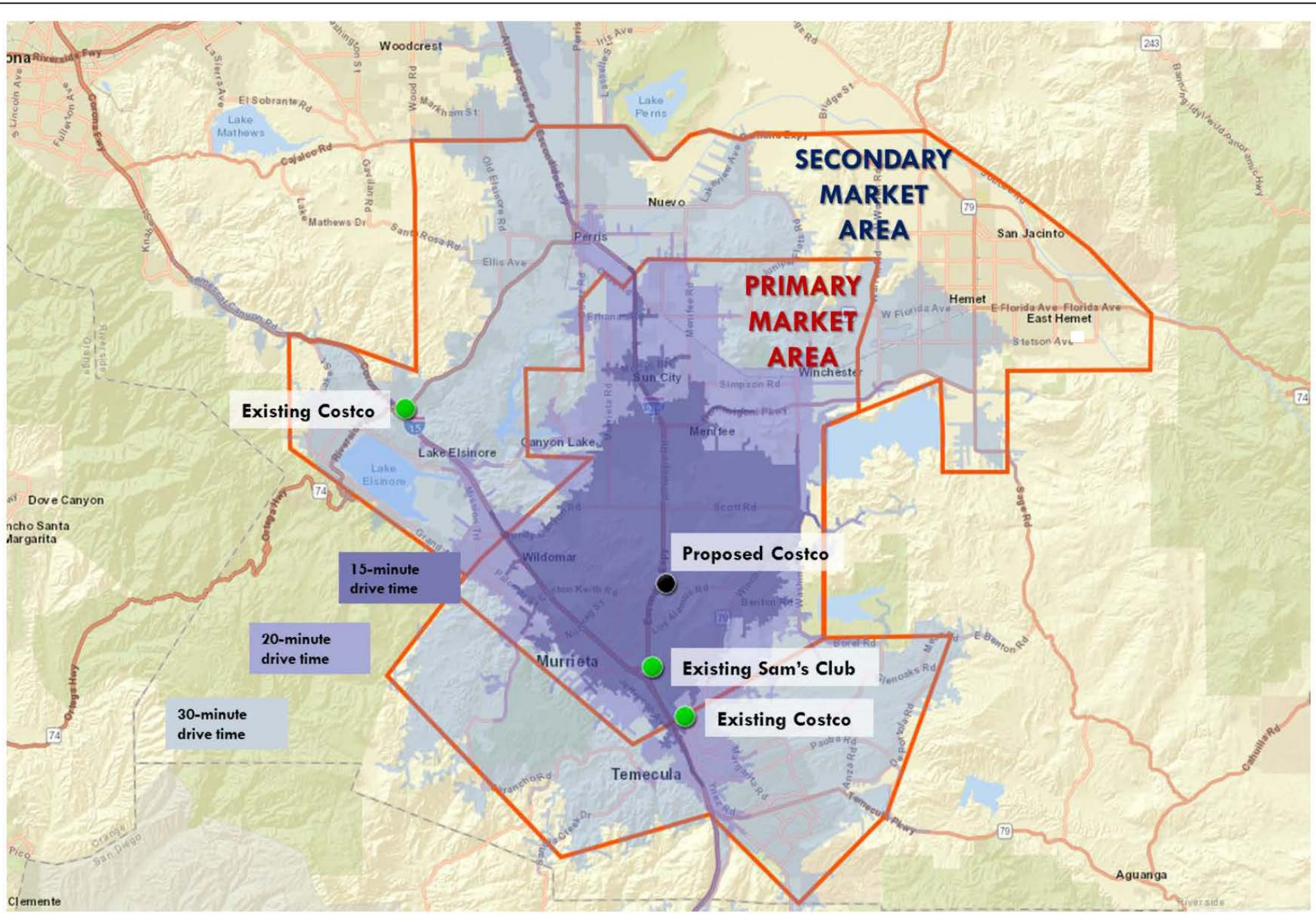
Nevertheless, a sales impact of 5.8% and 2.7% for the grocery store goods and general merchandise categories, respectively, is highly unlikely to lead to store closures, especially if the impact is spread across more than one store. The lawn and garden market in the PMA and SMA is currently comprised primarily of lawn and garden sections within larger big box stores. Even if the lawn and garden equipment and supply sections of these larger stores are impacted by the

cumulative projects, it is unlikely this impact will lead to store closures because the lawn and garden sections generally represent less than 10% of store sales. Therefore, cumulative impacts would be less than significant.

5.5 References Cited

SCAG (Southern California Association of Governments). 2019. *Profile of the City of Murrieta: Local Profiles Report 2019*. May 2019. Accessed March 2020. https://www.scag.ca.gov/Documents/Murrieta.pdf.

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SOURCE: HR&A Advisors, Inc. 2019

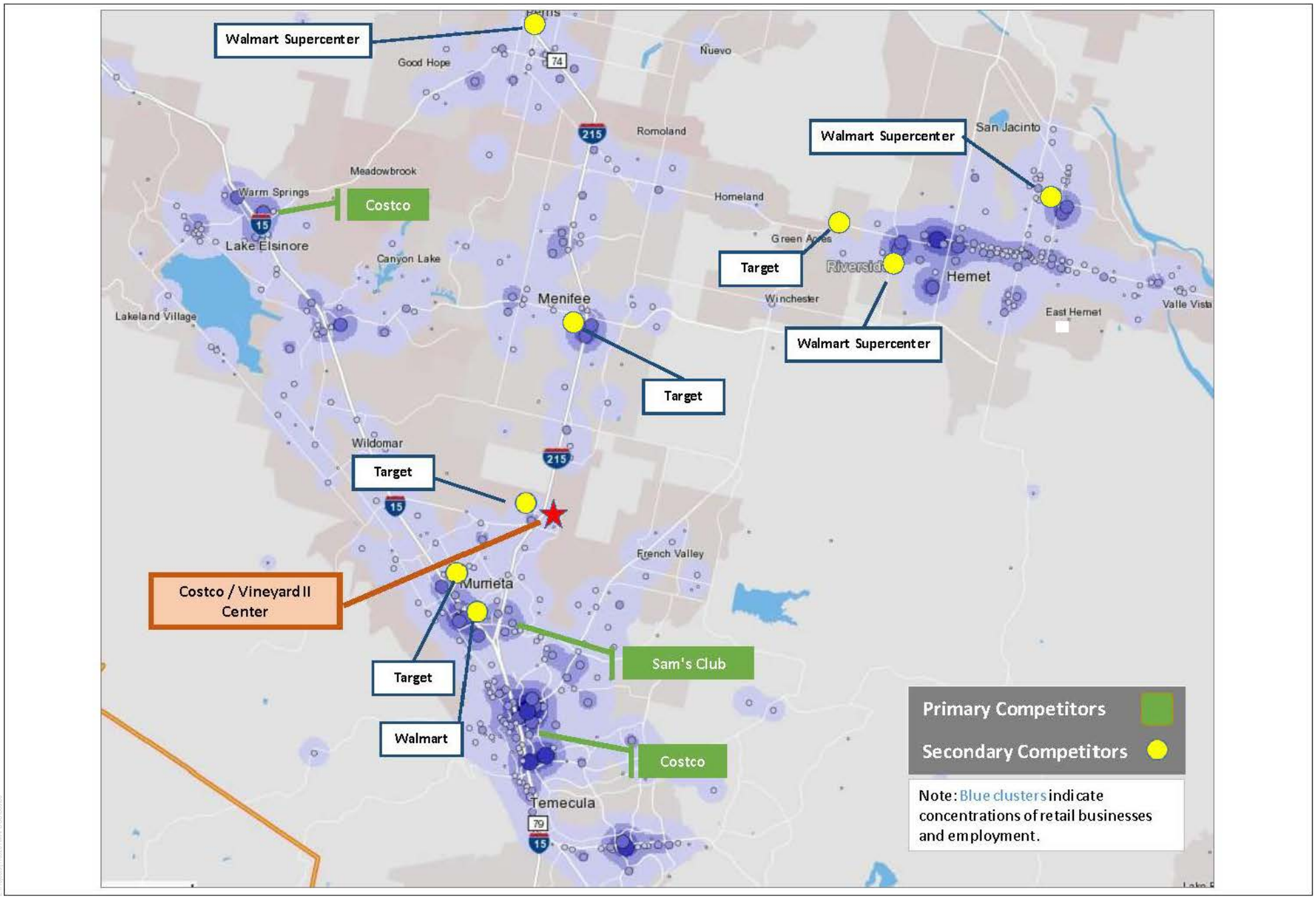
FIGURE 5-1

Primary and Secondary Market Area Map

Costco/Vineyard II Retail Development Project, City of Murrieta, California

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SOURCE: HR&A Advisors, Inc. 2019

FIGURE 5-2

Location of Primary and Secondary Competitive Supply

Costco/Vineyard II Retail Development Project, City of Murrieta, California

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6 Alternatives

The California Environmental Quality Act (CEQA) requires that environmental impact reports (EIRs) "describe a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives" (14 CCR 15126.6[a]). The CEQA Guidelines direct that the selection of alternatives be governed by "a rule of reason" (14 CCR 15126.6[a], [f]). As defined by the CEQA Guidelines, "The range of alternatives required in an EIR is governed by a 'rule of reason' that requires the EIR to set forth only those alternatives necessary to permit a reasoned choice. The alternatives shall be limited to ones that would avoid or substantially lessen any of the significant effects of the project. Of those alternatives, the EIR needs to examine in detail only the ones that the Lead Agency determines could feasibly attain most of the basic objectives of the project" (14 CCR 15126.6[f]).

As presented in prior sections of this EIR, the proposed Costco/Vineyard II Retail Development Project (project) would result in significant and unavoidable construction and operational impacts with respect to air quality and operational impacts with respect to traffic. These impacts are summarized below:

Air Quality. The proposed project would exceed significance thresholds of volatile organic compounds (VOC) and oxides of nitrogen (NO_x) during operation even with implementation of **Mitigation Measure (MM) AQ/GHG-2**; thus, the impact related to the project's potential to conflict with or obstruct implementation of the South Coast Air Quality Management District (SCAQMD) 2016 Air Quality Management Plan (SCAQMD 2017) would remain significant and unavoidable. Because the proposed project's operational VOC and NO_x emissions would exceed SCAQMD thresholds, the proposed project would result in a cumulatively considerable increase in criteria air pollutant emissions. During project construction, maximum daily on-site emissions of course and fine particulate matter (PM_{10} and $PM_{2.5}$) would exceed the SCAQMD's localized significance thresholds; therefore, impacts associated with the exposure of sensitive receptors to substantial pollutant concentrations would be significant and unavoidable even with implementation of **MM-AQ-1**. Because operation-generated VOC and NO_x emissions would exceed SCAQMD thresholds, and because **MM-AQ/GHG-2** cannot be quantified due to uncertainty of quantified reductions, the potential for the proposed project to contribute to regional health effects associated with ozone, VOC, and NO_x during project operation would remain significant and unavoidable.

Traffic. The proposed project would result in project-level level-of-service impacts to the intersections of Salida Del Sol and Clinton Keith Road, Elizabeth Lane and Clinton Keith Road, and Max Gillis Boulevard/Thompson Road and State Route 79 that could not be mitigated to a less-than-significant level.

California Oaks Road and Clinton Keith Road: With the implementation of the proposed **MM-TRAF-1**, the impact at California Oaks Road and Clinton Keith Road would be less than significant. Despite implementation of **MM-TRAF-9**, this queuing impact remains significant and avoidable because timing for implementation cannot be guaranteed by project build-out.

Greer Road/Murrieta Oaks Avenue and Clinton Keith Road: With implementation of **MM-TRAF-2**, the impact is less than significant.

Mitchell Road/Murrieta Oaks Avenue and Clinton Keith Road: With implementation of the proposed **MM-TRAF-3**, the queuing impact is less than significant. Despite implementation of **MM-TRAF-6**, the LOS impact to this intersection is significant and unavoidable because the timing of the mitigation cannot be guaranteed by project

build-out. Despite implementation of **MM-TRAF-6**, the cumulative queuing impact to this intersection is significant and unavoidable because timing of the mitigation cannot be guaranteed by project build-out.

High School Driveway West/Warm Springs Parkway and Clinton Keith Road: With the implementation of the proposed **MM-TRAF-4** and **MM-TRAF-7**, the impacts at High School West Driveway/Warm Springs Parkway and Clinton Keith Road would be less than significant.

Whitewood Road and Clinton Keith Road: While the project applicants would pay a proportional fair share to the City's CIP (project #8389) to provide the dual northbound and southbound left turn lanes at part of **MM-TRA-5**, right-of-way restrictions prohibit extending the turn lanes to the total length needed and full funding is not guaranteed by project build-out. This impact remains significant and unavoidable.

Nutmeg Street and Clinton Keith Road: Despite implementation of the proposed **MM-TRAF-8**, full funding for implementation is not guaranteed by project build-out. This queuing impact remains significant and unavoidable.

I-215 Southbound Ramps and Clinton Keith Road: Queuing impacts remain significant and unavoidable because it is not possible to extend storage due to right-of-way restrictions and spacing to the adjacent traffic signal.

Bronco Way and Clinton Keith Road: The cumulative condition queuing impact is significant and unavoidable because funding and implementation of **MM-TRAF-10** cannot be guaranteed by project opening.

Whitewood Road and Baxter Road: The cumulative condition queuing impact is significant and unavoidable because the implementation of **MM-TRAF-12** cannot be guaranteed by project build-out.

Consistent with CEQA, the analysis presented in this chapter considers whether a reasonable range of alternatives to the proposed Costco/Vineyard II Retail Development Project (project) could reduce those impacts.

The selection of alternatives and their discussion must "foster informed decision-making and public participation" (14 CCR 15126[a]). Therefore, this chapter identifies potential alternatives to the proposed project and evaluates them, as required by CEQA.

The CEQA Guidelines require the analysis of a "no project" alternative and, depending on the circumstances, evaluation of alternative location(s) for the proposed project, if feasible. Based on the alternatives analysis, an environmentally superior alternative is to be designated. In general, the environmentally superior alternative is the alternative with the least adverse impacts on the environment. If the environmentally superior alternative is the no project alternative, the EIR shall also identify another environmentally superior alternative among the other alternatives (14 CCR 15126.6[e][2]).

Section 15126.6(d) of the CEQA Guidelines states that alternatives analysis need not be presented in the same level of detail as the assessment of the proposed project. Rather, the EIR is required to provide sufficient information to allow meaningful evaluation, analysis, and comparison with the proposed project. If an alternative would cause one or more significant impacts in addition to those of the proposed project, analysis of those impacts is to be discussed, but in less detail than for the proposed project. Furthermore, the alternatives analysis only examines those resources that could have impacts across the alternatives. For example, if the project site does not contain agricultural, forestry or mineral resources (see Appendix A for the Initial Study which contains the analysis for these subjects), then an analysis of these topics across the alternatives is not informative, as the site does not contain these resources. For resources in which there is no impact as established in the Initial Study, there is also no reason to analyze these subjects across the alternatives, as there is also no impact from a reduced alternative

if the proposed project did not have an impact (e.g., physical division of an established community or conflicts with applicable land use plans, policies or regulations).

6.1 Project Objectives

The proposed project has been designed to meet the following series of objectives:

- Provide a mix of retail, restaurant, and anchor tenants that provide residents with additional shopping, dining, and fueling options in a location that is convenient for its customers and employees to travel to shop and work
- Enhance the City of Murrieta (City) with an economically viable development by establishing anchored retail required to support brick and mortar retail in the current online-oriented retail environment
- Provide a gasoline fueling station adjacent to major roadways and the regional highway system
- Generate additional revenues to the City in the form of increased sales and property tax revenues
- Create jobs in the City and improve the local job/housing balance
- Design a project that is consistent with the City's General Plan and Development Code
- Create a new opportunity for a wide range of integrated retail goods and services to meet the needs of the growing Murrieta community
- Design a site plan that minimizes circulation conflicts between automobiles and pedestrians

6.2 Alternatives Considered and Eliminated During the Scoping/Project Planning Process

The CEQA Guidelines provide that this EIR should "identify any alternatives that were considered by the Lead Agency but were rejected as infeasible during the scoping process and briefly explain the reasons underlying the Lead Agency's determination" (14 CCR 15126.6[c]). The following is a discussion of the proposed project alternatives during the scoping and planning process and the reasons they were not selected for detailed analysis in this EIR.

With respect to the feasibility of potential alternatives to the proposed project, CEQA Guidelines Section 15126.6(t)(l) states, "Among the factors that may be taken into account when addressing the feasibility of alternatives are site suitability, economic viability, availability of infrastructure, general plan consistency, other plans or regulatory limitations, jurisdictional boundaries … and whether the proponent can reasonably acquire, control or otherwise have access to the alternative site."

In determining an appropriate range of project alternatives to be evaluated in this EIR, a number of possible alternatives were initially considered and then rejected. Project alternatives were rejected because they could not accomplish the basic objectives of the proposed project; they would not have resulted in a reduction of significant adverse environmental impacts; or they were considered infeasible to construct or operate. For example, the size of the Costco being proposed is the smallest size Costco that Costco now builds so alternatives that contemplate reduced size Costco warehouses is not feasible.

Reduced Size Costco

The proposed project includes a 153,362 square-foot Costco which is the smallest warehouse planned and constructed by Costco (Murillo 2020). Because Costco is a wholesaler, a smaller size store inhibits the ability to provide items in large sizes and volumes to support businesses. Products are shipped to the warehouse on palettes, stored in the warehouse on palettes, and are unpacked for purchase, as needed. The stores have concrete floors, wide aisles, very high shelving, and few obstructions for bobcats to move palettes around. It is not feasible to do this in small stores because of the size of the palettes and the volume of product that comes to the warehouse. In addition, a smaller warehouse does not reduce environmental impacts because Costco warehouses are placed in certain market/trade areas to be centrally located to a base of customers. Therefore, a smaller warehouse may be more crowded, it might require more frequent trips to purchase all the products needed if they cannot be offered regularly and have to rotate based on space and customers will travel out of the market area to go to another Costco that does carry a wider range of products, increasing transportation and air quality impacts. Thus, alternatives that include a smaller sized Costco were rejected as unlikely to reduce environmental impacts.

Vineyard II Retail Development without Costco

An alternative that would double the proposed square feet of Vineyard II to 144,000 square feet of retail similar to that proposed for the Vineyard II site and without a Costco was considered. Under this alternative, the proposed Vineyard II project would proceed and a retail center similar in size and uses to the Vineyard II would be constructed on the west side of Warm Springs Parkway in lieu of the Costco. The trips generated by 144,000 square feet of retail development are estimated to be 8,804 daily trips. This number of daily trips exceeds the number of daily trips of a Costco warehouse alone (8,378 daily trips as shown in the Kittelson TIA in Appendix I). Therefore, an alternative with less square footage across the site that removes the Costco does not reduce daily trips or emissions and does not avoid a significant impact. Therefore, this alternative was rejected because it does not achieve the basic purpose of an alternative which is to reduce or avoid significant impacts (CEQA Guidelines Section 15126.6[c]). Furthermore, one of the project objectives is to provide a retail development with an anchor which would help support traditional brick and mortar retail in an environment of increasing online retail competition. This alternative would not meet that project objective.

Costco Without a Fueling Station

Costco builds all new warehouses with fueling stations and has gone back to retrofit many older Costco buildings, which were purchased from other owners, with fueling stations. Therefore, it is not in Costco's business model to construct new warehouses without fueling stations. Thus, this alternative was rejected as infeasible as Costco does not build new Costco warehouses without the fueling station.

Residential Development

The City's General Plan Land Use Map designates the project site as Commercial (C) and the City's Zoning Map shows the site as zoned Regional Commercial (RC), therefore, it would require a General Plan Amendment and zoning map change to allow residential development, which is not consistent with the city's vision for maximizing the use of the site which is freeway-facing and along a major arterial roadway, making it optimal for commercial development. Furthermore, residential development does not further the project objectives and thus, it was rejected as infeasible for this site.

Office Development

The City's General Plan Land Use Map designates the project site as Commercial (C) and the City's Zoning Map shows the site as zoned Regional Commercial (RC), therefore, it would require a General Plan Amendment and zoning map change to allow office development, which is not consistent with the city's vision for maximizing the use of the site which is freeway-facing and along a major arterial roadway, making it optimal for commercial development. Furthermore, office development does not further the project objectives and thus, it was rejected as infeasible for this site.

Continuation of Mass Grading Operation

As described in the project description, North County Sand and Gravel has been conducting a mass grading operation on the site intermittently since approximately 2006. This work was initially undertaken to provide fill material for the Interstate 215/Clinton Keith Road interchange improvements project. The mass grading operation ceased in December 2019 when the grading permit term concluded with completion of the implementation of best management practices (BMPs) in January 2020. An alternative which considers the continuation of the mass grading operation was rejected because the work under the permit has been completed and there is a limited amount of additional grading that could be carried out on site since there is a need to preserve grade with the future Warm Springs Parkway that will be extended from Clinton Keith Road. Therefore, this alternative was not carried forward for further evaluation.

Alternate Site Locations

CEQA does not require that an analysis of alternate sites always be included in an EIR. CEQA Guidelines Section 15126.6(f)(2) provides guidance regarding consideration of one or more alternative location(s) for a proposed project, stating that putting the project in another location should be considered if doing so would allow significant effects of the project to be avoided or substantially lessened. Only locations that would avoid or substantially lessen any of the significant effects of the project need be considered for inclusion in the EIR. However, if the surrounding circumstances make it reasonable to consider an alternate site, then a project alternative should be considered and analyzed in the EIR. Pursuant to CEQA Guidelines Section 15126.6(f)(2), in making the decision to include or exclude analysis of an alternate site, the "key question and first step in analysis is whether any of the significant effects of the project would be avoided or substantially lessened by putting the project in another location. Only locations that would avoid or substantially lessen any of the significant effects of the project need to be considered for inclusion in the EIR."

During the planning process, alternative locations for a Costco Wholesale (Costco) warehouse were considered. Costco did extensive market research and selected Murrieta as a location that needs more services and the appropriate location to maintain sufficient distance between other Costco locations based on customer home addresses and an average travel distance. Within Murrieta, a number of locations were considered including the existing Orchard Shopping Center south of Target across the Interstate 215. However, the Orchard Shopping Center location was ultimately rejected by Costco because it was too small, with an awkward shape that made access difficult. Additionally, there was also a property restriction on the Orchard Shopping Center location prohibiting the sale of gasoline by a competitor. Costco's approach for new projects is to build the warehouse and gasoline station together; thus, the Orchard Shopping Center location was rejected by Costco because they could not build both the warehouse and gasoline station.

A second site was considered by Costco in Menifee at Scott Road and the Interstate 215. However, this site is too close to the Lake Elsinore Costco and would potentially pull business away from that warehouse. Secondly, the improvements on the Scott Road/Interstate 215 interchange are not anticipated to be completed for several more years, and those improvements are needed first. It is likely that because those improvements were not in place, the traffic and circulation impacts in that location would have been significant and unavoidable, thus, not meeting the intent of an alternative to reduce impacts.

6.3 Alternatives Selected for Further Analysis

This section discusses a reasonable range of alternatives to the proposed project, including a no project alternative, in compliance with CEQA Guidelines Section 15126.6(e). These alternatives include the following:

- Alternative 1: No Project/No Development Alternative
- Alternative 2: Reduced Project/Reduced Vineyard II Development
- Alternative 3: Reduced Project/No Vineyard II Development

Each alternative's environmental impacts are compared to the proposed project and determined to have fewer impacts, similar or the same impacts, or greater impacts.

6.3.1 Alternative 1: No Project/No Development Alternative

Section 15126.6(e) of the CEQA Guidelines requires that an EIR evaluate and analyze the impacts of a no project alternative. The "purpose of describing and analyzing a no project alternative is to allow decision makers to compare the impacts of approving the proposed project with the impacts of not approving the proposed project" (14 CCR 15126.6[e][1]). When defining the no project alternative, the analysis shall be informed by "what would be reasonably expected to occur in the foreseeable future if the project were not approved, based on current plans and consistent with available infrastructure and community services" (14 CCR 15126.6[e][2]).

The No Project Alternative

The CEQA Guidelines state that "in certain instances, the no project alternative means 'no build' wherein the existing environmental setting is maintained. Where failure to proceed with the project will not result in preservation of existing environmental conditions, the analysis should identify the practical result of the project's non-approval and not create and analyze a set of artificial assumptions that would be required to preserve the existing physical environment" (14 CCR 15126.6[e][3][B]). In the case of the No Project/No Development Alternative, the existing site would be vacant as the mass grading operation's permit term concluded in December 2019 and even with permit renewal, limited additional grading could be carried out since the grade requirements for the project site and Warm Springs Parkway have essentially been met. The construction of Warm Springs Parkway north of Clinton Keith is included in the General Plan, but it is contingent upon development occurring in the vicinity to drive the need for the road. Thus, if no development occurs on the proposed project site, and there is no pending application for development to the north, construction of Warm Springs Parkway is not reasonably foreseeable. Therefore, under the No Project Alternative, the proposed project would not be built and no significant infrastructure improvements would be implemented.

Analysis

Aesthetics

Under the No Project/No Development Alternative, the project site would be vacant. The project site displays a disturbed visual character that is reinforced by the presence of large amounts of dirt that have been moved around the site. The No Project/No Development Alternative would maintain the current visual quality of the site and would not add new lighting sources. The No Project/No Development Alternative would not enhance the appearance of the area by developing the site with a new retail shopping center and the site would remain visually incompatible with the surrounding area which has a suburban character. Therefore, although neither the proposed project nor the No Project/No Development Alternative would have significant impacts, the proposed project is considered to have fewer visual impacts compared to the No Project Alternative which leaves the site vacant and unimproved with exposed dirt, dirt piles and scrubby brush. Therefore, the No Project/No Development has more visual impacts than the proposed project.

Air Quality

Construction Emissions

Under the No Project/No Development Alternative, there would be no development of the project site. No construction activities would occur, and therefore, there would be no construction air pollutant emissions. Under the proposed project, construction emissions of NO_x would exceed the SCAQMD threshold, as a result of haul truck trips, rock crushing, rock popping activities, and grading. **MM-AQ-1** would be applied to the proposed project and would reduce impacts associated with construction emissions of NO_x to less-than-significant levels. However, the maximum daily construction-generated on-site emissions would exceed the SCAQMD localized significant thresholds for PM_{10} and $PM_{2.5}$ and would be significant and unavoidable even with implementation of **MM-AQ/GHG-1**. Therefore, the No Project/No Development Alternative would have less environmental impact than the proposed project with regard to construction emissions.

Operational Emissions

Under the No Project/No Development Alternative, the project site would be vacant and no further grading would occur. No new buildings or improvements would occur and no fueling station would be located on the project site, which would result in no VOC emissions from gas station loading, breathing, refueling, hose permeation, and spillage emissions, fuel delivery truck and vehicle trip travel and idling emissions. Under the No Project/No Development Alternative there would be no operational pollutant emissions that would occur on the project site. As shown in Table 4.2-7, Estimated Maximum Daily Operational Criteria Air Pollutant Emissions – Unmitigated, in Section 4.2, Air Quality, of this EIR, the implementation of the proposed project would exceed SCAQMD thresholds for VOC and NO_x, primarily due to mobile emissions. Impacts would be significant and unavoidable with implementation of **MM-AQ/GHG-2**. Therefore, the No Project/No Development Alternative would have less environmental impact than the proposed project with regard to operational emissions.

Biological Resources

Under the No Project/No Development Alternative, the site would be vacant and no further grading would occur. As described in Section 4.3, Biological Resources, construction of the proposed project could result in indirect impacts to special-status plants, special-status wildlife species, nesting birds, and burrowing owl (*Athene cunicularia*). The

construction period mitigation measures proposed (**MM-BIO-1**, General Avoidance and Minimization Measures, **MM-BIO-2**, Burrowing Owl Pre-Construction Survey, and **MM-BIO-3**, Pre-Construction Nesting Bird Survey, if construction occurs during the nesting season, and **MM-BIO-4,** Implementation of Urban/Wildlands Interface Guidelines) would minimize impacts to a less-than-significant level. As the No Project/No Development Alternative would not result in any further grading on the project site, the No Project/No Development Alternative would have less environmental impact than the proposed project with regard to impacts to biological resources.

Cultural Resources

Under the No Project/No Development Alternative, the site would be vacant and no further grading would occur. Therefore, there would be no potential for impacts to cultural resources. As described in Section 4.4, Cultural Resources, construction of the proposed project could result in impacts to cultural resources. Although mitigation measures (**MM-TCR-1** through **MM-TCR-5**) are proposed that would minimize these potential impacts to a less-than-significant level, less-than-significant impacts to cultural resources on the project site could occur. As the No Project/No Development Alternative would not result in any further grading on the project site, the No Project/No Development Alternative would have less environmental impact than the proposed project with regard to cultural resources impacts.

Geology and Soils

Under the No Project/No Development Alternative, the site would be vacant and no further grading would occur. Under current conditions, substantial soil erosion and loss of topsoil is likely, due to the disturbed, undeveloped ground surface. A debris basin was installed to capture siltation from traveling off site; however, sediments are exposed across the project site. Excavations and grading for the proposed project would result in disturbance of existing sediments, such that erosion could be exacerbated during precipitation or high-wind events. However, proposed project grading and construction would be completed in accordance with a Stormwater Pollution Prevention Plan (SWPPP), as mandated by the National Pollutant Discharge Elimination System (NPDES), which would include standard BMPs to reduce potential off-site water quality impacts related to erosion and incidental spills of petroleum products and hazardous substances from equipment. Upon implementation of the proposed project, the site would be graded and paved, greatly reducing the possibility for soil erosion or loss of topsoil compared to current conditions. Although the No Project/No Development Alternative could result in substantial erosion and loss of topsoil, NPDES would apply to the former mass grading operations, and BMPs would be required to be implemented on the site. Implementation of BMPs would reduce impacts of the No Project/No Development Alternative to a less-than-significant level. Therefore, neither the proposed project nor the No Project/No Development Alternative would have significant environmental impacts, and the No Project/No Development Alternative would have similar environmental impacts as the proposed project with regard to geology and soils.

Greenhouse Gas Emissions

Under the No Project/No Development Alternative, no further grading would occur on the project site. Therefore, there would be no greenhouse gas (GHG) emissions associated with construction, including grading, off-road construction equipment, rock crushing, rock popping, blasting, haul trucks, vendor trucks, and worker vehicle trips, or future operations. The proposed project would generate vehicular trips from customers, employees, and deliveries, and would require building energy, compressed natural gas forklifts, landscape and maintenance, solid waste, and water supply and wastewater treatment, which would result in additional GHG emissions when compared to a vacant and unutilized site. Therefore, although neither the proposed project nor the No Project/No Development Alternative would have significant energy impacts, the No Project/No Development Alternative would have less environmental impact than the proposed project in terms of GHG emissions impacts with respect to construction and operations.

Hazards and Hazardous Materials

Under the No Project/No Development Alternative, the site would be vacant and no further grading would occur. Construction of the proposed project would involve the transport, use, or disposal of hazardous materials on or off site. These materials would include gasoline, diesel fuel, lubricants, and other petroleum-based products used to operate and maintain construction equipment. Under the proposed project, all hazardous materials generated and/or used on the property would be managed in accordance with all relevant federal, state, and local laws. The proposed project includes operation of a shopping center with a Costco and a gas station, and associated infrastructure improvements. Operation of these facilities would involve the routine handling, transport, use, and disposal of hazardous materials, including gasoline, cleaning solvents and disinfectants, petroleum-based lubricants, photo-processing chemicals, automobile batteries, detergents, chlorine, bleach, and other chemicals. The No Project/No Development Alternative would not involve the handling of these materials. Therefore, although neither the proposed project nor the No Project/No Development Alternative would have significant environmental impacts, the No Project/No Development Alternative would have less environmental impact than the proposed project in terms of hazards and hazardous materials impacts.

Hydrology and Water Quality

Under the No Project/No Development Alternative, the site would be vacant and no further grading would occur. No changes would be made to the current drainage patterns on the project site, and no changes with regard to hydrology and water quality would occur.

The project site is underlain by granitic bedrock that is not an area of groundwater recharge. The proposed project and the No Project/No Development Alternative would not interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table.

Under current conditions, substantial soil erosion and loss of topsoil is highly likely due to the disturbed, undeveloped ground surface. Excavations and grading for the proposed project would result in disturbance of existing sediments, such that erosion could be exacerbated during precipitation or high-wind events. Proposed project grading and construction would be completed in accordance with an NPDES-mandated SWPPP, which would include standard BMPs to reduce potential off-site water quality impacts related to erosion and incidental spills of petroleum products and hazardous substances from equipment. Upon proposed project implementation, the site would be graded and paved, greatly reducing the possibility for soil erosion or loss of topsoil compared to current conditions. Under the Project/No Development Alternative substantial soil erosion and loss of topsoil would remain highly likely. However, NPDES would apply to the former sand and gravel permit operations, and BMPs would be required to be implemented on the site. Implementation of BMPs would reduce impacts of the No Project/No Development Alternative to a less-than-significant level.

The project site is underlain by dense, generally impermeable rock; therefore, soil infiltration would be limited. When brought to grade, the proposed project site will become much flatter than its natural condition, and all impervious areas would be designed to drain to drainage management areas that utilize biofiltration or hydromodification or to water quality basins. Therefore, although the proposed project would alter the existing drainage pattern of the site, it would not substantially alter the existing drainage pattern of the site such that substantial erosion or siltation would occur. Peak discharges were designed to be equal to or less than pre-development flows. The Project/No Development Alternative as compared to the proposed project, would be similar. Therefore, the No Project/No Development Alternative is considered environmentally similar to the proposed project in terms of hydrology and water quality impacts.

Noise

Construction Noise

Under the No Project/No Development Alternative, no further grading would occur. Under the proposed project, construction noise from the use of construction equipment, such as heavy equipment, haul trucks, and additional worker trips, would occur, although with implementation of mitigation measures (**MM-NOI-1** through **MM-NOI-3**) impacts would be less than significant. Therefore, the No Project/No Development Alternative would have fewer impacts compared to the proposed project in terms of construction noise.

Operational Noise

Under the No Project/No Development Alternative, there would be no development of the project site and no further grading would occur. The proposed project would introduce new on-site mechanical noise, parking lot noise, and traffic noise. Although the proposed project would not result in significant noise impacts and no operational noise mitigation measures would apply, the proposed project would result in new noise sources that would not occur as part of a vacant site. The No Project/No Development Alternative would have fewer impacts compared to the proposed project in terms of operational noise impacts.

Population and Housing

Under the No Project/No Development Alternative, the site would remain vacant and no further grading would occur. It is anticipated that the proposed project would employ approximately 250 full-time employees, while the fitness center, restaurants, and retail development would employ approximately 35 full-time employees, for a maximum of 285 full-time employees all of whom are conservatively assumed to move to the City in the analysis of the proposed project in this EIR. As the No Project/No Development Alternative would not increase jobs or increase the need for housing, it would not result in additional construction or demand for additional services. Therefore, although the proposed project would not have significant environmental impacts, the No Project/No Development Alternative would have fewer impacts than the proposed project in terms of population and housing impacts.

Public Services

Under the No Project/No Development Alternative, the site would be vacant and no further grading would occur. It is anticipated that the proposed project would employ approximately 250 full-time employees, while the fitness center, restaurants, and retail development would employ approximately 35 full-time employees, for a maximum of 285 full-time employees all of whom are conservatively assumed to move to the City in the analysis of the proposed project in this EIR. As such, the proposed project would result in an increase in employees in the area, which would increase demand for fire protection services, police protection services, schools, and parks. The No Project/No Development Alternative would not increase jobs or increase the need for housing, and therefore would not result in increased demand for public services. Therefore, although the proposed project would not have significant environmental impacts, the No Project/No Development Alternative would have fewer impacts than the proposed project in terms of impacts to public services.

Recreation

Under the No Project/No Development Alternative, the site would be vacant. It is anticipated that the proposed project would employ approximately 250 full-time employees, while the fitness center, restaurants, and retail development would employ approximately 35 full-time employees, for a maximum of 285 full-time employees all of

whom are conservatively assumed to move to the City in the analysis of the proposed project in this EIR. As such, the proposed project is conservatively assumed to result in an increase in residents and employees in the area, which could increase demand for recreational facilities. The No Project/No Development Alternative would not increase jobs or increase the need for housing, and therefore would not result in increased demand for recreational facilities. Therefore, the No Project/No Development Alternative would have fewer impacts compared to the proposed project in terms of recreation impacts.

Transportation

Construction Traffic

Under the No Project/No Development Alternative, there would be no development of the project site and no further grading would occur. Under the proposed project, haul trucks and worker trips associated with project construction would contribute to traffic in the area, and construction of the proposed project would result in more of these trips on a daily basis than a vacant site. While construction traffic for the proposed project is considered to be less than significant, in the absence of construction the No Project/No Development Alternative would have less impact than the proposed project in terms of construction traffic impacts.

Operational Traffic

Under the No Project/No Development Alternative, the site would be vacant. Operation of the proposed project would result in new trips that have significant and unavoidable impacts to multiple intersections. The No Project/No Development Alternative would not generate any trips. Therefore, the No Project/No Development Alternative would have fewer transportation impacts compared to the proposed project in terms of operational traffic impacts.

Vehicle Miles Traveled (Analyzed for Informational Purposes Only)

Under the No Project/No Development Alternative, the site would be vacant. No vehicle trips would be generated. Thus, the impacts for VMT would be less than the proposed project's VMT which is considered significant and unavoidable.

Tribal Cultural Resources

Under the No Project/No Development Alternative, the site would be vacant and no further grading would occur. Therefore, there would be no potential for impacts to tribal resources. As described in Section 4.14, Tribal Cultural Resources, construction of the proposed project could result in impacts to these resources. Although mitigation measures are proposed (**MM-TCR-1** through **MM-TCR-5**) that would minimize these potential impacts to a less-than-significant level, less than significant impacts to tribal cultural resources on the project site could occur. As the No Project/No Development Alternative would not result in any further grading on the project site, the No Project/No Development Alternative would not have any impacts with respect to Tribal Resources and therefore would have less environmental impact that the proposed project.

Utilities and Service Systems

Under the No Project/No Development Alternative, the site would be vacant and no further grading would occur. No improvements to the existing utilities would occur, including the construction of new sewer lines, water lines, storm drainage facilities, electric power lines, natural gas lines, or telecommunication lines. As the No Project/No Development Alternative would not result in any further grading on the project site and therefore would not require the development or use of utilities systems, there would be no impacts on utilities and service systems under the No Project/No Development Alternative and this alternative therefore would have less environmental impact that the proposed project with respect to impacts to utilities and service systems.

Urban Decay

Under the No Project/No Development Alternative, the site would be vacant and no further grading would occur. Because no development would occur, there would be no possibility of creating multiple long-term store vacancies or result in the abandonment of multiple buildings within the retail market served by the proposed project or any impacts to the proper utilization of properties or structures, which impairs the health, safety, and welfare of the surrounding community. The proposed project is not anticipated on its own or cumulatively with other projects to have a significant impact with respect to urban decay. However, the No Project/No Development Alternative has fewer impacts than the proposed project in this regard.

Energy

Construction Energy

Under the No Project/No Development Alternative, no grading, off-road construction equipment, haul trucks, vendor trucks, and worker vehicle trips would occur on the project site, and therefore no energy use would be associated with construction. Under the proposed project, construction would occur, and thus would result in the consumption of energy associated with haul trucks, vendor trucks, worker trips, rock crushing, rock popping, blasting, and construction equipment. As the No Project/No Development Alternative would not result in any further construction or grading on the project site and therefore would not require use of utilities systems or petroleum consumption for construction or development of utilities systems for future use, there would be no impacts on utilities systems or petroleum consumption under the No Project/No Development Alternative. Thus, in terms of construction energy use, the No Project/No Development Alternative would have fewer impacts compared to the proposed project.

Operational Energy

Under the No Project/No Development Alternative, the site would remain vacant and therefore would not require use of utilities systems, including consumption of electricity and natural gas for building heating and cooling, lighting, and appliances, including refrigeration, electronics, equipment, and machinery; energy consumption related to water usage, solid waste disposal, and electric vehicle trips. Furthermore, the No Project/No Development Alternative would not generate mobile trips fueled with gasoline, diesel, or alternative fuels. As such, there would be no increase in energy demand under the No Project/No Development Alternative, and the No Project/No Development Alternative is considered to have fewer impacts compared to the proposed project in terms of energy consumption.

Wildfire

Under the No Project/No Development Alternative, the site would remain vacant and no more grading would occur. The project site is surrounded by vacant land to the north, Vista Murrieta High School to the south, existing residential development to the east, and Interstate 215 to the west. The project site is identified by the City's General Plan EIR as occurring within a Very High FHSZ (City of Murrieta 2011), and thus is subject to the regulations regarding wildfire hazards in the Murrieta Municipal Code (Section 15.24) (Exhibit 12-8). The proposed project would introduce new structures and new sources of ignition to the project site, but would reduce fire risk by replacing readily ignitable vegetation with fire resistant structures and landscaping, which would reduce ignitability risk when compared to the existing vacant site. Therefore, the No Project/No Development Alternative would have greater impacts compared to the proposed project in terms of wildfire impacts.

Conclusion

The No Project/No Development Alternative would not include grading, construction, or other development of the project site; therefore, the project site would remain vacant for the foreseeable future. The No Project/No Development Alternative would have more impacts compared to the proposed project in terms of aesthetics and wildfire. The No Project/No Development Alternative would have fewer impacts compared to the proposed project in terms of construction and operational air quality, biological resources, cultural resources, GHG emissions, hazards and hazardous materials, construction and operational noise, population and housing, public services, recreation, transportation, tribal cultural resources, utilities and service systems, and energy. The No Project/No Development Alternative would be similar to the proposed project in terms of geology and soils and hydrology and water quality impacts.

Furthermore, in terms of achieving the proposed project objectives, the No Project/No Development Alternative would not provide a mix of retail, restaurant, and anchor tenants which would provide residents with additional shopping, dining, and fueling options in a convenient location, enhance the city with an economically viable development establishing anchored retail required to support new brick and mortar retail in the current on-line oriented retail environment, provide a gasoline fueling station adjacent to major roadways and the regional highway system, generate additional revenues to the City in the form of increased sales and property tax revenues, create jobs to improve the city's jobs-housing imbalance, or design a project that is consistent with the City's General Plan and Zoning Ordinance. Therefore, the No Project/No Development Alternative would accomplish none of the proposed project objectives.

6.3.2 Alternative 2: Reduced Project/Reduced Vineyard II Development Alternative

The reduced project under this alternative would have a 153,362-square-foot Costco warehouse, but the retail development would be reduced by 37,000 square feet (minus the fitness center). This reduces the development footprint from 225,362 square feet to 188,362 square feet, a 16% reduction in project size. The pad that would remain undeveloped would remain unpaved with sandbags for erosion control and a soil stabilizer for dust control.

Analysis

Aesthetics

Under Alternative 2, a 153,362-square-foot Costco warehouse would be constructed, but retail development on the Vineyard II site would be reduced as compared to the proposed project. The proposed project and Alternative 2 would enhance the appearance of the area by redeveloping the site with a new retail shopping center, which would be compatible with the surrounding area. Both the proposed project and Alternative 2 would introduce new sources of lighting to the area, but slightly less lighting than Alternative 1. The fitness center would not be developed under this alternative, and thus, the fitness center building would not block parking lot lighting from nearby residences. Therefore this alternative, while it might have less overall lighting, could have a greater lighting impact to nearby residences by providing a "window" into the center by which night lighting would be visible. Therefore, Alternative 2 would be considered less appealing compared to the proposed project and would have greater impacts with regard to aesthetics.

Air Quality

Construction Emissions

Under Alternative 2, a 153,362-square-foot Costco warehouse would be constructed, but retail development on the Vineyard II site would be reduced as compared to the proposed project; thus, construction activities for the retail development would be reduced as compared to the proposed project. Construction criteria air pollutant emissions would be less than the proposed project. However, similar to the proposed project, it is likely that emissions associated with Alternative 2 construction would exceed NO_x thresholds, and mitigation would be required to reduce this impact to less than significant. Further, under Alternative 2, as with the proposed project, the maximum daily construction-generated on-site emissions would exceed the SCAQMD localized significant thresholds for PM_{10} and $PM_{2.5}$ emissions and PM_{10} and $PM_{2.5}$ emissions would be significant and unavoidable with implementation of **MM-AQ/GHG**-1. These impacts would be similar to the proposed project, although slightly reduced. Thus, in terms of construction air pollutant emissions, Alternative 2 would result in slightly less emissions than the proposed project, but with similar impacts as the proposed project.

Operational Emissions

Under Alternative 2, a 153,362-square-foot Costco warehouse would be constructed, but retail development on the Vineyard II site would be reduced as compared to the proposed project. Under both Alternative 2 and the proposed project, operational criteria air pollutant emissions would occur on the project site from customer, employee, and delivery trips; fueling operations; area sources, including consumer products, architectural coating for repainting, and landscape maintenance equipment; compressed natural gas forklifts; and energy sources. As shown in Table 4.2-7 of this EIR, the implementation of the proposed project would result in criteria air pollutant emissions that exceed the SCAQMD thresholds for VOC and NO_x, primarily due to mobile emissions, and thus, the proposed project impacts would be significant and unavoidable with implementation of **MM-AQ/GHG-2**. Alternative 2 would result in less retail development, which would result in reduced emissions from area, energy, and mobile sources. The mobile trips on the Vineyard II site would be reduced from 4,404 to 2,938 daily trips, and while conservatively assuming area, energy, and forklift emissions would remain the same, the total NOx emissions generated by Alternative 2 would be reduced to 55.11 pounds per day (lb/day) and VOC emissions would be reduced to 73.93 lb/day. Even with implementation of **MM-AQ/GHG-2**, Alternative 2 would still result in emissions that would exceed the NO_x and VOC significance thresholds, although to a lesser extent than the proposed project. Therefore, Alternative 2 would result in a similar impact compared to the proposed project with regard to operational emissions impacts.

Biological Resources

Under Alternative 2, a 153,362-square-foot Costco warehouse would be constructed, but retail development would be reduced as compared to the proposed project. As described in Section 4.3 of this EIR, construction of the proposed project could result in indirect impacts to special-status plants, special-status wildlife species, nesting birds, and burrowing owl. Therefore, mitigation is proposed, which would minimize impacts to a less-than-significant level. Although Alternative 2 would result in slightly less site disturbance during construction, it could also result in indirect impacts to special-status plants, special-status wildlife species, nesting birds, and burrowing owl. As with the proposed project, mitigation measures proposed (**MM-BIO-1**, General Avoidance and Minimization Measures, **MM-BIO-2**, Burrowing Owl Pre-Construction Survey, and **MM-BIO-3**, Pre-Construction Nesting Bird Survey, if construction occurs during the nesting season, and **MM-BIO-4**, Implementation of Urban/Wildlands Interface Guidelines) would minimize impacts to a less-than-significant level. Therefore, Alternative 2 would have similar biological resources impacts to the proposed project.

Cultural Resources

Under Alternative 2, a 153,362-square-foot Costco warehouse would be constructed, but retail development would be reduced as compared to the proposed project. However, although one pad would not be developed under Alternative 2, site grading would remain the same under both the proposed project and Alternative 2. In each case there would be potential to uncover cultural resources as part of grading for the proposed project. Under the proposed project, impacts to archaeological and/or cultural resources require mitigation, which would also be required for Alternative 2. Although mitigation measures (**MM-TCR-1** through **MM-TCR-5**) are proposed that would minimize these potential impacts to a less-than-significant level, less-than-significant impacts to cultural resources on the project site could occur under Alternative 2 as well as under the proposed project. Therefore, Alternative 2 would have similar cultural resources impacts to the proposed project.

Geology and Soils

Under Alternative 2, a 153,362-square-foot Costco warehouse would be constructed, but retail development would be reduced as compared to the proposed project. Excavations and grading for the proposed project would result in disturbance of existing sediments, such that erosion could be exacerbated during precipitation or high-wind events. As with the proposed project, grading and construction would be completed in accordance with an NPDES-mandated SWPPP, which would include standard BMPs to reduce potential off-site water quality impacts related to erosion and incidental spills of petroleum products and hazardous substances from equipment. At operation, the site would be graded and paved, greatly reducing the possibility for soil erosion or loss of topsoil compared to current conditions. Both the proposed project and Alternative 2 would have less-than-significant impacts with respect to geology and soils. Therefore, Alternative 2 would have similar geology and soils impacts compared to the proposed project.

Greenhouse Gas Emissions

Under Alternative 2, a 153,362-square-foot Costco warehouse would be constructed, but retail development on the Vineyard II site would be reduced as compared to the proposed project. With the reduction in the scope of construction, GHG emissions would be less for Alternative 2 than the proposed project. Under both Alternative 2 and the proposed project, GHG emissions would be generated during operations. Alternative 2 would result in less building development, which would result in less area source, energy use, solid waste disposal, and generation of electricity associated with water supply, treatment, and distribution and wastewater treatment, and mobile trips to

the project site. The mobile trips on the Vineyard II site would be reduced to 2,938 daily trips, and while conservatively assuming area, energy, waste, water, and forklift emissions would remain the same, the operational emissions generated by Alternative 2, including amortized construction emissions, would be 16,934 metric tons of carbon dioxide equivalent (MT CO_2e) per year, which would be less than the proposed project. Furthermore, Alternative 2 and the proposed project would be consistent with the Scoping Plan, 2016 Regional Transportation Plan/Sustainable Communities Strategy, the City of Murrieta's General Plan, the City of Murrieta's Climate Action Plan, Senate Bill 32, and Executive Order S-3-05. As with the proposed project, Alternative 2 would have less-than-significant impacts with respect to GHG. Because Alternative 2 has a smaller construction footprint and less development, Alternative 2 would be considered to have slightly less GHG emissions impacts when compared to the proposed project, and each would have less-than-significant impacts.

Hazards and Hazardous Materials

Under Alternative 2, a 153,362-square-foot Costco warehouse would be constructed, but retail development would be reduced as compared to the proposed project. Construction of the proposed project would involve the transport, use, or disposal of hazardous materials on or off site. These materials would include gasoline, diesel fuel, lubricants, and other petroleum-based products used to operate and maintain construction equipment. The same materials would be required for Alternative 2. Under Alternative 2 and the proposed project, all hazardous materials generated and/or used on the property would be managed in accordance with all relevant federal, state, and local laws. Both the proposed project and Alternative 2 include operation of retail pads, a gas station, a tire installation facility, and associated infrastructure improvements. These facilities would involve the routine handling, transport, use, and disposal of hazardous materials, including cleaning solvents and disinfectants, petroleum-based lubricants, photo-processing chemicals, automobile batteries, detergents, chlorine, bleach, and other chemicals. Therefore, Alternative 2 is considered to have similar impacts compared to the proposed project in terms of hazards and hazardous materials, and each would have less-than-significant impacts.

Hydrology and Water Quality

Under Alternative 2, a 153,362-square-foot Costco warehouse would be constructed, but retail development would be reduced as compared to the proposed project. The project site is underlain by granitic bedrock that is not an area of groundwater recharge. The proposed project and Alternative 2 would not interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table.

Under current conditions, substantial soil erosion and loss of topsoil is highly likely due to the disturbed, undeveloped ground surface. Excavations and grading for both the proposed project and Alternative 2 would result in disturbance of existing sediments, such that erosion could be exacerbated during precipitation or high-wind events. Proposed project and Alternative 2 grading and construction would be completed in accordance with an NPDES-mandated SWPPP, which would include standard BMPs to reduce potential off-site water quality impacts related to erosion and incidental spills of petroleum products and hazardous substances from equipment. Upon implementation of the proposed project, the site would be graded and paved, greatly reducing the possibility for soil erosion or loss of topsoil compared to current conditions. Under Alternative 2, the undeveloped pad would be left as dirt with sandbags to control erosion and application of a soil stabilizer to reduce the potential for dust.

Although the proposed project and Alternative 2 would alter the existing drainage pattern of the site, the proposed project and Alternative 2 are designed to match pre-development drainage conditions as much as possible and would not substantially increase the rate or amount of surface runoff in a manner that would result in flooding on

or off site. Therefore, Alternative 2 is considered to have similar impacts compared to the proposed project in terms of hydrology and water quality and each would have less-than-significant impacts.

Noise

Construction Noise

Under Alternative 2, a 153,362-square-foot Costco warehouse would be constructed, but retail development would be reduced as compared to the proposed project. Under both the proposed project and Alternative 2, construction noise from the use of construction equipment, such as heavy equipment, haul trucks, and additional worker trips, would occur. For both the proposed project and Alternative 2, mitigation would be required. As with the proposed project, with implementation of mitigation measures (MM-NOI-1 through MM-NOI-3), Alternative 2 would have a less-than-significant impact with respect to construction noise. However, as the total amount of construction would be reduced under Alternative 2 as compared with the proposed project, Alternative 2 is considered to have reduced construction noise impacts compared to the proposed project.

Operational Noise

Under Alternative 2, a 153,362-square-foot Costco warehouse would be constructed, but retail development would be reduced as compared to the proposed project. The proposed project and Alternative 2 would both introduce new on-site mechanical noise, parking lot noise, and traffic noise. As with the proposed project, Alternative 2 would have a less-than-significant impact with respect to operational noise. However, as compared with the proposed project, Alternative 2 would have greater operational noise impacts because the fitness center building would not screen the residences to the east from noise from the parking lot. Therefore, Alternative 2 is considered to have greater operational noise impacts compared to the proposed project.

Population and Housing

Under Alternative 2, a 153,362-square-foot Costco warehouse would be constructed, but retail development would be reduced as compared to the proposed project. It is anticipated that the proposed project would employ approximately 250 full-time employees, while the fitness center, restaurants, and retail development would employ approximately 35 full-time employees, for a maximum of 285 full-time employees, all of whom are conservatively assumed to move to the City in the analysis of the proposed project in this EIR. Alternative 2 would require slightly fewer employees as compared to the proposed project and therefore conservatively would be projected to induce a smaller demand for housing. Therefore, although the proposed project would not have significant environmental impacts, Alternative 2 would have fewer impacts than the proposed project in terms of population and housing.

Public Services

Under Alternative 2, a 153,362-square-foot Costco warehouse would be constructed, but retail development would be reduced as compared to the proposed project. The proposed project would result in an increase in employees in the area, all of whom are conservatively assumed to move to the City in the analysis of the proposed project in this EIR, which would increase demand for fire protection services, police protection services, schools, and parks by employees and future residents. Alternative 2 would require slightly fewer employees as compared to the proposed project, and therefore conservatively would be projected to induce a smaller demand for housing. Therefore, although the proposed project would not have significant environmental impacts, Alternative 2 would have fewer impacts than the proposed project in terms of impacts to public services.

Recreation

Under Alternative 2, a 153,362-square-foot Costco warehouse would be constructed, but retail development would be reduced as compared to the proposed project. It is anticipated that the proposed project would employ approximately 250 full-time employees, while the fitness center, restaurants, and retail development would employ approximately 35 full-time employees, for a maximum of 285 full-time employees, all of whom are conservatively assumed to move to the City in the analysis of the proposed project in this EIR. As such, the proposed project is conservatively assumed to result in an increase in residents and employees in the area, which could increase demand for recreational facilities. As indicated in the EIR, the City's current and ongoing plans for additional parkland, as funded by the City's Development Impact Fee, would offset any increased use of parkland and recreational facilities as a result of the proposed project, and there would be less-than-significant impacts. Alternative 2 would require fewer employees and therefore would reduce the demand for new housing and have less of a demand on parkland and recreational facilities. Therefore, although the proposed project would not have significant environmental impacts, Alternative 2 would have fewer impacts than the proposed project with respect to recreation impacts.

Traffic and Circulation

Construction Traffic

Under Alternative 2, a 153,362-square-foot Costco warehouse would be constructed, but retail construction would be reduced as compared to the proposed project. Under both the proposed project and Alternative 2, haul trucks and worker trips associated with project construction would contribute to traffic in the area, however there would be slightly fewer construction trips to construct Alternative 2. Therefore, while construction traffic for the proposed project and Alternative 2 would each be less than significant, Alternative 2 is considered to have fewer construction traffic impacts than the proposed project.

Operational Traffic

Under Alternative 2, a 153,362-square-foot Costco warehouse would be constructed, but retail development would be reduced as compared to the proposed project. Under the proposed project, employee and customer trips associated with project operations would contribute 10,953 daily trips to traffic in the area and would require mitigation. Even with mitigation, the traffic impacts of the proposed project would remain significant and unavoidable. Implementation of Alternative 2 would reduce trips, but would still require mitigation and result in significant and unavoidable impacts. Therefore, Alternative 2 would have fewer impacts than the proposed project in terms of operational traffic impacts, but would not eliminate any significant unavoidable impacts.

Vehicle Miles Traveled

This EIR considers, for informational purposes, the operational traffic impacts of the proposed project utilizing a VMT standard. Because the City has not adopted a threshold of significance for VMT, project impacts and cumulative impacts with respect to VMT are considered significant and unavoidable, even with implementation of **MM-AQ/GHG-2**. Under Alternative 2, VMT would remain significant and unavoidable, as VMT would increase compared to the existing condition. Alternative 2 is similar to the proposed project in terms of VTM impacts.

Tribal Cultural Resources

Under Alternative 2, a 153,362-square-foot Costco warehouse would be constructed, but retail development would be reduced as compared to the proposed project. There would be potential to uncover tribal cultural resources as part of both proposed project construction and Alternative 2 construction. Although mitigation measures are proposed that would minimize these potential impacts to a less-than-significant level, less-than-significant impacts to cultural resources on the project site could occur under Alternative 2 as well as under the proposed project. As Alternative 2 would result in similar grading requirements as the proposed project and would employ the same mitigation measures to reduce impacts, Alternative 2 would have similar impacts to the proposed project with regard to impacts to tribal cultural resources.

Utilities and Service Systems

Under Alternative 2, a 153,362-square-foot Costco warehouse would be constructed, but retail development would be reduced as compared to the proposed project. Improvements to the existing utilities would occur under Alternative 2, including the construction of new sewer lines, water lines, storm drainage facilities, electric power lines, natural gas lines, and telecommunication lines—as would be required for the proposed project. With a reduced retail component, there would be slightly less wastewater generated, slightly less water demand, less electricity usage, and less natural gas usage. Therefore, Alternative 2 is considered to have similar impacts to the proposed project in terms of construction impacts to utilities and service systems, but less usage during operations; in each case impacts would be less than significant.

Urban Decay

Under Alternative 2, a 153,362-square-foot Costco warehouse would be constructed, but retail development on the Vineyard II site would be reduced as compared to the proposed project. Similar to the proposed project, Alternative 2 would not create multiple long-term store vacancies or result in the abandonment of multiple buildings within the retail market served by the proposed project or any impacts to the proposed utilization of properties or structures, which impairs the health, safety, and welfare of the surrounding community. Urban decay impacts under Alternative 2 would be similar to the proposed project and in each case impacts would be less than significant.

Energy

Construction Energy

Under Alternative 2, a 153,362-square-foot Costco warehouse would be constructed, but retail development on the Vineyard II site would be reduced as compared to the proposed project. Construction energy use would be comparable under both the proposed project and Alternative 2, including petroleum consumption from off-road equipment, haul trucks, vendor trucks, and worker vehicle trips. However, a reduced building development would result in reduced off-road equipment use, vendor truck and worker vehicle trips. Therefore, although both the proposed project and Alternative 2 would have less-than-significant impacts with respect to construction energy use, Alternative 2 is considered to have slightly less impact than the proposed project in terms of construction energy consumption.

Operational Energy

Under Alternative 2, a 153,362-square-foot Costco warehouse would be constructed, but retail development on the Vineyard II site would be reduced as compared to the proposed project. Both the proposed project and Alternative 2 would generate vehicular trips and would require electricity and natural gas for building heating and cooling, lighting, and appliances, including refrigeration, electronics, equipment, and machinery; energy consumption related to water usage, solid waste disposal, and electric vehicle trips. However, Alternative 2 would incorporate the same project design features even though the development size would be reduced and consumption from electricity and natural gas would be less than the proposed project due to the reduced development. Furthermore, the mobile trips would be reduced by 1,464 daily trips, and thus, the combined Alternative 2 mobile source annual gasoline and diesel consumption from operation would result in 1.64 million gallons and 78,663 gallons, respectively. Therefore, although both the proposed project and Alternative 2 would have less-than-significant impacts with respect to operational energy use, Alternative 2 is considered to have slightly less impact than the proposed project in terms of energy consumption.

Wildfire

Under Alternative 2, a 153,362-square-foot Costco warehouse would be constructed, but retail development would be reduced as compared to the proposed project. The project site is surrounded by vacant land to the north, Vista Murrieta High School to the south, existing residential development to the east, and Interstate 215 to the west. The project site is identified by the City's General Plan EIR as occurring within a Very High FHSZ (City of Murrieta 2011), and thus is subject to the regulations regarding wildfire hazards in the Murrieta Municipal Code (Section 15.24) (Exhibit 12-8). However, the project site is located in a predominantly urbanized area. Although the proposed project would not result in wildfire impacts, the proposed project would introduce new structures to the project site, which reduces fire risk by replacing readily ignitable vegetation with fire resistant structures and landscaping when compared to the existing conditions. Alternative 2 would also introduce new structures throughout most of the site and would leave a maintained undeveloped pad on the project site. Therefore, the Alternative 2 would have similar impacts to the proposed project in terms of wildfire, and in each case, impacts would be less than significant.

Conclusion

Under Alternative 2, a 153,362-square-foot Costco warehouse would be constructed, but retail development would be reduced as compared to the proposed project. Alternative 2 would have fewer impacts compared to the proposed project in terms of operational air quality, greenhouse gas emissions, construction noise, population and housing, public services, recreation, construction and operational traffic, utilities and service systems, and energy. Alternative 2 would have similar impacts as to the proposed project in terms of construction air quality, biological resources, cultural resources, geology and soils, hazards and hazardous materials, hydrology and water quality, tribal cultural resources, urban decay, VMT, and wildfire. Alternative 2 would have greater aesthetic and operational noise impacts than the proposed project. Alternative 2 would reduce but not eliminate any of the significant and unavoidable impacts of the proposed project.

Furthermore, in terms of achieving the proposed project objectives, Alternative 2 would generally still meet the project objectives, which are to provide a mix of retail, restaurant, and anchor tenants which provide residents with additional shopping, dining, and fueling options in a location that is convenient for its customers and employees to travel to shop and work, enhance the City with an economically viable development by establishing anchored retail required to support new brick and mortar retail in the current on-line oriented retail environment, provide a gasoline fueling station adjacent to major roadways and the regional highway system, generate additional revenues to the

City in the form of increased sales and property tax revenues, provide a development in a location that is convenient for its customers and employees to travel to shop and work, create jobs in the City and improve the local job/housing balance, design a project that is consistent with the City's General Plan and Development Code, create a new opportunity for a wide range of integrated retail goods and services to meet the needs of the growing Murrieta community and design a site plan that minimizes circulation conflicts between automobiles and pedestrians However, Alternative 2 would not contribute to the City's sales tax base and property tax revenues, increase jobs in the City, and expand the opportunity for integrated retail goods and services to the extent that the proposed project would. Additionally, Alternative 2 would not fully utilize the site to the extent that the proposed project would, and in that sense, could not provide as many supporting uses in the retail center, which maximizes the efficiency of the plan. Most importantly, Alternative 2 reduces the project size without eliminating the significant and unavoidable impacts of the proposed project, which means it is not an optimal alternative.

6.3.3 Alternative 3: Reduced Project/No Vineyard II Development Alternative

The reduced project under this alternative would have a Costco warehouse only; no additional retail development would be included as part of the project. This reduces the development footprint from 225,362 square feet to 153,362 square feet, a 32% reduction in size. Only the portion of the site with the Costco, west of Warm Springs Parkway would be paved. The Vineyard II site would remain ungraded and unpaved with sandbags for erosion control and application of a soil stabilizer to control dust emissions.

Analysis

Aesthetics

Under Alternative 3, a 153,362-square-foot Costco warehouse would be constructed on the west side of Warm Springs Parkway, but the east side of Warm Springs Parkway would remain undeveloped. Both the proposed project and Alternative 3 would enhance the appearance of the area by redeveloping the site with a commercial use, which would be compatible with the surrounding area. Both the proposed project and Alternative 3 would introduce new sources of lighting to the area, but a reduced amount of lighting. Also because this Alternative would leave the portion of the site east of Warm Springs Parkway undeveloped, that side of the site would not be visually enhanced, although this would not be visible from Clinton Keith Road when the Vineyard I development between the Costco and Clinton Keith Road is constructed. Therefore, Alternative 3 would be considered to have greater impacts to the proposed project with regard to aesthetics.

Air Quality

Construction Emissions

Under Alternative 3, a 153,362-square-foot Costco warehouse would be constructed, but there would be no retail development on the Vineyard II site. Construction criteria air pollutant emissions associated with Alternative 3 would be less than those associated with the proposed project due to reduced building construction, architectural coating, paving activities, vendor trips, and worker trips. However, emissions associated with the Costco warehouse construction would result in 234.73 lb/day of NO_x emissions, which would exceed SCAQMD threshold, because haul truck trips, rock crushing, rock popping activities, and grading would still need to occur throughout the site. **MM-AQ/GHG-1** would be applied to both the proposed project and Alternative 3 and would reduce impacts associated with NO_x such that all construction emissions would be at less-than-significant levels. Furthermore, both

Alternative 3 and the proposed project would exceed the on-site maximum daily PM_{10} and $PM_{2.5}$ localized significance thresholds even after imposition of **MM-AQ/GHG-1**; this impact is considered significant and unavoidable under both the proposed project and Alternative 3. Thus, in terms of construction air pollutant emissions, Alternative 3 would reduce impacts as compared to the proposed project, but would still result in significant and unavoidable impacts with respect to localized daily emissions of PM_{10} and $PM_{2.5}$.

Operational Emissions

Under Alternative 3, a 153,362-square-foot Costco warehouse would be constructed, but there would be no retail development on the Vineyard II site. Under both Alternative 3 and the proposed project, operational criteria air pollutant emissions would occur on the project site, however, Alternative 3 would result in reduced emissions from mobile sources, including customer, employee, and delivery trips; area sources, including consumer products, architectural coating for repainting, and landscape maintenance equipment; compressed natural gas forklifts; and energy sources. As shown in Table 4.2-7 of this EIR, the implementation of the proposed project would result in criteria air pollutant emissions that exceed the SCAQMD thresholds for VOC and NO_x, primarily due to mobile emissions, and thus, the proposed project impacts would be significant and unavoidable with implementation of **MM-AQ/GHG-2**. Alternative 3 would result in less building development and fewer mobile trips to the project site and therefore less VOC and NO_x emissions. In particular, development under Alternative 3 would generate NO_x emissions of 43.19 lb/day and VOC emissions of 68.41 lb/day. Thus, while VOC emissions would still exceed significance thresholds, the NO_x emissions would be below the threshold of significance established by SCAQMD and would be less than significant. Under Alternative 3, the Vineyard II site would remain ungraded and unpaved, and the site could potentially generate fugitive dust (PM_{10} and $PM_{2.5}$) from wind erosion; however, dust control measures would be implemented, as required by the SCAQMD Rule 403, and PM_{10} and $PM_{2.5}$ emissions would not likely exceed the SCAQMD thresholds. Therefore, Alternative 3 would eliminate the proposed project's significant unavoidable impact with respect to operational NO_x emissions, and would reduce but not eliminate the proposed project's significant and unavoidable impacts with respect to VOCs. As such, Alternative 3 would have less impact than the proposed project with regard to operational emissions impacts.

Biological Resources

Under Alternative 3, a 153,362-square-foot Costco warehouse would be constructed, but there would be no retail development on the east side of Warm Springs Parkway. As described in Section 4.3 of this EIR, construction of the proposed project could result in indirect impacts to special-status plants, special-status wildlife species, nesting birds, and burrowing owl. Therefore, mitigation is proposed, which would minimize impacts to a less-than-significant level. Because soil would need to be stockpiled on the Vineyard II site during construction of Costco and Warm Springs Parkway, Alternative 3 could also result in indirect impacts to special-status plants, special-status wildlife species, nesting birds, and burrowing owl. As with the proposed project, mitigation measures proposed (**MM-BIO-1**, General Avoidance and Minimization Measures, **MM-BIO-2,** Burrowing Owl Pre-Construction Survey, and **MM-BIO-3**, Pre-Construction Nesting Bird Survey, if construction occurs during the nesting season, and **MM-BIO-4,** Implementation of Urban/Wildlands Interface Guidelines) would minimize impacts to a less-than-significant level. Therefore, Alternative 3 would have similar biological resources impacts to the proposed project.

Cultural Resources

Under Alternative 3, a 153,362-square-foot Costco warehouse would be constructed, but there would be no retail development on the east side of Warm Springs Parkway. As such, although there would be potential to uncover cultural resources as part of construction of Alternative 3, it would be reduced as compared with impacts to the

proposed project because a substantial portion of the project site would not be developed. Under the proposed project, impacts to archaeological and/or cultural resources would be mitigated to a less-than-significant level with imposition of mitigation measures (MM-TCR-1 through MM-TCR-5). These mitigation measures would also be imposed for Alternative 3 and likewise would reduce impacts to a less-than-significant level. However, there would be less ground disturbance with Alternative 3, and therefore, Alternative 3 would have fewer impacts to the proposed project with regard to cultural resources.

Geology and Soils

Under Alternative 3, a 153,362-square-foot Costco warehouse would be constructed, but there would be no retail development on the east side of Warm Springs Parkway. With respect to the west side of Warm Spring Parkway, impacts would be the same as the proposed project, in that excavations and grading would result in disturbance of existing sediments, with the potential for erosion to be exacerbated during precipitation or high-wind events. Grading and construction for this portion of the site would be the same for the proposed project and Alternative 3 and would be completed in accordance with an NPDES-mandated SWPPP, which would include standard BMPs to reduce potential off-site water quality impacts related to erosion and incidental spills of petroleum products and hazardous substances from equipment. Upon implementation, this portion of the site would be graded and paved, greatly reducing the possibility for soil erosion or loss of topsoil compared to current conditions.

With respect to the eastern portion of the site, under Alternative 3 no grading or construction would take place. However, despite the lack of additional grading, this portion of the site would have similar environmental impacts as the proposed project because NPDES applies to the former sand and gravel permit operations and BMPs would be required to be implemented on the site. Implementation of BMPs would reduce impacts of Alternative 3 to a less-than-significant level. Thus, the proposed project and Alternative 3 would have similar impacts to the proposed project with regard to geology and soils and both would be less than significant.

Greenhouse Gas Emissions

Under Alternative 3, a 153,362-square-foot Costco warehouse would be constructed, but there would be no retail development on the Vineyard II site. Construction GHG emissions would be less than those under the proposed project due to reduced building construction, paving activities, vendor trips, and worker trips. Thus, construction of the Costco warehouse would result in 1,495 MT CO_2e over the construction period, which would be less than the proposed project. Under both Alternative 3 and the proposed project, GHG emissions would be generated during operations. Alternative 3 would result in less building development, which would result in less energy use, solid waste disposal; less generation of electricity associated with water supply, treatment, and distribution and wastewater treatment; and fewer mobile trips to the project site. Alternative 3 would result in project-generated operational emissions, including amortized construction emissions, of 13,143 MT CO_2e per year, which would be less than the proposed project. Furthermore, Alternative 3 and the proposed project would be consistent with the Scoping Plan, 2016 Regional Transportation Plan/Sustainable Communities Strategy, the City of Murrieta's General Plan, the City of Murrieta's Climate Action Plan, Senate Bill 32, and Executive Order S-3-05. Therefore, impacts of Alternative 3 would be considered slightly less than those of the proposed project with regard to GHG emissions impacts.

Hazards and Hazardous Materials

Under Alternative 3, a 153,362-square-foot Costco warehouse would be constructed, but there would be no retail development on the east side of Warm Springs Parkway. Construction of the proposed project would involve the transport, use, or disposal of hazardous materials on or off-site. These materials would include gasoline, diesel fuel, lubricants, and other petroleum-based products used to operate and maintain construction equipment. The same

materials would be required for Alternative 3. Under both Alternative 3 and the proposed project, all hazardous materials generated and/or used on the property would be managed in accordance with all relevant federal, state, and local laws. Both the proposed project and Alternative 3 include operation of a gas station, a tire installation facility, and associated infrastructure improvements. These facilities would involve the routine handling, transport, use, and disposal of hazardous materials, including cleaning solvents and disinfectants, petroleum-based lubricants, photo-processing chemicals, automobile batteries, detergents, chlorine, bleach, and other chemicals. Therefore, Alternative 3 is considered to have similar impacts compared to the proposed project in terms of hazards and hazardous materials and each would be less than significant.

Hydrology and Water Quality

Under Alternative 3, a 153,362-square-foot Costco warehouse would be constructed, but there would be no retail development on the east side of Warm Springs Parkway. The project site is underlain by granitic bedrock that is not an area of groundwater recharge. Both the proposed project and Alternative 3 would not interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table.

Under current conditions, substantial soil erosion and loss of topsoil is highly likely due to the disturbed, undeveloped ground surface. Excavations and grading for both the proposed project and Alternative 3 would result in disturbance of existing sediments, such that erosion could be exacerbated during precipitation or high-wind events. Grading and construction associated with the proposed project and the west side of the project site under Alternative 3 would be completed in accordance with an NPDES-mandated SWPPP, which would include standard BMPs to reduce potential off-site water quality impacts related to erosion and incidental spills of petroleum products and hazardous substances from equipment. Upon implementation of either the proposed project or Alternative 3, the site would be graded and paved, greatly reducing the possibility for soil erosion or loss of topsoil compared to current conditions. The property on the east side of Warm Springs Road would not be graded or developed under Alternative 3 and substantial erosion and loss of topsoil could result. NPDES would apply to the former sand and gravel permit operations, and BMPs would be required to be implemented on the site. Implementation of BMPs would reduce impacts of Alternative 3 to a less-than-significant level. Therefore, neither the proposed project nor Alternative 3 would have significant environmental impacts, and Alternative 3 would have similar environmental impacts as the proposed project with regard to hydrology and water quality.

Based on a project-specific drainage analyses, the proposed project would result in a decrease of unmitigated 100-year runoff flow rates compared to pre-developed project conditions for the western, Costco portion of the project site. Although both the proposed project and Alternative 3 would alter the existing drainage pattern of the site, they have been designed to follow pre-development drainage patterns and, neither would substantially increase the rate or amount of surface runoff in a manner that would result in flooding on or off site. Therefore, Alternative 3 is considered to have similar impacts compared to the proposed project in terms of hydrology and water quality.

Noise

Construction Noise

Under Alternative 3, a 153,362-square-foot Costco warehouse would be constructed, but there would be no retail development on the east side of Warm Springs Parkway. Under both the proposed project and Alternative 3, construction noise from the use of construction equipment, such as heavy equipment, haul trucks, and additional worker trips, would occur. For the proposed project, mitigation would be required. However, assuming the Costco

under Alternative 3 would be constructed in the same location as it would be under the proposed project (i.e., farther from residential areas to the east), construction noise impacts would be avoided and mitigation would not be required. Therefore, Alternative 3 is has fewer impacts than the proposed project in terms of construction noise.

Operational Noise

Under Alternative 3, a 153,362-square-foot Costco warehouse would be constructed, but there would be no retail development on the east side of Warm Springs Parkway. Both the proposed project and Alternative 3 would introduce new on-site mechanical noise, parking lot noise, and traffic noise; however, there would be no retail stores in the eastern portion of the project site (near residential areas) under Alternative 3, and the Costco warehouse would be located in the western portion of the site (farther from existing residences). Because the retail development under the proposed project would screen the residences to the east from operational noise on site (parking lot) and from traffic on Warm Springs Parkway, Alternative 3 would have greater operational noise impacts than the proposed project.

Population and Housing

Under Alternative 3, a 153,362-square-foot Costco warehouse would be constructed, but there would be no retail development on the east side of Warm Springs Parkway. It is anticipated that the proposed project would employ approximately 250 full-time employees, while the fitness center, restaurants, and retail development under the proposed project would employ approximately 35 full-time employees, for a maximum of 285 full-time employees. Alternative 3 would require 35 fewer employees as compared to the proposed project and therefore conservatively would be projected to induce a smaller demand for housing. Although neither the proposed project nor Alternative 3 would result in significant environmental impacts, Alternative 3 would have fewer impacts than the proposed project in terms of population and housing.

Public Services

Under Alternative 3, a 153,362-square-foot Costco warehouse would be constructed, but there would be no retail development on the east side of Warm Springs Parkway. The proposed project would result in an increase in employees in the area, all of whom are conservatively assumed to move to the City in the analysis of the project in this EIR, which would increase demand for fire protection services, police protection services, schools, and parks. Alternative 3 would require 35 fewer employees as compared to the proposed project. Therefore, although neither the proposed project nor Alternative 3 would result in significant environmental impacts, Alternative 3 would have fewer impacts than the proposed project in terms of public services.

Recreation

Under Alternative 3, a 153,362-square-foot Costco warehouse would be constructed, but there would be no retail development on the east side of Warm Springs Parkway. It is anticipated that the proposed project would employ approximately 250 full-time employees, while the fitness center, restaurants, and retail development would employ approximately 35 full-time employees, for a maximum of 285 full-time employees, all of whom are conservatively assumed to move to the City in the analysis of the proposed project in this EIR. As such, the proposed project is conservatively assumed to result in an increase in residents and employees in the area, which could increase demand for recreational facilities. As indicated in the EIR, the City's current and ongoing plans for additional parkland, as funded by the City's Development Impact Fee, would offset any increased use of parkland and recreational facilities as a result of the proposed project, and impacts would be less than significant. Alternative 3 would require 35 fewer employees as compared to the proposed project, and therefore would reduce the demand

for new housing and thus the demand for parkland and recreational facilities as compared to the proposed project, Therefore, although neither the proposed project nor Alternative 3 would have significant environmental impacts, Alternative 3 would have fewer impacts than the proposed project with respect to recreation impacts.

Traffic and Circulation

Construction Traffic

Under Alternative 3, a 153,362-square-foot Costco warehouse would be constructed, but there would be no retail development on the east side of Warm Springs Parkway. Under both the proposed project and Alternative 3, haul trucks and worker trips associated with project construction would contribute to traffic in the area, but there would be fewer construction truck and worker trips. Therefore, Alternative 3 would have fewer construction traffic impacts than the proposed project.

Operational Traffic

Under Alternative 3, a 153,362-square-foot Costco warehouse would be constructed, but there would be no retail development on the east side of Warm Springs Parkway. Under the proposed project, employee and customer trips associated with project operations would contribute 8,378 daily trips to traffic in the area and would require mitigation. Even with mitigation, the traffic impacts of the proposed project would remain significant and unavoidable. Implementation of Alternative 3 would result in 8,378 daily trips, but because of the volume of trips, Alternative 3 would still require mitigation and result in significant and unavoidable impacts. Therefore, Alternative 3 would have fewer operational traffic impacts than the proposed project, but implementation of Alternative 3 would not eliminate any significant and unavoidable impacts.

Vehicle Miles Traveled

This EIR considers, for informational purposes, the operational traffic impacts of the project utilizing a VMT standard. Because the City has not adopted a threshold of significance for VMT, project impacts and cumulative impacts with respect to VMT are considered significant and unavoidable, even with implementation of **MM-AQ/GHG-2**. Under Alternative 3, VMT would remain significant and unavoidable, as VMT would increase compared to the existing condition. Alternative 3 is similar to the proposed project in terms of VTM impacts.

Tribal Cultural Resources

Under Alternative 3, a 153,362-square-foot Costco warehouse would be constructed, but there would be no retail development on the east side of Warm Springs Parkway. There would be potential to uncover tribal cultural resources as part of both proposed project construction and Alternative 3 construction. Where grading would take place, Alternative 3 would result in similar grading as the proposed project and would employ the same mitigation measures (**MM-TCR-1** through **MM-TCR-5**) as the proposed project to reduce impacts to a less-than-significant level. However, as there would be less ground disturbance with Alternative 3, Alternative 3 would have fewer impacts than the proposed project with regard to tribal cultural resources.

Utilities and Service Systems

Under Alternative 3, a 153,362-square-foot Costco warehouse would be constructed, but there would be no retail development on the east side of Warm Springs Parkway. Improvements to the existing utilities would occur under Alternative 3—including the construction of new sewer lines, water lines, storm drainage facilities, electric power

lines, natural gas lines, and telecommunication lines—as would be required for the proposed project. Without the retail component, there would be less wastewater generated, less water demand, less electricity usage, and less natural gas usage. Therefore, Alternative 3 would have fewer operational impacts than the proposed project in terms of impacts to utilities and service systems.

Urban Decay

Under Alternative 3, a 153,362-square-foot Costco warehouse would be constructed, and no retail development would be constructed east of Warm Springs Parkway. Similar to the proposed project, Alternative 3 would not create multiple long-term store vacancies or result in the abandonment of multiple buildings within the retail market served by the proposed project or any impacts to the proper utilization of properties or structures, which impairs the health, safety, and welfare of the surrounding community. Urban decay impacts under Alternative 3 would be similar to the proposed project.

Energy

Construction Energy

Under Alternative 3, a 153,362-square-foot Costco warehouse would be constructed, but there would be no retail development on the east side of Warm Springs Parkway. As with the proposed project, construction would require energy use. Petroleum consumption from off-road equipment, haul trucks, vendor trucks, and worker vehicle trips would be required for construction of Alternative 3. However, a reduced building development under Alternative 3 would result in reduced petroleum consumption and other energy use from off-road equipment, haul trucks, vendor trucks, and worker vehicle trips. Therefore, although both the proposed project and Alternative 3 would have less-than-significant impacts with respect to construction energy use, Alternative 3 is considered to have slightly less impact than the proposed project in terms of construction energy consumption.

Operational Energy

Under Alternative 3, a 153,362-square-foot Costco warehouse would be constructed, but there would be no retail development on the east side of Warm Springs Parkway. Both the proposed project and Alternative 3 would generate vehicular trips and would require electricity and natural gas for building heating and cooling, lighting, and appliances, including refrigeration, electronics, equipment, and machinery; energy consumption related to water usage, solid waste disposal, and electric vehicle trips. However, Alternative 3 consumption from electricity and natural gas would be less than the proposed project due to no development on the Vineyard II site. Further, the 4,402 daily mobile trips from employees, customers, and deliveries on the Vineyard II site would no longer occur, and thus, the Alternative 3 mobile source annual gasoline and diesel consumption from operation would be reduced to 1.31 million gallons and 69,673 gallons, respectively. Therefore, although both the proposed project and Alternative 3 would have less-than-significant impacts with respect to operational energy use, Alternative 3 is considered to have less impact than the proposed project in terms of energy consumption.

Wildfire

Under Alternative 3, a 153,362-square-foot Costco warehouse would be constructed, but there would be no retail development on the east side of Warm Springs Parkway. The project site is surrounded by vacant land to the north, Vista Murrieta High School to the south, existing residential development to the east, and Interstate 215 to the west. The project site is identified by the City's General Plan EIR as occurring within a Very High FHSZ (City of Murrieta 2011), and thus is subject to the regulations regarding wildfire hazards in the Murrieta Municipal Code

(Section 15.24) (Exhibit 12-8). However, the project site is located in a predominantly urbanized area. Although the proposed project would not result in wildfire impacts, the proposed project reduces fire risk by replacing readily ignitable vegetation with fire resistant structures and landscaping. Alternative 3 would also introduce new structures to the site and would reduce fire risk by replacing readily ignitable vegetation with fire resistant structures and landscaping. Even though the area east of Warm Springs Parkway would remain vacant and ungraded, it would be sprayed with a soil stabilizer that would slightly inhibit the ability for weeds to grow, but would not substantially reduce the fire risk to the homes to the east. Therefore, Alternative 3 is considered to have greater impacts to the proposed project in terms of wildfire.

Conclusion

Under Alternative 3, a 153,362-square-foot Costco warehouse would be constructed, but there would be no retail development on the east side of Warm Springs Parkway. Alternative 3 would have fewer impacts compared to the proposed project in terms of construction and operational air quality, cultural resources, greenhouse gas emissions, construction noise, population and housing, public services, recreation, construction and operational traffic, tribal cultural resources, utilities and service systems, and energy. In particular, Alternative 3 would reduce operational NO_x emissions to a less-than-significant level and would reduce other operational impacts from traffic and VOCs, although these would remain significant and unavoidable. Alternative 3 would have similar impacts to the proposed project in terms of biological resources, geology and soils, hazards and hazardous materials, hydrology and water quality, urban decay, and VMT. It would have greater impacts in terms of aesthetics, operational noise impacts, and wildfire.

Furthermore, in terms of achieving the proposed project objectives, Alternative 3 would generate additional revenues to the City's in the form of increased sales and property tax revenues, enhance the City with an economically viable development by establishing anchored retail required to support new brick and mortar retail in the current online-oriented retail environment, increase the number of jobs in the City, provide a gasoline fueling station adjacent to major roadways and the regional highway system, design a project that is consistent with the City's General Plan and Development Code, and design a site plan that minimizes circulation conflicts between automobiles and pedestrians. However, Alternative 3 would not provide a mix of retail, restaurant, and anchor tenants that would provide residents with additional shopping, dining, and fueling options in a location that is convenient for its customers and employees to travel to shop and work or create a new opportunity for a wide range of integrated retail goods and services to meet the needs of the growing Murrieta community. Additionally, Alternative 3 would result in less sales and property tax revenue than the proposed project, would not fully utilize the site to the extent that the proposed project would, and would still result in significant and unavoidable construction and operational air quality and operational traffic impacts.

6.4 Environmentally Superior Alternative

An EIR must identify an "environmentally superior" alternative; and, where the no project alternative is environmentally superior, the EIR is then required to identify an alternative from among the others evaluated as environmentally superior (14 CCR 15126.6[e][2]).

In this case, Alternative 1, No Project/No Development, is the environmentally superior alternative because it reduces air quality, biological resources, cultural resources, GHG emissions, hazards and hazardous materials, noise, population and housing, public services, recreation, transportation, tribal cultural resources, utilities and service systems, and energy impacts and eliminates significant and unavoidable operational air quality impacts and traffic impacts. However, as noted above, where the no project alternative is the environmentally superior alternative, CEQA requires that a lead agency identify a second alternative as the environmentally superior

alternative (14 CCR 15126.6[e][2]). The environmentally superior alternative is Alternative 3, because it reduces the proposed project's impacts with respect to construction and operational air quality, cultural resources, GHG emissions, construction noise, population and housing, public services, recreation, construction and operational traffic, tribal cultural resources, utilities and service systems, and energy. However, as with the proposed project, Alternative 3 would still result in significant and unavoidable impacts to construction and operational air quality (VOCs) and operational traffic, although it would reduce the level of significant impact of each. Alternative 3 would also reduce the operational air quality impacts of NO_x to a less-than-significant level. As indicated above, Alternative 3 would not meet several of the project objectives and would result in less sales tax and property tax revenue to the City than would the proposed project.

Table 6-1 shows the comparison of alternatives by resource area and determines the total impacts that are environmentally superior to the proposed project.

Table 6-1. Comparison of Alternatives

Impact	Alternative 1: No Project/No Development	Alternative 2: Reduced Project/Reduced Vineyard II Development	Alternative 3: Reduced Project/No Vineyard II Development
Aesthetics	−1	−1	−1
Air Quality – Construction	**+1**	**0**	**+1**
Air Quality – Operation	**+1**	**+1**	**+1**
Biological Resources	+1	0	0
Cultural Resources	+1	0	+1
Geology and Soils	0	0	0
Greenhouse Gas Emissions	+1	+1	+1
Hazards and Hazardous Materials	+1	0	0
Hydrology and Water Quality	0	0	0
Noise – Construction	+1	+1	+1
Noise – Operation	+1	−1	−1
Population and Housing	+1	+1	+1
Public Services	+1	+1	+1
Recreation	+1	+1	+1
Transportation - Construction	+1	+1	+1
Transportation- Operations	**+1**	**+1**	**+1**
VMT	**+1**	**0**	**0**
Tribal Cultural Resources	+1	0	+1
Urban Decay	+1	0	0
Utilities and Service Systems	+1	+1	+1
Energy	+1	+1	+1
Wildfire	−1	0	−1
Total (fewer impacts only)	18	10	13
Eliminates a Significant Impact of the Proposed Project?	Yes (air quality construction and operation and transportation operations)	No	Yes (operational air quality NO_x emissions)

Notes: 0 = environmentally similar; −1 = more impacts; +1 = fewer impacts.
Bold indicates environmental resource categories where the proposed project would result in a significant and unavoidable impact following implementation of all feasible mitigation.

6.5 References Cited

City of Murrieta. 2011a. *City of Murrieta General Plan 2035 Final Environmental Impact Report, Section 5.17, Fire Protection*. SCH no. 2010111084. Prepared by RBF Consulting. Irvine, California: RBF Consulting. July 2011. https://www.murrietaca.gov/civicax/filebank/blobdload.aspx?BlobID=5204.

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