APPENDIX A

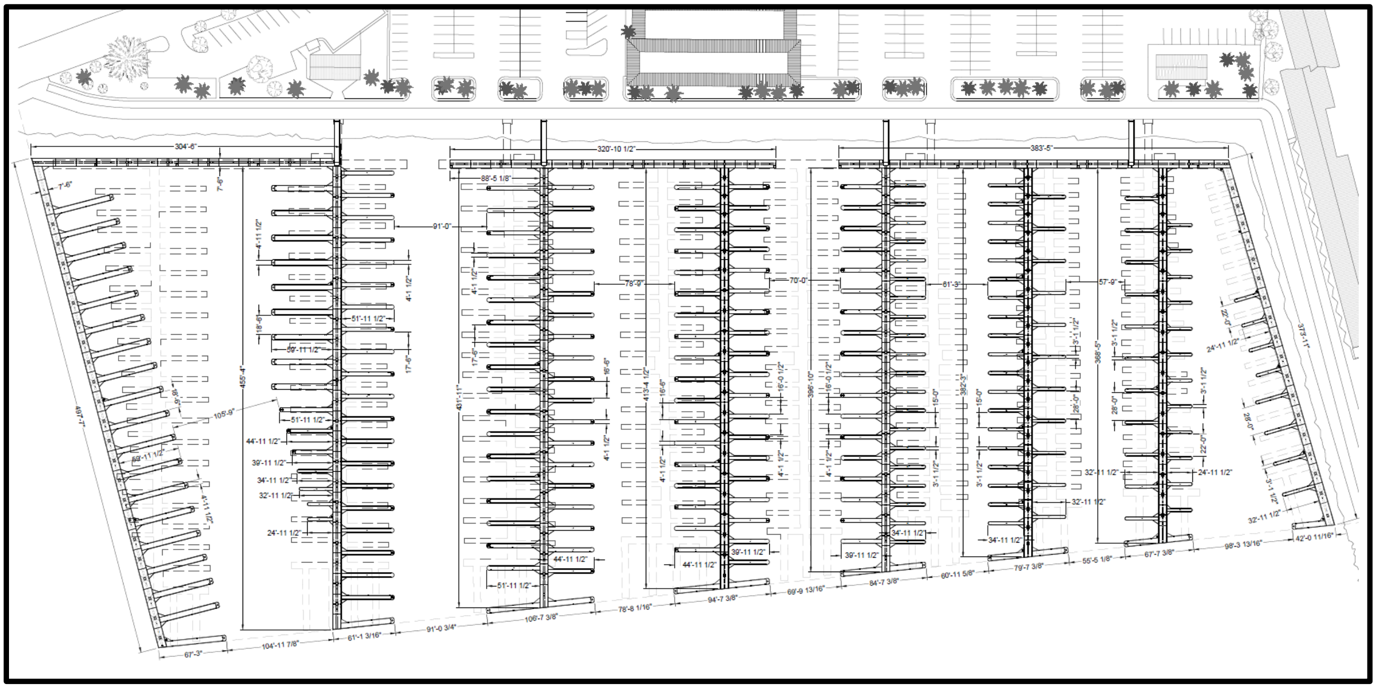
Air Quality and Greenhouse Gas Report

Air Quality & Greenhouse Gas Emissions Technical Report

May 2025

Ventura Port District

Ventura West Marina Redevelopment Project



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AIR QUALITY & GREENHOUSE GAS EMISSIONS TECHNICAL REPORT

VENTURA WEST MARINA REDEVELOPMENT PROJECT

1.1 INTRODUCTION

This report presents an analysis of potential air quality and greenhouse gas (GHG) emissions impacts associated with the Ventura West Marina Redevelopment Project (the "Project"). The Project is a proposed redevelopment project of the waterside portion of Lot 17 within Ventura Harbor. The Project is subject to both the California Environmental Quality Act (CEQA) and National Environmental Policy Act (NEPA) compliance.

Ventura Harbor is located within the City of Ventura and is a 274-acre multiuse recreational and commercial fishing small craft harbor owned and operated by the Ventura Port District (District). The District's property holdings include approximately 122 acres of water area and 152 acres of land.

The TBBW Company, LP (TBBW) is the current master tenant, and original developer, of the 18.5-acre Ventura Harbor West Marina located on Ventura Harbor Parcel 17 (APN 080-0-240-325). Ventura Harbor Parcel 17 includes 12.5 acres of waterside amenities which contain the Ventura Harbor West Marina and an adjacent 6-acre landside element which contains coastal-related and supportive harbor commercial land uses, marina parking, landscaping, and pedestrian walkways.

TBBW is currently proposing to redevelop the waterside 12.5 acres of their Parcel 17 leasehold(s). Project need is driven largely by the age and decreasing utility of the existing improvements and infrastructure onsite. Modernization of Parcel 17 waterside structures and facilities is intended to considerably enhance the visitor experience consistent with TBBW, District and City objectives. No changes are currently proposed for the landside portion of Parcel 17 which is currently proposed for a land use planning change as part of the City of Ventura General Plan Update that is currently underway.

Air quality impacts were determined for United States Environmental Protection Agency (USEPA) criteria air pollutants[1] such as carbon monoxide (CO) [2], nitrogen dioxide (NO_2) [3], sulfur

1 Criteria air pollutants refer to those air pollutants for which the USEPA and CARB has established National Ambient Air Quality Standards (NAAQS) and California Ambient Air Quality Standards (CAAQS) under the Federal Clean Air Act (CAA).

2 CO is a non–reactive pollutant that is a product of incomplete combustion of organic material, and is mostly associated with motor vehicle traffic, and in wintertime, with wood–burning stoves and fireplaces.

3 When combustion temperatures are extremely high, as in aircraft, truck and automobile engines, atmospheric nitrogen combines with oxygen to form various oxides of nitrogen (NOx). Nitric oxide (NO) and NO_2 are the most significant air pollutants generally referred to as NOx. Nitric oxide is a colorless and odorless gas that is relatively harmless to humans, quickly converts to NO_2 and can be measured. Nitrogen dioxide has been found to be a lung irritant capable of producing pulmonary edema.

dioxide (SO_2) [4], particulate matter equal to or less than 10 micrometers (coarse particulate or PM10), and particulate matter equal to or less than 2.5 micrometers (fine particulate or PM2.5). [5] When volatile organic compounds (VOC)[6] such as reactive organic gases (ROG) and nitrogen oxide (NO_x) accumulate in the atmosphere and are exposed to the ultraviolet component of sunlight, ozone (O_3) is formed. As such, the assessment of ozone was performed using emission estimates of ROG and NO_x, known as pollutant precursors. The air quality analysis is consistent with the methods described in Ventura County Air Pollution Control District (VCAPCD) CEQA Air Quality Assessment Guidelines[7].

This report presents an overview of the existing air quality conditions at the Project site, an overview of regulations applicable to the Project, and an analysis of potential air quality and GHG emissions impacts that would result from implementation of the Project. The Project would result in **less-than-significant impacts** for CEQA purposes and **no adverse impacts** for NEPA purposes.

1.2 AIR QUALITY EXISTING CONDITIONS

1.2.1 CLIMATE AND METEOROLOGY

The Project site is within the Ventura County portion of the South Central Coast Air Basin (SCCAB), which also includes San Luis Obispo County and Santa Barbara County. The following is an excerpt from the City of Ventura 2005 General Plan EIR that describes the climate and meteorology of the City of Ventura.

The semi-permanent high-pressure system west of the Pacific coast strongly influences California's weather. It creates sunny skies throughout the summer and influences the pathway and occurrence of low-pressure weather systems that bring rainfall to the area during October through April. As a result, wintertime temperatures in Ventura are generally mild, while summers are warm and dry. During the day, the predominant wind direction is from the west and southwest, and at night, wind direction is from the north and generally follows the Santa Clara River Valley.

Predominant wind patterns are occasionally broken during the winter by storms coming from the north and northwest and by episodic Santa Ana winds. Santa Ana winds are strong northerly to northeasterly winds that originate from high pressure areas centered over the desert of the Great

4 SO_2 is a combustion product of sulfur or sulfur–containing fuels such as coal and diesel. SO_2 is also a precursor to the formation of atmospheric sulfate and particulate matter, and contributes to potential atmospheric sulfuric acid formation that could precipitate downwind as acid rain.

5 PM10 and PM2.5 consists of airborne particles that measure 10 micrometers or less in diameter and 2.5 micrometers or less in diameter, respectively. PM10 and PM2.5 represent fractions of particulate matter that can be inhaled into the air passages and the lungs, causing adverse health effects.

6 VOC means any compound of carbon, excluding carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, and ammonium carbonate, which participates in atmospheric photochemical reactions and thus, a precursor of ozone formation. ROG are any reactive compounds of carbon, excluding methane, CO, CO_2 carbonic acid, metallic carbides or carbonates, ammonium carbonate, and other exempt compounds. The terms VOC and ROG are often used interchangeably.

7 Ventura County Air Pollution Control District (VCAPCD), *Ventura County Air Quality Assessment Guidelines,* October 2023, http://www.vcapcd.org/pubs/Planning/VCAQGuidelines.pdf

Basin. These winds are usually warm, very dry, and often full of dust. They are particularly strong in the mountain passes and at the mouths of canyons.

Daytime summer temperatures in the area average in the high 70s to the low 90s. Nighttime low temperatures during the summer are typically in the high 50s to low 60s, while the winter high temperatures tend to be in the 60s. Winter low temperatures are in the 40s. Annual average rainfall in Ventura ranges from about 14 to 16 inches, the majority of which falls in winter months.

Two types of temperature inversions (warmer air on top of colder air) are created in the Ventura County area: subsidence and radiational (surface). The subsidence inversion is a regional effect created by the Pacific high in which air is heated as it is compressed when it flows from the high-pressure area to the low-pressure areas inland. This type of inversion generally forms at about 1,000 to 2,000 feet and can occur throughout the year but is most evident during the summer months. Surface inversions are formed by the more rapid cooling of air near the ground at night, especially during winter. This type of inversion is typically lower and is generally accompanied by stable air. Both types of inversions limit the dispersal of air pollutants within the regional airshed. The primary air pollutant of concern during the subsidence inversions is ozone, while carbon monoxide and nitrogen oxides are of greatest concern during winter inversions.

1.2.2 AIR QUALITY REGULATORY SETTING

Ambient Air Quality Standards

Regulation of air pollutants is achieved through both national ambient air quality standards (NAAQS) and California ambient air quality standards (CAAQS) and emissions limits for individual sources. Regulations implementing the federal Clean Air Act (CAA) and its subsequent amendments established NAAQS for the six criteria pollutants. California has adopted more stringent CAAQS for most of the criteria air pollutants. In addition, California has established CAAQS for sulfates, hydrogen sulfide, vinyl chloride, and visibility-reducing particles. Because of the meteorological conditions in the state, there is considerable difference between state and federal standards in California.

The NAAQS and CAAQS are intended to protect public health and welfare, and they incorporate an adequate margin of safety. They are designed to protect those segments of the public most susceptible to respiratory distress, known as sensitive receptors, including asthmatics, the very young, elderly, people weak from other illness or disease, or persons engaged in strenuous work or exercise. Healthy adults can tolerate occasional exposure to air pollution levels somewhat above the ambient air quality standards before adverse health effects are observed.

Under amendments to the federal CAA, USEPA has classified air basins or portions thereof, as either “attainment” or “non-attainment” for each criteria air pollutant, based on whether the NAAQS have been achieved. The California CAA, which is patterned after the federal CAA, also requires areas to be designated as “attainment” or “non-attainment” for the state standards. Thus, areas in California have two sets of attainment / non-attainment designations: one set with respect to the NAAQS and one set with respect to the CAAQS.

The California Air Resources Board (CARB) is the state regulatory agency with authority to enforce regulations to both achieve and maintain the NAAQS and CAAQS. The CARB is responsible for the development, adoption, and enforcement of the state's motor vehicle emissions program, as well as the adoption of the CAAQS. The CARB reviews operations and programs of the local air districts and requires each air district with jurisdiction over a nonattainment area to develop its own strategy for achieving the NAAQS and CAAQS. The local air district has the primary responsibility for the development and implementation of rules and regulations designed to attain the NAAQS and CAAQS, as well as the permitting of new or modified sources, development of air quality management plans, and adoption and enforcement of air pollution regulations. VCAPCD is the regulatory agency responsible for improving air quality in the SCCAB. Ventura County is designated as a nonattainment area for state 1-hour ozone standards, state and federal 8-hour ozone standards, and state PM10 standards.

Air Quality Management Plan

The USEPA requires areas that do not meet a NAAQS to develop and submit a State Implementation Plan (SIP) for approval. SIPs are used to show how the region will meet the standard. Regions must attain NAAQS by specific dates or face the possibility of sanctions by the federal government and other consequences under the federal CAA. This can result in increased permitting fees, stricter restrictions for permitting new projects, and the loss of federal highway funds. The VCAPCD's SIPs are developed within the agency's Air Quality Management Plan (AQMPs).

VCAPCD's 2022 AQMP (adopted December 13, 2022) presents Ventura County's strategy (including related mandated elements) to attain the 2015 federal 8-hour ozone standard, as required by the federal CAA Amendments of 1990. Photochemical air quality modeling indicates that Ventura County will attain the 2015 federal 8-hour ozone standard by 2026 using local, state, and federal clean air programs. The previous Ventura County AQMP, prepared in 2016, projected attainment of the 2008 federal 8-hour ozone standard by 2020. The USEPA published a final rule on October 20, 2022, determining that Ventura County has attained the 2008 Ozone NAAQS by its July 20, 2021, attainment date.

The 2022 AQMP presents a combined state and local strategy for attaining the 2015 federal 8-hour ambient air quality standard for ozone, the only federal clean air standard Ventura County does not meet, by the statutory compliance deadline of August 3, 2027. It was prepared to satisfy federal CAA planning requirements for areas designated as serious federal 8-hour ozone nonattainment areas, including, but not limited to, updated air quality information, an updated emissions inventory, local and state air pollutant control measures, new emission forecasts and projections, a new federal conformity budget for transportation projects, a reasonable further progress demonstration for precursors of ozone (ROG and NOx), a new countywide emission carrying capacity, and a demonstration that Ventura County will attain the federal 8-hour ozone standard.

Toxic Air Contaminants

Non-criteria air pollutants or toxic air contaminants (TACs) are airborne substances that can cause short-term (acute) and/or long-term (chronic or carcinogenic, i.e., cancer causing) adverse human health effects (i.e., injury or illness). TACs include both organic and inorganic chemical substances. They may be emitted from a variety of common sources including gasoline stations, automobiles, dry cleaners, industrial operations, and painting operations. The current California list of TAC includes approximately 240 compounds, including particulate emissions from diesel-fueled engines and asbestos.

In August of 1998, CARB identified particulate emissions from diesel-fueled engines as TAC. CARB developed the Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles and Risk Management Guidance for the Permitting of New Stationary Diesel-Fueled Engines. The document represents a proposal to reduce diesel particulate emissions, with the goal to reduce emissions and the associated health risk by 75 percent in 2010 and 85 percent in 2020. The program aims to require the use of state-of-the-art catalyzed diesel particulate filters and ultra-low sulfur diesel fuel on diesel-fueled engines.

As of July 2024, CARB has not published if their 2010 or 2020 Diesel Risk Reduction Plan goals were met. CARB's California Emissions Projection Analysis Model (CEPAM) data shows a 77 percent DPM emissions reduction for 2020 and projects an 86 percent DPM emissions reduction for 2030 compared to the year 2000 DPM emissions. CARB's Diesel Risk Reduction Plan used 1990 as the benchmark year for their risk reduction goals, thus it is reasonable to assume that CARB met their Diesel Risk Reduction Plan goals and continue to work diligently to develop, implement, and enforce regulations and programs to reduce DPM emissions and associated health risks in the state.[8]

1.2.3 LOCAL AIR QUALITY

The closest and most representative air quality monitoring station for the Project site is the El-Rio Mesa School #2 monitoring station approximately 6.6 miles to the east, which monitors 1-hour, 8-hour ozone, PM10, PM2.5 and NO_2. Measurements at the El-Rio Mesa School #2 monitoring station show one exceedance of the federal PM2.5 standard and 12 exceedances of the state PM2.5 standard in 2021, 3 exceedances of the state PM2.5 standard in 2022, and 7 exceedances of the state PM2.5 standard in 2023. No other air quality standards were exceeded at the El-Rio Mesa School #2 monitoring station between 2021 and 2023.[9] **Table 1** displays the air quality monitoring data summary for the three-year period (2021 through 2023).

8 California Air Resources Board (CARB), Air Toxics Response Team, Personal communication, July 18, 2024.

9 California Air Resources Board (CARB). 2024. iADAM: Air Quality Data Statistics. https://www.arb.ca.gov/adam, Accessed December 11, 2024.

TABLE AQ-1 AIR QUALITY DATA SUMMARY (2021 – 2023)

Pollutant	Monitoring Data by Year			
	Standard	*2021*	*2022*	*2023*
Ozone (O_3)				
Highest 1 Hour Average (ppm)	0.09	0.073	0.077	0.071
Highest 8 Hour Average (ppm)	0.070	0.067	0.063	0.059
Particulate Matter (PM10)				
Highest 24-Hour Average (μg/m^3)	50	**125.0**	**57.5**	**104.0**
State Annual Average (μg/m^3)	20	**24.7**	**23.1**	20.4
Particulate Matter (PM2.5)				
Highest 24-Hour Average (μg/m^3)	35	31.7	18.5	24.5
State Annual Average (μg/m^3)	12	*	6.5	*
Nitrogen Dioxide (NO_2)				
Highest 1 Hour Average (ppm)	0.25	0.033	0.032	0.027
State Annual Average (ppm)	0.05	0.004	0.004	0.003

Notes:
1 μg/m^3 = micrograms per cubic meter, ppm = parts per million
2 * = insufficient data

Source: CARB, iADAM: Air Quality Data Statistics, https://www.arb.ca.gov/adam, Accessed December 11, 2024.

1.2.4 SENSITIVE RECEPTORS

Land uses such as schools, children's daycare centers, hospitals, and convalescent homes are more sensitive than the general public to poor air quality because the population groups associated with these uses have increased susceptibility to respiratory distress. Persons engaged in strenuous work or exercise also have increased sensitivity to poor air quality. The CARB has identified the following people as most likely to be affected by air pollution: children less than 14 years of age, the elderly over 65 years of age, athletes, and those with cardiovascular and chronic respiratory diseases. These groups are classified as sensitive population groups.

Residential areas are considered more sensitive to air quality conditions than commercial and industrial areas because people generally spend longer periods of time at their residences, resulting in greater exposure to ambient air quality conditions. Recreational uses are also considered sensitive, due to the greater exposure to ambient air quality conditions and because the presence of pollution detracts from the recreational experience. Workers are not considered sensitive receptors because all employers must follow regulations set forth by the Occupation Safety and Health Administration to ensure the health and well-being of their employees. The nearest sensitive receptors to the Project site are apartments north of the Project site along Navigator Drive. The nearest residence is located approximately 70 feet north of the water and the nearest marina dock. Liveaboard boats in the marina (approximately half of the existing boat slips are liveaboard slips) could also be considered sensitive receptors.

1.3 AIR QUALITY THRESHOLDS OF SIGNIFICANCE

The significance of potential impacts was determined based on State CEQA Guidelines, Appendix G. Using Appendix G evaluation thresholds, the Project would be considered to have significant air quality impacts if it were to:

A. Conflict with or obstruct implementation of the applicable air quality plan;

B. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard;

C. Expose sensitive receptors to substantial pollutant concentrations; or

D. Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.

VCAPCD has established recommended significance criteria for construction and operation of a proposed project, which the Ventura County Air Pollution Control Board has determined individually and cumulatively jeopardize attainment of the federal one-hour ozone standard, and thus a significant adverse impact on air quality in Ventura County. The recommended significance criteria are 25 pounds per day for ROG or NOx.

1.4 METHODOLOGY

Short-term construction air quality impacts related to the Project were evaluated using California Emissions Estimator Model (CalEEMod) Version 2022.1[10] and the Harbor Craft, Dredge, and Barge Emission Factor Calculator.[11] Project construction activities would take approximately one year to complete and are planned to commence in January 2026. Construction equipment would consist of a pile barge with 210-ton crane (diesel, 266 horsepower), a reach-lift (diesel, 139 horsepower), a work boat (60 horsepower, gasoline), and a small work boat (25 horsepower, gasoline).

Each piece of construction equipment was assumed to be operational (turned on) 8 hours per day and was modeled using model default load factors. Worker automobile trips were modeled using CalEEMod defaults for vehicle mix and trip distance (18.5 miles per one-way trip). Haul truck demolition trips were modeled as Heavy-Heavy Duty Trucks (HHDT) and assumed a trip distance of 4.3 miles per one-way trip to Gold Coast Recycling. Haul truck construction trips were modeled as HHDT and assumed a trip distance of 38.0 miles per one-way trip (The distance from the Project site to the VCAPCD boundary along the haul truck path heading east to Interstate-5).

10 California Air Pollution Officers Association, California Emissions Estimator Model User Guide Version 2022.1, April 2022, Accessed at: http://www.caleemod.com/

11 Sacramento Metropolitan Air Quality Management District (SMAQMD), SMAQMD Harbor Craft, Dredge, and Barge Emission Factor Calculator, June 2017, Accessed at: https://www.airquality.org/LandUseTransportation/Documents/SMAQMD_HC_Calculator_30Jun2017_v1_0.xlsx

1.5 AIR QUALITY IMPACT ANALYSIS

1.5.1 CONFLICT WITH APPLICABLE AIR QUALITY PLANS

Projects that are consistent with existing general plan documents, which are used to develop air emissions budgets for the purpose of air quality planning and attainment demonstrations, would be consistent with the VCAPCD's air quality plans, including the 2022 AQMP and prior AQMPs, which contain strategies for the region to attain and maintain the ambient air quality standards. Provided a project proposes the same or less development as accounted for in the general plan document, and provided the project would comply with applicable Rules and Regulations adopted by the VCAPCD, the project would not conflict with or obstruct implementation of applicable air quality plans, including the 2022 AQMP.

The Project would consist of temporary construction activities improving the waterside components of the marina. The Project would not include new development or increase population, nor would it be inconsistent with the General Plan land use designation or the zoning designation of the Project site.

As demonstrated in Impact 1.5.2 below, the Project would result in short-term construction emissions that would be less than the VCAPCD CEQA thresholds of significance. Therefore, the Project would not increase the frequency or severity of an air quality standards violation or cause a new violation.

Therefore, the Project would be consistent with the land use planning assumptions within the AQMP. Furthermore, as noted in this analysis, the Project would not exceed VCAPCD significance thresholds and would be required to comply with applicable VCAPCD Rules and Regulations. Therefore, the Project would result in a **less-than-significant impact.**

1.5.2 COMPLIANCE WITH AIR QUALITY STANDARDS

Construction Impacts

Construction-related activities are temporary, finite sources of air emissions. Sources of Project-related construction air emissions would include:

- Exhaust from construction equipment and worker automobiles and haul trucks.
- Fugitive dust (PM10 and PM2.5) vehicle and equipment travel on paved and unpaved surfaces.

Table AQ-2 provides a summary of the unmitigated ROG and NOx emission estimates for construction of the Project, as calculated with the CalEEMod and the Harbor Craft, Dredge, and Barge Emission Factor Calculator (refer to **Appendix A** for detailed emissions outputs). Given that the construction activities take place in the water and the Project would not include site preparation or grading activities, PM10 and PM2.5 emissions would be negligible (less than one pound per day). As shown in **Table AQ-2**, construction emissions would be below the VCAPCD significance thresholds, and the Project would result in a **less-than-significant impact.**

TABLE AQ-2 ESTIMATED UNMITIGATED MAXIMUM DAILY CONSTRUCTION EMISSIONS

Emission Source	ROG	NO_X
lbs/day		
Summer Construction	1.34	8.25
Winter Construction	1.35	8.57
MAXIUM DAILY EMISSIONS	**1.35**	**8.38**
Significance Criteria	25	25
Significant?	No	No

Source: CalEEMod Version 2022.1 and SMAQMD Harbor Craft, Dredge, and Barge Emission Factor Calculator.

Operational Impacts

Once construction is complete, there would be no increase in operational emissions. The total number of boat slips would be reduced by the Project compared to the existing condition. Therefore, the Project would result in a **less-than-significant impact**.

1.5.3 IMPACTS TO SENSITIVE RECEPTORS

Project construction activities would result in the temporary emissions of DPM from the use of diesel-powered construction equipment and haul trucks. DPM is a TAC, with both carcinogenic and non-carcinogenic health effects. Typically, health risks are estimated based on a lifetime exposure period of 30 years. Because exhaust emissions associated with construction activities of the Project would be short-term in nature and only two pieces of diesel construction equipment is required, it is anticipated that exposure to construction related DPM would not result in an elevated health risk. On land diesel construction equipment and operation thereof would be regulated per CARB's In-Use Off- Road Diesel Vehicle Regulation, which is intended to reduce emissions associated with off-road diesel vehicles and equipment, including DPM. Harbor craft would be regulated per CARB's Commercial Harbor Craft (CHC) regulation, which is intended to reduce DPM and other pollutants. On-road haul trucks would be regulated per the State's Truck and Bus Regulation. Project construction would also be required to comply with all applicable VCAPCD rules and regulations. Therefore, the Project would result in a **less-than-significant impact**.

1.5.4 ODOR IMPACTS

During construction, equipment exhaust may generate minor odors; however, due to the temporary nature of construction, odors associated with Project construction would not be significant. Therefore, the Project would result in a **less-than-significant impact**.

1.6 GREENHOUSE GAS EMISSIONS

"Global warming" and "global climate change" are the terms used to describe the increase in the average temperature of the earth's near-surface air and oceans since the mid-20th century and its projected continuation. Warming of the climate system is now considered to be unequivocal, with global surface temperature increasing approximately 1.33 degrees Fahrenheit (°F) over the last 100 years. Continued warming is projected to increase global average temperature between 2 and 11°F over the next 100 years.

Natural processes and human actions have been identified as the causes of this warming. The International Panel on Climate Change (IPCC) concludes that variations in natural phenomena such as solar radiation and volcanoes produced most of the warming from pre-industrial times to 1950 and had a small cooling effect afterward. After 1950, however, increasing GHG concentrations resulting from human activity such as fossil fuel burning, and deforestation have been responsible for most of the observed temperature increase. These basic conclusions have been endorsed by more than 45 scientific societies and academies of science, including all the national academies of science of the major industrialized countries. Since 2007, no scientific body of national or international standing has maintained a dissenting opinion.

Increases in GHG concentrations in the earth's atmosphere are thought to be the main cause of human-induced climate change. GHGs naturally trap heat by impeding the exit of solar radiation that has hit the earth and is reflected back into space. Some GHGs occur naturally and are necessary for keeping the earth's surface inhabitable. However, increases in the concentrations of these gases in the atmosphere during the last 100 years have decreased the amount of solar radiation that is reflected back into space, intensifying the natural greenhouse effect and resulting in the increase of global average temperature.

Gases that trap heat in the atmosphere are referred to as GHGs because they capture heat radiated from the sun as it is reflected back into the atmosphere, much like a greenhouse does. The accumulation of GHG has been implicated as the driving force for global climate change. The primary GHGs are carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O), ozone, and water vapor.

CO_2 is primarily generated by fossil fuel combustion in stationary and mobile sources. CH_4 is emitted from biogenic sources, incomplete combustion in forest fires, landfills, manure management, and leaks in natural gas pipelines. In the United States, the top three sources of methane are landfills, natural gas systems, and enteric fermentation. CH_4 is the primary component of natural gas, which is used for space and water heating, steam production, and power generation. N_2O is produced by both natural and human related sources. Primary human related sources include agricultural soil management, animal manure management, sewage treatment, mobile and stationary combustion of fossil fuel, adipic acid production, and nitric acid production.

While the presence of the primary GHGs in the atmosphere are naturally occurring, CO_2, CH_4, and N_2O are also emitted from human activities, accelerating the rate at which these compounds occur within earth's atmosphere. Other GHGs include hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride, and are generated in certain industrial processes. Greenhouse gases are typically reported in "carbon dioxide-equivalent" measures (CO_2e).[12]

There is international scientific consensus that human-caused increases in GHGs have and will continue to contribute to global warming. Potential global warming impacts may include, but are not limited to, loss in snowpack, sea level rise, more extreme heat days per year, more high ozone days, more large forest fires, and more drought years. Secondary effects are likely to include a global rise in sea level, impacts to agriculture, changes in disease vectors, and changes in habitat and biodiversity.

1.7 GREENHOUSE GAS EMISSIONS REGULATORY SETTING

State Regulations and Standards

State regulations and standards applicable to the Project are listed below.

Executive Order S-3-05

Governor Schwarzenegger established Executive Order S-3-05 in 2005, in recognition of California's vulnerability to the effects of climate change. Executive Order S-3-05 set forth a series of target dates by which statewide emissions of GHG would be progressively reduced, as follows:

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

The executive order directed the Secretary of the CalEPA to coordinate a multi-agency effort to reduce GHG emissions to the target levels. The Secretary will also submit biannual reports to the governor and California Legislature describing the progress made toward the emissions targets, the impacts of global climate change on California's resources, and mitigation and adaptation plans to combat these impacts. To comply with the executive order, the secretary of CalEPA created the California Climate Action Team, made up of members from various state agencies and commissions. The team released its first report in March 2006. The report proposed to achieve the targets by building on the voluntary actions of California businesses, local governments, and communities and through state incentive and regulatory programs.

Senate Bill 97

Senate Bill (SB) 97, signed in August 2007, acknowledges that climate change is an environmental issue that requires analysis in CEQA documents. In March 2010, the California Resources Agency (Resources Agency) adopted amendments to the State *CEQA Guidelines* for the feasible mitigation

[12] Because of the differential heat absorption potential of various GHG, GHG emissions are frequently measured in "carbon dioxide-equivalents," which present a weighted average based on each gas's heat absorption (or "global warming") potential.

of GHG emissions or the effects of GHG emissions. The adopted guidelines give lead agencies the discretion to set quantitative or qualitative thresholds for the assessment and mitigation of GHG and climate change impacts.

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

California passed the California Global Warming Solutions Act of 2006 (AB 32; California Health and Safety Code Division 25.5, Sections 38500 - 38599). AB 32 establishes regulatory, reporting, and market mechanisms to achieve quantifiable reductions in GHG emissions and establishes a cap on statewide GHG emissions. AB 32 requires that statewide GHG emissions be reduced to 1990 levels by 2020. This reduction was accomplished by enforcing a statewide cap on GHG emissions that was phased in starting in 2012. To effectively implement the cap, AB 32 directed CARB to develop and implement regulations to reduce statewide GHG emissions from stationary sources. AB 32 specifies that regulations adopted in response to AB 1493 should be used to address GHG emissions from vehicles. However, AB 32 also includes language stating that if the AB 1493 regulations cannot be implemented, then CARB should develop new regulations to control vehicle GHG emissions under the authorization of AB 32.

AB 32 requires CARB to adopt a quantified cap on GHG emissions representing 1990 emissions levels and disclose how it arrived at the cap; institute a schedule to meet the emissions cap; and develop tracking, reporting, and enforcement mechanisms to ensure that the state reduces GHG emissions enough to meet the cap. AB 32 also includes guidance on instituting emissions reductions in an economically efficient manner, along with conditions to ensure that businesses and consumers are not unfairly affected by the reductions. Using these criteria to reduce statewide GHG emissions to 1990 levels by 2020 would represent an approximate 25 to 30 percent reduction in current emissions levels. However, CARB has discretionary authority to seek greater reductions in more significant and growing GHG sectors, such as transportation, as compared to other sectors that are not anticipated to significantly increase emissions. Under AB 32, CARB was required to adopt regulations to achieve reductions in GHG to meet the 1990 emissions cap by 2020.

Climate Change Scoping Plan

AB 32 required CARB to develop a Scoping Plan that describes the approach California will take to reduce GHG to achieve the goal of reducing emissions to 1990 levels by 2020. The Scoping Plan was first approved by CARB in 2008 and must be updated every five years. The initial AB 32 Scoping Plan contains the main strategies California will use to reduce the GHGs that cause climate change. The initial Scoping Plan has a range of GHG reduction actions which include direct regulations, alternative compliance mechanisms, monetary and non-monetary incentives, voluntary actions, market-based mechanisms such as a cap-and-trade system, and an AB 32 program implementation fee regulation to fund the program. In August 2011, the initial Scoping Plan was approved by CARB.

The 2013 Scoping Plan Update builds upon the initial Scoping Plan with new strategies and recommendations. The 2013 Update identifies opportunities to leverage existing and new funds to further drive GHG emission reductions through strategic planning and targeted low carbon investments. The 2013 Update defines CARB climate change priorities for the next five years and sets the groundwork to reach California's long-term climate goals set forth in Executive Orders S-3-05 and B-16-2012. The 2013 Update highlights California progress toward meeting the near-term 2020 GHG emission reduction goals defined in the initial Scoping Plan. In the 2013 Update, nine key focus areas were identified (energy, transportation, agriculture, water, waste management, and natural and working lands), along with short-lived climate pollutants, green buildings, and the cap-and-trade program.

On May 22, 2014, the First Update to the Climate Change Scoping Plan was approved by the Board, along with the finalized environmental documents. On November 30, 2017, the Second Update to the Climate Change Scoping Plan was approved by the CARB. On December 15, 2022, the CARB adopted its 2022 Scoping Plan for Achieving Carbon Neutrality (2022 Scoping Plan). Consistent with this statutory direction, the Final Scoping Plan, which was released on November 16, 2022, lays out how California can reduce anthropogenic GHG emissions by 85% below 1990 levels and achieve carbon neutrality by 2045. In the 2022 Scoping Plan, CARB acknowledges that meeting these new ambitious targets will require decarbonizing the electricity sector on a rapid — but technically feasible — timescale. Decarbonizing the electricity sector depends on both increasing energy efficiency and deploying renewable and zero carbon resources, including solar, wind, energy storage, geothermal, biomass, and hydroelectric power on a massive scale and at an unprecedented pace. Overall, the 2022 Scoping Plan further strengthens the state's commitments to take bold actions to address the climate crisis. CARB states that the 2022 Scoping Plan represents the most aggressive approach to reach carbon neutrality in the world.

Executive Order No. B-30-15

On April 29, 2015, Executive Order No. B-30-15 was issued to establish a California GHG reduction target of 40 percent below 1990 levels by 2030. Executive Order No. B-30-15 sets a new, interim, 2030 reduction goal intended to provide a smooth transition to the existing ultimate 2050 reduction goal set by Executive Order No. S-3-05 (signed by Governor Schwarzenegger in June 2005). It is designed so State agencies do not fall behind the pace of reductions necessary to reach the existing 2050 reduction goal. Executive Order No. B-30-15 orders "All State agencies with jurisdiction over sources of GHG emissions shall implement measures, pursuant to statutory authority, to achieve reductions of GHG emissions to meet the 2030 and 2050 targets." The Executive Order also states that "CARB shall update the Climate Change Scoping Plan to express the 2030 target in terms of million metric tons of carbon dioxide equivalent." In September of 2016, AB 32 was extended to achieve reductions in GHG of 40 percent below 1990 levels by 2030. The new plan, outlined in SB 32, involves increasing renewable energy use, putting more electric cars on the road, improving energy efficiency, and curbing emissions from key industries.

Senate Bill 32

On September 8, 2016, the governor signed Senate Bill 32 (SB 32) into law, extending AB 32 by requiring the State to further reduce GHGs to 40 percent below 1990 levels by 2030 (the other provisions of AB 32 remain unchanged). On December 14, 2017, CARB adopted the 2017 Scoping Plan, which provides a framework for achieving the 2030 target. The 2017 Scoping Plan relies on the continuation and expansion of existing policies and regulations, such as the Cap-and-

Trade Program, as well as implementation of recently adopted policies and policies, such as SB 350 and SB 1383 (see below). The 2017 Scoping Plan also puts increased emphasis on innovation, adoption of existing technology, and strategic investment to support its strategies. As with the 2013 Scoping Plan Update, the 2017 Scoping Plan does not provide project-level thresholds for land use development. Instead, it recommends that local governments adopt policies and locally appropriate quantitative thresholds consistent with a statewide per capita goal of 6 metric tons of CO_2e by 2030 and 2 metric tons of CO_2e by 2050. As stated in the 2017 Scoping Plan, these goals may be appropriate for plan-level analyses (city, county, subregional, or regional level), but not for specific individual projects because they include all emissions sectors in the State.

Executive Order B-55-18

On September 10, 2018, the governor issued Executive Order B-55-18, which established a new statewide goal of achieving carbon neutrality by 2045 and maintaining net negative emissions thereafter. This goal is in addition to the existing statewide GHG reduction targets established by SB 375, SB 32, SB 1383, and SB 100.

Low Carbon Fuel Standard

Under the Climate Change Scoping Plan, the CARB identified the low carbon fuel standard (LCFS) as one of the nine discrete early action measures to reduce California's GHG emissions. The LCFS is designed to decrease the carbon intensity of California's transportation fuel pool and provide an increasing range of low-carbon and renewable alternatives, which reduce petroleum dependency and achieve air quality benefits.

In 2018, the CARB approved amendments to the regulation, which included strengthening and smoothing the carbon intensity benchmarks through 2030 in-line with California's 2030 GHG emission reduction target enacted through SB 32, adding new crediting opportunities to promote zero emission vehicle adoption, alternative jet fuel, carbon capture and sequestration, and advanced technologies to achieve deep decarbonization in the transportation sector.

The LCFS standards are expressed in terms of the "carbon intensity" (CI) of gasoline and diesel fuel and their respective substitutes. The program is based on the principle that each fuel has "life cycle" GHG emissions and the life cycle assessment examines the GHG emissions associated with the production, transportation, and use of a given fuel. The life cycle assessment includes direct emissions associated with producing, transporting, and using the fuels, as well as significant indirect effects on GHG emissions, such as changes in land use for some biofuels. The carbon intensity scores assessed for each fuel are compared to a declining CI benchmark for each year. Low carbon fuels below the benchmark generate credits, while fuels above the CI benchmark generate deficits. Credits and deficits are denominated in metric tons of GHG emissions. Providers of transportation fuels must demonstrate that the mix of fuels they supply for use in California meets the LCFS carbon intensity standards, or benchmarks, for each annual compliance period. A deficit generator meets its compliance obligation by ensuring that the credits it earns or otherwise acquires from another party is equal to, or greater than, the deficits it has incurred.

Assembly Bill 1279

AB 1279 requires California to achieve “net zero greenhouse gas emissions” as soon as possible, but no later than 2045, and to achieve and maintain net negative GHG emissions thereafter. It also requires that statewide anthropogenic GHG emissions be reduced to at least 85% below 1990 levels. The bill directs CARB to ensure that its scoping plan identifies and recommends measures to achieve these policy goals.

Executive Order N-79-20

EO N-79-20 calls for the elimination of new internal combustion passenger vehicles by 2035. The transportation sector, including all passenger cars and light trucks, heavy-duty trucks, off-road vehicles, and the fuels needed to power them, is responsible for more than half of California’s GHG emissions. By setting a course to end sales of internal combustion passenger vehicles by 2035, EO N-79-20 establishes a target for the transportation sector that helps put the state on a path to carbon neutrality by 2045. It is important to note that the Executive Order focuses on new vehicle sales for automakers, and therefore does not require Californians to give up the existing cars and trucks they already own.

California Phase 2 Standards Medium- and Heavy-Duty Engines and Vehicles

After the U.S. EPA enacted its Phase 2 Standards for medium- and heavy-duty engines, as discussed in the federal regulatory setting above, California enacted its own Phase 2 standards for GHG emissions that align closely with the federal Phase 2 standards except for minor differences. California’s Phase 2 standards were officially approved by CARB in February 2018, with the California Office of Administrative Law giving its final approval in February 2019. The California Phase 2 standards became effective April 1, 2019. Reductions in GHGs from California’s Phase 2 standards are recognized in CARB’s 2017 Scoping Plan.

Local Regulations and Standards

Since the Project does not propose new development, no local GHG emissions regulations or standards apply.

1.8 GREENHOUSE GAS EMISSIONS THRESHOLDS OF SIGNIFICANCE

Because the issue of global climate change is inherently a cumulative issue, the contribution of Project-related GHG emissions to climate change is addressed as a cumulative impact.

CEQA Guidelines Section 15064 and Appendix G recommend that a lead agency consider a project’s consistency with relevant, adopted plans, and discuss any inconsistencies with applicable regional plans, including plans to reduce GHG emissions.

For the purposes of this analysis, consistent with Appendix G of the *CEQA Guidelines*, GHG emissions generated by the Project could have a cumulatively considerable contribution to global climate change if the Project would:

- Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment; or
- Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of GHGs.

Some counties, cities, and air districts have developed guidance and thresholds for determining the significance of GHG emissions that occur within their jurisdiction. The Ventura Port District is the CEQA lead agency for the Project and is, therefore, responsible for determining whether GHG emissions with the Project would have a cumulatively considerable contribution to climate change. The Ventura Port District, City of Ventura and the VCAPCD have not adopted thresholds or approaches for evaluating a Project's GHG emissions.

Considering the lack of established GHG emissions thresholds that would apply to the Project, CEQA allows lead agencies to identify thresholds of significance applicable to a project that are supported by substantial evidence. Substantial evidence is defined in the CEQA statute to mean "facts, reasonable assumptions predicated on facts, and expert opinion supported by facts" (14 CCR 15384[b]). Substantial evidence can be in the form of technical studies, agency staff reports or opinions, expert opinions supported by facts, and prior CEQA assessments and planning documents. Therefore, to establish additional context in which to consider the order of magnitude of the proposed Project's GHG emissions, this analysis accounts for the following considerations by other government agencies and associations about what levels of GHG emissions constitute a cumulatively considerable incremental contribution to climate change.

South Coast Air Quality Management District (AQMD) currently has one adopted GHG threshold of significance, which is 10,000 metric tons of CO_2e per year for the operation of industrial facilities. Other Air Districts in the state have also adopted the 10,000 metric tons of CO_2e per year threshold, such as Bay Area AQMD, Sacramento Metropolitan AQMD, and Placer County APCD. The substantial evidence for this GHG emissions threshold is based on the expert opinion of various California air districts, which have applied the 10,000 metric tons of CO_2e per year threshold in numerous CEQA documents where those air districts were the lead agency. Therefore, the 10,000 metric tons of CO_2e per year threshold is used in this analysis to determine the significance of the GHG emissions generated by the Project.

1.9 GREENHOUSE GAS EMISSIONS IMPACT ANALYSIS

1.9.1 CONSTRUCTION GHG EMISSIONS

Construction GHG emissions include emissions from construction equipment, heavy trucks, and worker trips. Construction emissions are often amortized over a 30-year period to account for the contribution of construction emissions over the lifetime of the project and then added to a project's operational emissions to account for the contribution of construction to GHG emissions for the project lifetime. However, because the Project would not increase operational GHG emissions, this analysis conservatively compares annual construction GHG emissions to the threshold of significance without amortization. Project GHG emissions estimates assume a construction year of 2026 as shown in **Table GHG-1** and **Appendix A**.

TABLE GHG-1 ESTIMATED PROJECT CONSTRUCTION GHG EMISSIONS

Emission Source	Annual Emissions (Metric tons CO_2e per year)
On Land Construction Equipment	114.7
Harbor Craft	45.4
Haul Trucks	256.2
Worker Automobiles	30.0
Total Project CO_2 Equivalent Emissions	**446**
Significance Threshold	10,000
Significant?	No

Source: CalEEMod Version 2022.1 and SMAQMD Harbor Craft, Dredge, and Barge Emission Factor Calculator.
Note: Values may differ slightly from estimates shown in **Appendix A** due to rounding.

As shown in **Table GHG-1**, Project GHG emissions would not exceed the significance threshold of 10,000 metric tons of CO_2e per year. Therefore, the Project would result in a **less-than-significant impact**.

1.9.2 CONSISTENCY WITH PLANS AND REGULATIONS

As described in Section 1.7, Executive Order B-30-15 established a statewide emissions reduction target of 40% below 1990 levels by 2030, which has been implemented by SB 32. This measure was identified to keep the state on a trajectory needed to meet the 2050 goal of reducing GHG emissions to 80% below 1990 levels by 2050 pursuant to Executive Order S-3-05. These emissions reductions are outlined and implemented through CARB's 2017 and 2022 Scoping Plans.

Construction would generate temporary GHG emissions for the waterside improvements. Construction activities would utilize fuels that are subject to the State's LCFS, which addresses the carbon intensity of fuels in the State and is a key GHG reduction measure in CARB's 2017 and 2022 Scoping Plans. Project construction would not conflict with CARB's 2017 and 2022 Scoping Plans. Since the Project does not propose new development, no local GHG emissions regulations or standards apply, such as the City's Climate Action Plan, which is scheduled to be adopted in February 2025. Furthermore, there are no measures from the City's Climate Action Plan that address short-term construction projects. Therefore, Project construction would result in a **less-than-significant impact**.

1.10 NEPA COMPLIANCE

General Conformity ensures that actions taken by federal agencies do not interfere with a State or Tribe's ability to attain and maintain the NAAQS for air quality, as required by the federal CAA section 176(c). Title 40 Code of Federal Regulations (CFR) section 93.153 (b)(1) and (b)(2) provides de minimis threshold rates, that is, the minimum rates, in tons per year, below which no conformity determination is required, for various criteria pollutants in various areas. With respect to the NAAQS, Ventura County is designated as a nonattainment area for federal 8-hour ozone standards, designated as "Serious Nonattainment," thus the de minimis threshold rates that apply to the Project are 50 tons per year of ROG or NOx. The Project would result in less than one ton per year of ROG and NOx; thus, the Project would not exceed the applicable de minimis threshold rates. Therefore, no general conformity determination is required, and the project would be in conformance with the federal CAA. The proposed project would result in ***no adverse effects.***

1.11 REFERENCES

California Air Pollution Officers Association, California Emissions Estimator Model User Guide Version 2022.1, April 2022, http://www.caleemod.com/

CARB, Maps and Tables of Area Designations for State and National Ambient Air Quality Standards, https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2022/sad2022/appc.pdf

California Air Resources Board (CARB), Air Toxics Response Team, Personal communication, July 18, 2024.

California Air Resources Board (CARB). 2024. iADAM: Air Quality Data Statistics. https://www.arb.ca.gov/adam, Accessed December 11, 2024.

Sacramento Metropolitan Air Quality Management District (SMAQMD), SMAQMD Harbor Craft, Dredge, and Barge Emission Factor Calculator, June 2017, Accessed at: https://www.airquality.org/LandUseTransportation/Documents/SMAQMD_HC_Calculator_30Jun2017_v1_0.xlsx

Ventura County Air Pollution Control District (VCAPCD), Ventura County Air Quality Assessment Guidelines, October 2023, http://www.vcapcd.org/pubs/Planning/VCAQGuidelines.pdf

Appendix A

CalEEMod Output Files

I. CalEEMod Project Construction Emissions Output (21 pages)
II. SMAQMD Harbor Craft, Dredge, and Barge Emission Factor Calculator – Main Engine Emission Rates (1 page)

Ventura Harbor West Marina Water Side Detailed Report

Table of Contents

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	Ventura Harbor West Marina Water Side
Construction Start Date	1/5/2026
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	3.20
Precipitation (days)	2.20
Location	34.246666752216, -119.2604533065985
County	Ventura
City	Ventura
Air District	Ventura County APCD
Air Basin	South Central Coast
TAZ	3415
EDFZ	8
Electric Utility	Southern California Edison
Gas Utility	Southern California Gas
App Version	2022.1.1.29

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
Unenclosed Parking Structure	12.5	Acre	12.5	133,970	0.00	0.00	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.62	0.52	4.45	4.79	0.01	0.18	0.32	0.50	0.17	0.08	0.24	—	1,447	1,447	0.05	0.05	1.44	1,465
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.63	0.53	4.77	4.89	0.01	0.18	0.32	0.50	0.17	0.08	0.24	—	1,438	1,438	0.05	0.05	0.04	1,454
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.44	0.37	3.19	3.33	0.01	0.13	0.22	0.35	0.12	0.05	0.17	—	1,020	1,020	0.03	0.04	0.44	1,032
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.08	0.07	0.58	0.61	< 0.005	0.02	0.04	0.06	0.02	0.01	0.03	—	169	169	0.01	0.01	0.07	171

2.2. Construction Emissions by Year, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	0.62	0.52	4.45	4.79	0.01	0.18	0.32	0.50	0.17	0.08	0.24	—	1,447	1,447	0.05	0.05	1.44	1,465

Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	0.63	0.53	4.77	4.89	0.01	0.18	0.32	0.50	0.17	0.08	0.24	—	1,438	1,438	0.05	0.05	0.04	1,454
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	0.44	0.37	3.19	3.33	0.01	0.13	0.22	0.35	0.12	0.05	0.17	—	1,020	1,020	0.03	0.04	0.44	1,032
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	0.08	0.07	0.58	0.61	< 0.005	0.02	0.04	0.06	0.02	0.01	0.03	—	169	169	0.01	0.01	0.07	171

3. Construction Emissions Details

3.1. Demolition (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.52	0.43	4.12	3.57	0.01	0.18	—	0.18	0.16	—	0.16	—	976	976	0.04	0.01	—	980
Demolition	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road	0.02	0.02	0.17	0.15	< 0.005	0.01	—	0.01	0.01	—	0.01	—	40.1	40.1	< 0.005	< 0.005	—	40.3
Demolition	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.03	0.03	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	6.64	6.64	< 0.005	< 0.005	—	6.67
Demolition	—	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.08	0.10	1.06	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	251	251	< 0.005	0.01	0.03	254
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.03	0.01	0.55	0.26	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.02	—	211	211	0.01	0.03	0.01	221
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.04	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	10.4	10.4	< 0.005	< 0.005	0.02	10.5
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	8.65	8.65	< 0.005	< 0.005	0.01	9.08
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.72	1.72	< 0.005	< 0.005	< 0.005	1.74
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	1.43	1.43	< 0.005	< 0.005	< 0.005	1.50

3.3. Building Construction (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.52	0.43	4.12	3.57	0.01	0.18	—	0.18	0.16	—	0.16	—	976	976	0.04	0.01	—	980
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.52	0.43	4.12	3.57	0.01	0.18	—	0.18	0.16	—	0.16	—	976	976	0.04	0.01	—	980
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.35	0.29	2.75	2.38	0.01	0.12	—	0.12	0.11	—	0.11	—	653	653	0.03	0.01	—	655
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipm	0.06	0.05	0.50	0.44	< 0.005	0.02	—	0.02	0.02	—	0.02	—	108	108	< 0.005	< 0.005	—	108
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.08	0.08	1.17	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	262	262	< 0.005	0.01	0.98	266
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	< 0.005	0.25	0.05	< 0.005	< 0.005	0.06	0.06	< 0.005	0.02	0.02	—	208	208	< 0.005	0.03	0.46	219
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.08	0.10	1.06	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	251	251	< 0.005	0.01	0.03	254
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	< 0.005	0.26	0.05	< 0.005	< 0.005	0.06	0.06	< 0.005	0.02	0.02	—	208	208	< 0.005	0.03	0.01	218
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.05	0.06	0.71	0.00	0.00	0.17	0.17	0.00	0.04	0.04	—	169	169	< 0.005	0.01	0.28	171
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.17	0.04	< 0.005	< 0.005	0.04	0.04	< 0.005	0.01	0.01	—	139	139	< 0.005	0.02	0.13	146
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.13	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	27.9	27.9	< 0.005	< 0.005	0.05	28.3
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	23.1	23.1	< 0.005	< 0.005	0.02	24.2

4. Operations Emissions Details

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Remove	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Demolition	Demolition	1/5/2026	1/23/2026	5.00	15.0	—
Building Construction	Building Construction	1/24/2026	12/31/2026	5.00	244	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Demolition	Forklifts	Diesel	Average	1.00	8.00	139	0.20
Demolition	Cranes	Diesel	Average	1.00	8.00	266	0.29
Building Construction	Cranes	Diesel	Average	1.00	8.00	266	0.29
Building Construction	Forklifts	Diesel	Average	1.00	8.00	139	0.20

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Demolition	—	—	—	—
Demolition	Worker	20.0	18.5	LDA,LDT1,LDT2
Demolition	Vendor	—	10.2	HHDT,MHDT
Demolition	Hauling	22.8	2.30	HHDT

Demolition	Onsite truck	—	—	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	20.0	18.5	LDA,LDT1,LDT2
Building Construction	Vendor	0.00	10.2	HHDT,MHDT
Building Construction	Hauling	1.63	38.0	HHDT
Building Construction	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Non-applicable. No control strategies activated by user.

5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (cy)	Material Exported (cy)	Acres Graded (acres)	Material Demolished (sq. ft.)	Acres Paved (acres)
Demolition	0.00	0.00	0.00	—	—

5.6.2. Construction Earthmoving Control Strategies

Non-applicable. No control strategies activated by user.

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
Unenclosed Parking Structure	12.5	100%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2026	0.00	532	0.03	< 0.005

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit

Temperature and Extreme Heat	10.6	annual days of extreme heat
Extreme Precipitation	4.55	annual days with precipitation above 20 mm
Sea Level Rise	—	meters of inundation depth
Wildfire	9.80	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (Radke et al., 2017, CEC-500-2017-008), and consider inundation location and depth for the San Francisco Bay, the Sacramento-San Joaquin River Delta and California coast resulting different increments of sea level rise coupled with extreme storm events. Users may select from four scenarios to view the range in potential inundation depth for the grid cell. The four scenarios are: No rise, 0.5 meter, 1.0 meter, 1.41 meters
Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	1	0	0	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	0	0	N/A
Wildfire	1	0	0	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	0	0	0	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	1	1	1	2
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	1	1	2
Wildfire	1	1	1	2
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	1	1	1	2

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	24.9
AQ-PM	35.9
AQ-DPM	99.7
Drinking Water	65.5
Lead Risk Housing	34.1
Pesticides	98.3
Toxic Releases	21.1

Traffic	82.7
Effect Indicators	—
CleanUp Sites	20.5
Groundwater	77.5
Haz Waste Facilities/Generators	58.3
Impaired Water Bodies	94.6
Solid Waste	52.9
Sensitive Population	—
Asthma	61.2
Cardio-vascular	27.2
Low Birth Weights	24.3
Socioeconomic Factor Indicators	—
Education	10.3
Housing	35.3
Linguistic	3.74
Poverty	27.6
Unemployment	23.8

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	90.42730656
Employed	94.72603619
Median HI	69.35711536
Education	—
Bachelor's or higher	70.06287694
High school enrollment	100

Preschool enrollment	50.0449121
Transportation	—
Auto Access	48.06877967
Active commuting	45.15590915
Social	—
2-parent households	96.09906326
Voting	87.70691646
Neighborhood	—
Alcohol availability	43.83421019
Park access	81.35506224
Retail density	39.43282433
Supermarket access	57.64147312
Tree canopy	19.32503529
Housing	—
Homeownership	33.61991531
Housing habitability	72.52662646
Low-inc homeowner severe housing cost burden	37.73899654
Low-inc renter severe housing cost burden	88.00205312
Uncrowded housing	85.268831
Health Outcomes	—
Insured adults	59.36096497
Arthritis	6.9
Asthma ER Admissions	39.8
High Blood Pressure	4.9
Cancer (excluding skin)	3.7
Asthma	55.1
Coronary Heart Disease	6.8
Chronic Obstructive Pulmonary Disease	27.0

Diagnosed Diabetes	60.0
Life Expectancy at Birth	71.6
Cognitively Disabled	44.8
Physically Disabled	14.9
Heart Attack ER Admissions	36.7
Mental Health Not Good	74.9
Chronic Kidney Disease	20.1
Obesity	64.2
Pedestrian Injuries	83.4
Physical Health Not Good	61.7
Stroke	26.0
Health Risk Behaviors	—
Binge Drinking	43.3
Current Smoker	74.7
No Leisure Time for Physical Activity	72.6
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	19.7
Children	94.5
Elderly	7.1
English Speaking	98.1
Foreign-born	4.0
Outdoor Workers	13.4
Climate Change Adaptive Capacity	—
Impervious Surface Cover	47.0
Traffic Density	76.9
Traffic Access	23.0
Other Indices	—

Hardship	11.9
Other Decision Support	—
2016 Voting	88.2

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	41.0
Healthy Places Index Score for Project Location (b)	82.0
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	No
Project Located in a Low-Income Community (Assembly Bill 1550)	No
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.
b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

Screen	Justification
Land Use	13,397 linear feet (assumed 10 foot width on average)
Construction: Construction Phases	Approx 1 year of construction (two weeks for demo)
Construction: Off-Road Equipment	data request 2024

Construction: Trips and VMT	10 workers or 20 one way worker trips. 342 one way trips for demolition going 4.3 miles per trip to gold coast recycling. 200 incoming haul trips or 400 one way trips for incoming dock materials (38 miles to air district boundary).

SMAQMD Harborcraft, Dredge and Barge Emission Factor Calculator - Main Engine Emission Rates

Calendar Year: 2026 **Number of Entries:** 2

Vessel/Engine Information								Emission Rates (lb/hr; estimates for each row are totals over the number of engines listed in column J for that row)										Emission Rates for a Single Engine (g/bhp-hr)									
Vessel Name	Vessel Number	Home Port	Vessel Type	Engine Model Year	Engine Rated Power (hp)	Engine Load Factor	Number of engines	PM_{10}	$PM_{2.5}$	NOx	ROG	CO	SO_2	CO_2	CH_4	N_2O	CO_2e	PM_{10}	$PM_{2.5}$	NOx	ROG	CO	SO_2	CO_2	CH_4	N_2O	CO_2e
Support Vessel			Work Boats	2009	60	0.45	1	0.015	0.014	0.342	0.054	0.258	0.000	35.182	0.001	0.000	35.303	0.253	0.227	5.749	0.912	4.327	0.006	591.045	0.024	0.005	593.1
Small Support			Work Boats	2009	25	0.45	1	0.006	0.005	0.133	0.049	0.130	0.000	14.659	0.001	0.000	14.709	0.231	0.208	5.346	1.957	5.259	0.006	591.045	0.024	0.005	593.1

APPENDIX B

Biological Resources Report

Marine Biological Resources Report and Essential Fish Habitat Assessment for the Ventura West Marina Project

March12, 2025

Prepared for:

Leslea Meyerhoff, AICP
Summit Environmental Group, Inc.
Carlsbad, California 92009

Prepared By:

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Marine Taxonomic Services Ltd. 2025. Marine Biological Resource Report and Essential Fish Habitat Assessment for the Ventura West Marina Project. Prepared for Summit Environmental Group, Inc. March 12, 2025.

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Robert Mooney, PhD
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Biologist, Diver, and Report Draft – Mina Sattari, BSc.
Biologist – Eila Miller, BA.
Marine Technician II – Erik Mahan, MAS.

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Marine Biological Resources Report and Essential Fish Habitat Assessment for the Ventura West Marina Project

March 12, 2025

1 Introduction

Marine Taxonomic Services, LTD. (MTS) was contracted by Summit Environmental Group to provide a marine biological assessment and essential fish habitat assessment for the Ventura West Marina Redevelopment Project (Project). MTS completed a survey and analysis of the resources occurring within the designated survey area and prepared the following report on the findings.

1-1 Project Location

Ventura West Marina is located at 1198 Navigator Dr, Ventura, CA 93001. The marina is just inside the entrance channel of Ventura Harbor. Ventura Harbor is located within the City of Ventura and is a 274-acre multiuse recreational and commercial fishing small craft harbor owned and operated by the Ventura Port District (District). The District's property holdings include approximately 122 acres of water area and 152 acres of land. The location of the Project is shown in Figure 1.

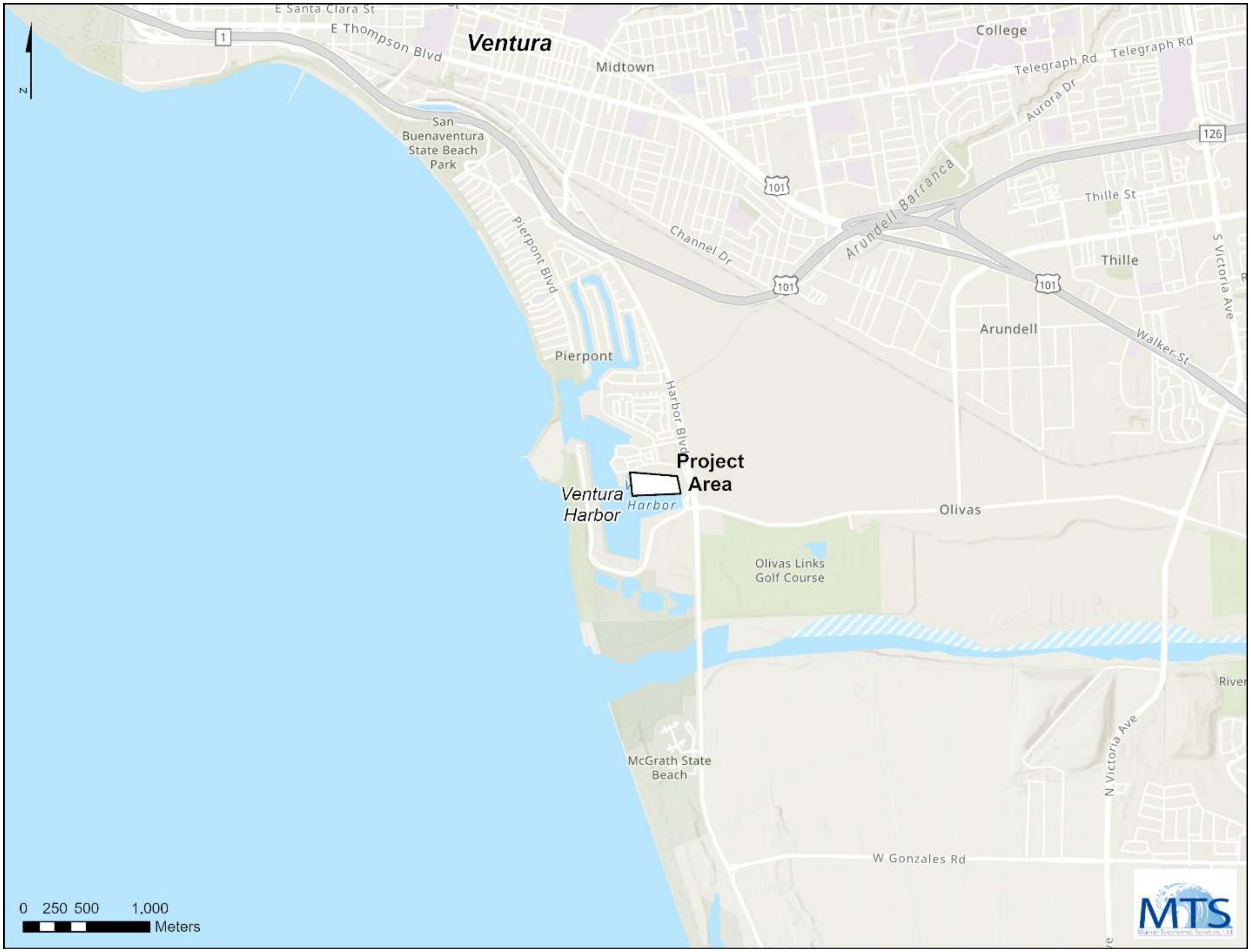

Figure 1. Vicinity map of the Project area at Ventura West Marina.

1-2 Project Background

The TBBW Company, LP (TBBW) is the current master tenant, and original developer, of the 18.5-acre Ventura West Marina located on Ventura Harbor Parcel 17 (APN 080-0-240-325). Ventura Harbor Parcel 17 includes 12.5 acres of waterside amenities which contain the Ventura West Marina and an adjacent 6-acre landside element which contains coastal-related and supportive harbor commercial land uses, marina parking, landscaping, and pedestrian walkways.

TBBW is approaching the 50th year of its partnership with the District. TBBW supports the shared goals of the District to provide first class facilities for recreational boaters, enhanced coastal public access, sustainable and environmentally friendly business operations, and advancement of long-term economic resiliency to sustain the Harbor, City, and the region.

TBBW is currently proposing to redevelop the waterside 12.5 acres of their Parcel 17 leasehold(s). Project need is driven largely by the age and decreasing utility of the existing improvements and infrastructure onsite. Modernization of Parcel 17 waterside structures and facilities is intended to considerably enhance the visitor experience consistent with TBBW, District and City objectives. No changes are currently proposed for the landside portion of Parcel 17 which is currently under study for a land use planning change as part of the City of Ventura General Plan Update that is currently underway.

1-3 Project Description

The Ventura West Marina Redevelopment Project is a proposed redevelopment project of the waterside portion of Parcel 17 within Ventura Harbor. The Project applicant is TBBW. The proposed improvement project is designed to reflect contemporary regional demographics and meet recreational boating demands for larger and wider boat slips, provide more utility infrastructure on the docks and more services and amenities to enhance and improve the experience of recreational boaters, their families, and visitors to Ventura Harbor. The project is also intended to meet the increased demand for coastal public access to the waterfront and provide improved opportunities to participate in no cost and low-cost recreational activities compared to the current, existing facilities and infrastructure. The proposed Project includes the replacement of the existing aged docks and pilings with new state-of-the art docks and pilings. Replacing and upgrading the existing facilities, which are nearing the end of their useful life, are needed to ensure the marina's long-term continuation of operations for boaters, visitors and the general public. Proposed Project goals and objectives include the following:

- Provide upgraded dock facilities to better accommodate, promote, and encourage recreational boating for the general public.
- Provide support facilities and amenities to meet demands of modern recreational boaters.
- Provide enhanced opportunities and facilities to promote opportunities for entry level recreational boaters.
- Create a recreational boating environment emphasizing customer service and family enjoyment.
- Improve coastal public access to the waterfront.
- Create a more energy efficient and more environmentally sustainable marina operation and property

- Provide capital investment on tidelands that incrementally supports the local waterfront economy.

The proposed Project has been designed to state-of-the-art standards by incorporating current environmentally sustainable design features that will contribute to the overall character of the marina and Ventura Harbor. Project benefits include upgraded facilities consistent with current ADA standards, energy efficient energy and wastewater systems, increased recycling facilities, increased public access, and water saving plumbing and irrigation systems. The Project would be completed in a single phase to minimize disruption to the public and the boating community. Construction is planned to occur in 2026 and will take approximately 12 months to complete. TBBW is proposing to redevelop the 12.5-acre waterside portion of the site to include the following elements:

- Remove the existing 45-year-old dock system including all floating elements, submerged piles, and related infrastructure
- Install all new, environmentally sustainable state-of-the art dock systems with a marina slip layout that allows a more diverse range of vessel sizes
- Enhance the existing marina channels to improve navigational flow and accommodate larger vessels
- Average slip size will increase by approximately 1 foot as shown in Table 1
- Total number of slips will change from 387 to approximately 379
- Add new public access and public areas on the docks
- Add electrical charging infrastructure to support electric powered watercraft
- Provide individual wastewater pump out systems for mariners
- Updated dock layout design to ensure compliance with CA Dept. of Boating & Waterways Design Guidelines

Waterside improvements would be located within the existing waterside portion of Parcel 17 and largely retain the current dock footprint. The current marina configuration has approximately 299 piles. It is estimated that all existing piles would be removed, and new piles would be installed.

2 Methods

2-1 Side-Scan Sonar Survey

The side-scan sonar survey was performed by navigating a small vessel along a series of transects through the Project site. Multiple transects were run through each fairway, stopping just short of the mainwalk dock structures.

The vessel was fitted with a pole-mounted side-scan sonar operating at 450 kHz. The sonar was set to scan 30 meters on both the port and starboard sides of the vessel for a total scanning swath of 60 meters. Multiple side-scan sonar survey transects within close proximity to one another were navigated within each survey location. The survey extent is provided in Figure 2.

Figure 2. Map showing extent of the Project survey area.

2-2 SCUBA Survey

Two divers surveyed the Project site to identify habitats and species present in different areas. One diver verified the side-scan sonar results by inspecting locations where sonar returns were detected on the seafloor. This diver towed a surface buoy equipped with a satellite-based augmentation system (SBAS) GPS with sub-meter accuracy.

The divers confirmed that the shallow area at the toe of the riprap lacked eelgrass and mapped the riprap extent with the help of a dive tender, who used a handheld tablet with mapping software connected via Bluetooth to the SBAS GPS.

As they swam through the Project site, the divers recorded species and habitat observations on a dive slate. In addition to assessing bottom-associated habitats, they examined a subset of the facility's pilings and floating dock structures to document species inhabiting these surfaces. Underwater photographs were utilized to identify species that couldn't be identified in-situ.

2-3 Sensitive Species and Essential Fish Habitat Assessment

A detailed assessment was conducted to determine any sensitive species holding special or protected status that may occur within, or adjacent to, the designated Project site. Species lists provided by the US Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS) (USFWS 2023 and NMFS 2025a) were evaluated for sensitive species near the Project site. An analysis of the range and habitat preferences of those species was conducted through literature review. An Essential Fish Habitat (EFH) assessment was conducted through EFH GIS mapping software regularly maintained and updated by NOAA Fisheries (NMFS 2025b). Analysis of the requirements of those habitats was performed via literature review.

3 Results

3-1 Marine Habitats Surveyed

The majority of the Project site consisted of unvegetated soft-bottom habitat (Figure 3). Other habitats identified include riprap, dock pilings, and dock floats. Notable fauna observed includes 23 invertebrate species, 7 marine vertebrate species, 2 marine mammals, 4 avian species, and 7 species of marine algae (Table 1).

Figure 3. Map showing marine habitats observed within the survey area at Ventura West Marina.

Table 1. List of species observed during marine biological assessment survey.

Common Name	Scientific Name	Conservation Status
Marine Algae		
Articulated coralline algae	*Corallina* sp.	Not Listed
Brown algae	*Dictyota flabellata*	Not Listed
Green cushion pin algae	*Cladophora columbiana*	Not Listed
Japanese wireweed	*Sargassum muticum*	Non-Native
Red filamentous algae	*Polysiphonia nigrescens*	Not Listed
Sea lettuce	*Ulva* sp.	Not Listed
Wakame	*Undaria pinnatifida*	Non-Native
Marine Invertebrates		
Acorn barnacle	*Balanus glandula*	Not Listed
Anemone	*Diadumene* spp.	Not Listed
Bay mussel	*Mytilus californianus*	Not Listed
Bryozoan	*Amathia verticillata*	Non-Native
California aglaja	*Navanax inermis*	Not Listed
Clubbed tunicate	*Styela clava*	Not Listed
Elephant ear sponge	*Haliclona edaphus*	Not Listed
Encrusting bryozoan	*Reginella hippocrepis*	Not Listed
Hydroids	*Aglaophenia* sp.	Not Listed
Limpets	*Lottia* spp.	Not Listed
Mulliner's dorid	*Peltodoris mullineri*	Not Listed
Orange sponge	*Antho lambei*	Not Listed
Orange puffball sponge	*Tethya aurantium*	Not Listed
Pacific oyster	*Crossostrea gigas*	Non-Native
Pleated sea squirt	*Styela plicata*	Not Listed
Red Chip Bryozoan	*Watersipora subtorquata*	Non-Native
Scallop	Pectinidae	Not Listed
Solitary tunicate	*Ciona Robusta*	Not Listed
Sponges	*Haliclona* spp.	Not Listed
Stalked tunicate	*Styela montereyensis*	Not Listed
Tube worm	Sabellidae	Not Listed
Tube worm	Spirorbidae	Not Listed
Yellow sponge	*Polymastia pachymastia*	Not Listed
Marine Vertebrates		
Bat Ray	*Myliobatis californica*	Least Concern
Bay Pipefish	*Sygnathus californiensis*	Least Concern
Jacksmelt Silverside	*Antherinopsis californiensis*	Least Concern
Opaleye	*Girella nigricans*	Least Concern
Round ray	*Urobatis halleri*	Least Concern
Topsmelt Silverside	*Atherinops affinis*	Least Concern
Yellowfin Goby	*Acanthogobias flavimanus*	Least Concern
Marine Mammals		
Bottlenose dolphin	*Tursiops truncatus*	Least Concern
California sea lion	*Zalophus californianus*	Least Concern

Seabirds		
Great blue heron	*Ardea herodias*	Least Concern
Snowy Egret	*Adrea alba*	Least Concern
Double-crested cormorant	*Phalacrocorax auritus*	Least Concern
Mallard	*Anas platyrhynchos*	Least Concern

3-1.1 Soft Bottom

The soft-bottom habitat was unvegetated and consisted of primarily mud substrate. Species observed in this region were primarily pelagic and not observed on the seafloor. The primary fauna were round rays (*Urobatis halleri*) and bat rays (*Myliobatis californica*). A large group of bat rays, or a fever, were observed swimming throughout the Project site. Schooling fish species topsmelt silverside (*Atherinops affinis*), and jacksmelt silverside (*Atherinopsis californiensis*). Other pelagic species observed swimming over the soft-bottom habitat included bottlenose dolphins (*Tursiops truncatus*), and California sea lions (*Zalophus californianus*).

3-1.2 Piles

Dock piles within the Project site were primarily square concrete pilings, with the mainwalk pilings being round steel pilings. Generally, the piles were host to invertebrate and algal species that commonly foul anthropogenic substrates and the concrete piles were more diverse than the steel piles (Figure 4). The bottoms of piles were host to species such as tube worms (Sabellidae), pleated sea squirts (*Styela plicata*), orange sponge (*Antho lambei*), elephant ear sponge (*Haliclona edaphus*), orange puffball sponge (*Tethya aurantum*), Mulliner's dorid (*Peltodoris mullineri*), bay pipefish (*Sygnathus californiensis*), and 2 non-native bryozoan species (*Amathia verticillata* and *Watersipora subtorquata*). The middle section of piles were host to sea lettuce (*Ulva* sp.), *Amathia verticillata,* Mulliner's dorid, spirorbid tube worms (Spirorbidae), pleated sea squirts, stalked tunicate (*Styela montereyensis*), bay mussel (*Mytilus californianus*), elephant ear sponge (*Haliclona edaphus*) yellow sponge (*Polymastia pachymastia*), and other sponges (*Haliclona* spp.). The tops of pilings were host to acorn barnacles (Balanus glandula), spirorbid tube worms, sponges, red filamentous algae (*Polysiphonia nigrescens*), and non-native wakame (*Undaria pinnatifida*).

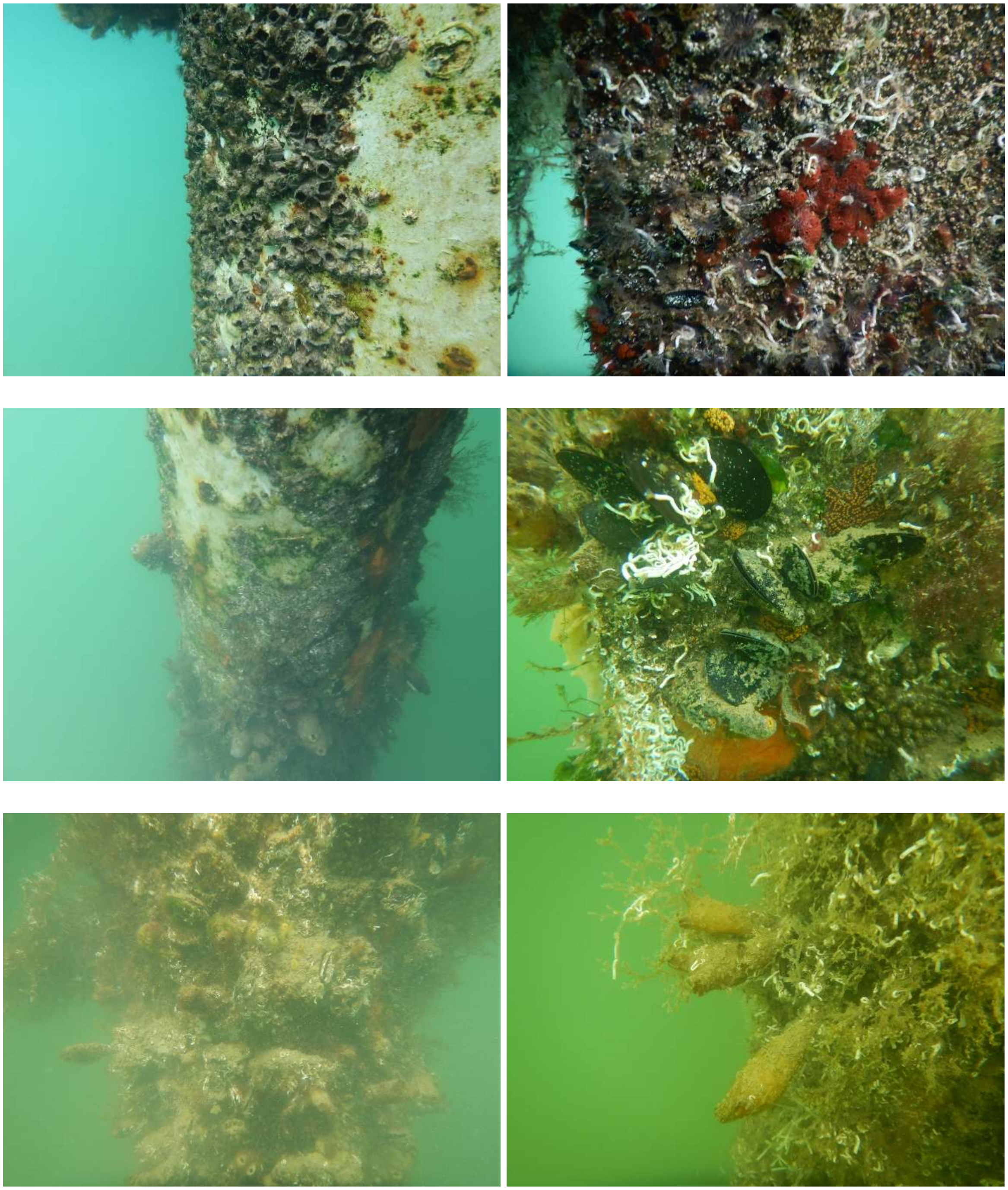

Figure 4. Representative photos of piles, with the tops shown in the upper images, middles in center images, and bottoms in the lower images. Steel piles are displayed on the left, and concrete piles on the right.

3-1.3 Dock Floats

The floating dock structures within the Project site were host to typical fouling marine species in southern California (Figure 5). Marine algae on dock floats was dominated by sea lettuce, filamentous red algae, brown algae (*Dictyota flabellata* and *Dictyota binghamiae*), and other unidentified turf algae. Marine invertebrates were dominated by small anemones (*Diadumene* spp.), solitary tunicates (*Ciona robusta*), clubbed tunicates (*Styela clava*), stalked tunicates (*Styela montereyensis*), tube worms (Spirorbidae and Sabellidae), limpets (*Lottia* spp.), and a few California aglaja (*Navanax inermis*).

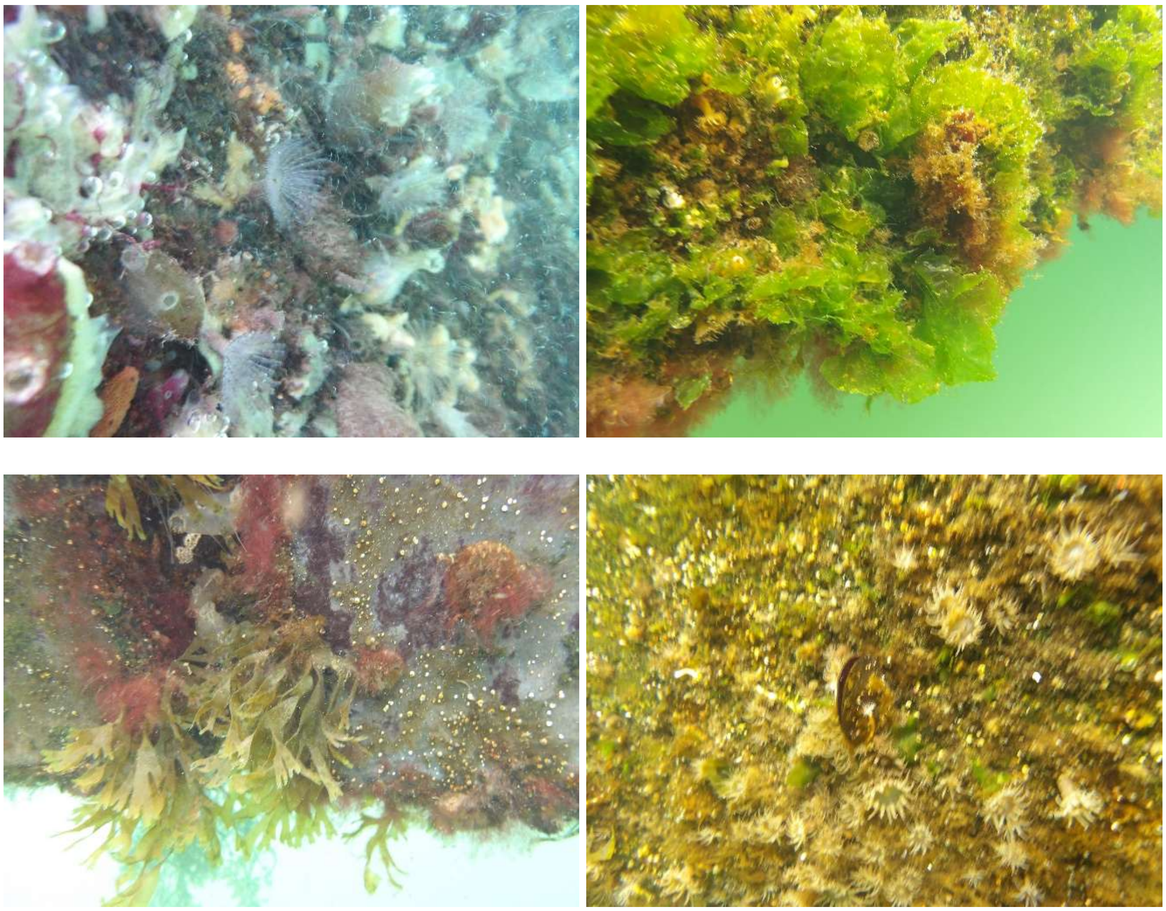

Figure 5. Representative photos of marine species on dock floats.

3-1.4 Riprap

Riprap revetment lined the shoreline of the marina and was host to typical fouling species (Figure 6). Several small schools of jacksmelt silverside (*Antherinops affinis*) and opaleye (*Girella nigricans*) were observed swimming over the riprap. Other marine vertebrates observed included yellowfin goby (*Acanthogobias flavimanus*) and round rays (*Urobatis halleri*). Invertebrates observed in the intertidal portion of the revetment included bay mussels, small anemones, limpets (*Lottia* spp.), Pacific oysters (*Crassostrea gigas*), and scallops (Pectinidae). Marine algae in the intertidal portion of revetment included green pin cushion algae (*Cladophora columbiana*) and sea lettuce. Invertebrate species in the subtidal potions of revetment included sponges (*Haliclona* spp.), encrusting bryozoan (*Reginella hippocrepsis*), stalked tunicates, round rays, and pleated sea squirts. Marine algae in this subtidal region was dominated by the non-native Japanese wireweed (*Sargassum muticum*).

Figure 6. Representative photos of marine species on riprap revetment.

3-2 Eelgrass Results

The Project site was negative for eelgrass, no eelgrass was observed by the side-scan sonar survey or the diver survey.

3-3 Sensitive Species

In addition to accounting for all marine species identified during the field survey, an exhaustive assessment was also conducted to determine other sensitive species holding special or protected status that may occur within, or adjacent to, the designated Project site. Based on species lists provided by USFWS and NMFS (USFWS 2023 and NMFS 2025), an analysis of the range and habitat preferences of sensitive species that have a potential to occur within or nearby the Project site was completed (Table 2).

Protected, rare, threatened, or endangered species that may occur within this region include California brown pelican (Protected under Migratory Bird Treaty Act and California Fish and Game Code). Mammals protected under the Marine Mammal Protection Act and likely to occur in Ventura Harbor include California sea lion (*Zalophus californianus*), common bottlenose dolphin (*Tursiops truncatus*), and harbor seal (*Phoca vitulina*). Considerations for these species, along with other commonly protected species, are detailed in the sections below.

Table 2. Special status and protected species with the potential to occur within or near the study area (USFWS 2023 and NMFS 2025).

Common Name	Species Name	Conservation Status	Likelihood to Occur
Marine Mammals			
Baird's Beaked Whale	*Berardius bairdii*	Protected	Unlikely
Blainville's Beaked Whale	*Mesoplodon densirostris*	Protected	Unlikely
Blue Whale	*Balaenoptera musculus*	Endangered	Unlikely
Bryde's Whale	*Balaenoptera edeni*	Protected	Unlikely
California Sea Lion	*Zalophus californianus*	Protected	Likely
Common Bottlenose Dolphin	*Tursiops truncatus*	Protected	Likely
Cuvier's Beaked Whale	*Ziphius cavirostris*	Protected	Unlikely
Dall's Porpoise	*Phocoenoides dalli*	Protected	Unlikely
Dwarf Sperm Whale	*Kogia sima*	Protected	Unlikely
False Killer Whale	*Pseudorca crassidens*	Protected	Unlikely
Fin Whale	*Balaenoptera physalus*	Endangered	Unlikely
Gray Whale	*Eschrichtius robustus*	Endangered	Unlikely
Guadalupe Fur Seal	*Arctocephalus townsendi*	Threatened	Unlikely
Harbor Porpoise	*Phocoena phocoena*	Protected	Unlikely
Harbor Seal	*Phoca vitulina*	Protected	Possible
Humpback Whale	*Megaptera novaeangliae*	Endangered	Unlikely
Killer Whale	*Orcinus orca*	Endangered	Unlikely
Long-Beaked Common Dolphin	*Delphinus capensis*	Protected	Possible
Melon-Headed Whale	*Peponocephala electra*	Protected	Unlikely
Minke Whale	*Balaenoptera acutorostrata*	Protected	Unlikely
North Pacific Right Whale	*Eubalaena japonica*	Endangered	Unlikely
Northern Elephant Seal	*Mirounga angustirostris*	Protected	Unlikely
Northern Fur Seal	*Callorhinus ursinus*	Protected	Unlikely
Northern Right Whale Dolphin	*Lissodelphis borealis*	Protected	Unlikely

Pacific White-Sided Dolphin	*Lagenorhynchus obliquidens*	Protected	Possible
Pygmy Sperm Whale	*Kogia breviceps*	Protected	Unlikely
Risso's Dolphin	*Grampus griseus*	Protected	Unlikely
Rough-Toothed Dolphin	*Steno bredanensis*	Protected	Unlikely
Sei Whale	*Balaenoptera borealis*	Endangered	Unlikely
Short-Beaked Common Dolphin	*Delphinus delphis*	Protected	Possible
Short-Finned Pilot Whale	*Globicephala macrorhyncus*	Endangered	Unlikely
Sperm Whale	*Physeter macrocephalus*	Endangered	Unlikely
Spinner Dolphin	*Stenella longirostris*	Protected	Unlikely
Stejneger's Beaked Whale	*Mesoplodon stejnegeri*	Endangered	Unlikely
Steller Sea Lion	*Eumetopias jubatus*	Endangered	Unlikely
Striped Dolphin	*Stenella coeruleoalba*	Protected	Unlikely
Sea Turtles			
Green Turtle	*Chelonia mydas*	Threatened	Unlikely
Leatherback Turtle	*Dermochelys coriacea*	Endangered	Unlikely
Loggerhead Turtle	*Caretta caretta*	Endangered	Unlikely
Olive Ridley Turtle	*Lepidochelys olivacea*	Endangered	Unlikely
Birds			
California Condor	*Gymnogyps californianus*	Endangered	Unlikely
California Least Tern*	*Sterna antillarum browni*	Endangered	Possible
Least Bell’s Vireo	*Vireo bellii pusillus*	Endangered	Unlikely
Yellow-billed Cuckoo	*Coccyzus americanus*	Threatened	Unlikely
California Brown Pelican**	*Pelecanus occidentalis*	Delisted	Likely

3-3.1 Observed Marine Mammals

Two sensitive marine mammal species were observed within the Project site during the survey, common bottlenose dolphin and California sea lion. Two juvenile bottlenose dolphins were observed swimming in the fairways and beneath the slips of the marina. Additionally, marina residents reported frequent sightings of these dolphins in the weeks surrounding the survey. While dolphin presence is not typical in highly modified shoreline environments, their documented occurrences suggest they are likely to be present in the area. California sea lions were observed resting on docks and docked vessels. As they are commonly seen within Ventura Harbor, their confirmed presence in the marina further supports their likely occurrence.

3-3.2 Potential Marine Mammals

Harbor seals are also considered possible within the Project site due to the proximity of known rookeries in the Channel Islands (to the west) and Carpinteria (to the north). Given that harbor seals frequently utilize harbors, their presence in the area is plausible.

Other dolphin species may also occur, as they have the potential to travel through the area. However, whale species are not expected to enter the Project site. Nonetheless, whales and dolphins have a low probability of occurring within the site itself, they may be present within acoustic zones of influence, particularly during pile driving activities.

3-3.3 Avian Species Considerations

The closest California Least Tern (*Sternula antillarum browni*, CLT) nesting site is at Ormond Beach 9.83 mi (15.82 km) south of the Project site. Estimates of foraging distance vary by location and have been summarized by Harvey and Associates (2012). Atwood and Minsky (1983) found that 60% of foraging trips were limited to within 2 miles of nesting sites. Steinbeck et al. (2005) found 91% of surveyed birds within 3.5 miles of the colony and 98% within 4 miles. Typical foraging habitat is within two miles of colony sites in relatively shallow nearshore ocean waters in the vicinity of major river mouths so there is a low likelihood for California least terns to forage within and near the Project site. Given the distance of the Project site from the Ormond Beach nesting area, the likelihood of CLTs foraging within or near the marina is low, despite the presence of forage fish such as jacksmelt and topsmelt.

California brown pelicans were delisted from the federal list of endangered and threatened wildlife in 2009, however this species is still considered to be sensitive and is protected under the Migratory Bird Treaty Act. These birds nest in the nearby Channel Islands and frequently loaf and forage in marina habitats. Thus, there is potential for them to be observed on and over waters within the Project site.

Other piscivorous avian species were observed within the Project site including great blue heron (*Ardea herodias*), snowy egret (*Ardea alba*), and double-crested cormorant (*Nannopterum auritum*).

3-3.4 Green Sea Turtle Considerations

The shoreline region between Santa Monica Bay and Point Conception has been designated as a low-conservation-value area for green sea turtles (*Chelonia mydas*, GST). This area has been classified primarily as a foraging and resting zone under the critical habitat assessment currently under review (NMFS 2023). Few sightings and strandings have been recorded in this region (NMFS 2023). North of Point Conception, GST critical habitat is no longer recommended for designation due to suboptimal conditions, as water temperatures prevent long-term residency. GST occurrences are also unlikely in the region just south of Point Conception. The absence of seagrass habitat and the modified nature of the marina further reduce the likelihood of GST presence in the area.

4 Essential Fish Habitat Assessment

This section provides an Essential Fish Habitat Assessment for EFH located within the designated Project site. This EFH includes an evaluation of proposed actions from the Project that could potentially impact EFH. The following section discusses the legal background and purpose of an EFH for managed species, fisheries, and Habitat Areas of Particular Concern (HAPCs) with potential to occur within the Project Site.

4-1 Essential Fish Habitat Background

The following EFH assessment for the proposed Project is provided in accordance with the 1996 amendments to the Magnuson-Stevens Fishery Management and Conservation Act (MSA) (Code of Federal Regulations (CFR) Title 50, Chapter VI, Part 600). The amendments require the delineation of "essential fish habitat" for all managed species. Federal action agencies which fund, permit, or carry out activities that may adversely impact EFH are required to consult with the NMFS regarding the potential effects of their actions on EFH and respond in writing to the NMFS's recommendations.

The MSA defines EFH as "those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity." For the purpose of interpreting the definition of essential fish habitat: "waters" includes aquatic areas and their associated physical, chemical, and biological properties that are used by fish and may include aquatic areas historically used by fish where appropriate; "substrate" includes sediment, hard bottom, structures underlying the waters, and associated biological communities; "necessary" means the habitat required to support a sustainable fishery and the managed species' contribution to a healthy ecosystem; and "spawning, breeding, feeding, or growth to maturity" covers a species' full life cycle. A healthy ecosystem is defined under the MSA as, "an ecosystem where ecological productive capacity is maintained, diversity of the flora and fauna is preserved, and the ecosystem retains the ability to regulate itself".

The purpose of this EFH assessment is to comprehensively identify and analyze EFH occurring within the designated study area so that federal agencies can best determine whether the proposed Project would adversely affect designated EFH and identify possible conservation measures to avoid, minimize, or otherwise offset potential adverse effects to EFH. The MSA requires consultation for all federal agency actions that may adversely affect EFH. EFH consultation with NMFS is required by federal agencies undertaking, permitting, or funding activities that may adversely affect EFH, regardless of its location. Under Section 305(b)(4) of the MSA, NMFS is required to provide EFH conservation and enhancement recommendations to federal and state agencies for actions that adversely affect EFH. As such, the following EFH assessment, which includes an analysis of species managed by the Pacific Fishery Management Council (PFMC) that are known to utilize EFH within the study area, and an analysis of potential HAPCs within the study area, will provide all the information necessary for NMFS to conduct any future EFH consultations for the proposed Project.

4-2 Managed Fisheries with the Potential to Occur Within the Project Site

To adequately address EFH within the Project site, fish species managed by the PFMC that are known to either occur within the study area, have historically occurred within the study area, or depend upon those marine habitats that are known to occur within study area, were identified. This was accomplished through a thorough analysis of the habitat requirements of managed fish species

(McCain et al. 2005 and Love et al. 2002), and by running an analysis using the latest EFH GIS software regularly maintained and updated by NOAA Fisheries (NMFS 2025). In all, 92 fish species managed by the PFMC were identified, including species managed under the Coastal Pelagic Species Fisheries Management Plan (FMP), which includes the Finfish FMP (Table 3), and species managed under the Pacific Groundfish FMP (Table 4). No species listed in the below tables were observed during the survey effort. However, jacksmelt were observed, which have been designated by the FMP as ecosystem component species along with Pacific herring (PFMC 2023).

Table 3. Fish species managed under the Coastal Pelagic Species FMP occurring within the study area.

Common Name	Species Name
Pacific sardine	*Sardinops sagax*
Pacific (chub) mackerel	*Scomber japonicus*
Northern anchovy	*Engraulis mordax*
Market squid	*Doryteuthis opalescens*
Jack mackerel	*Trachurus symmetricus*
Krill	*Euphausia pacifica* and *Thysanoessa spinifera*

Table 4. Fish species managed under the Pacific Coast Groundfish FMP.

Common Name	Species Name
Elasmobranchs	
Big skate	*Raja binoculata*
Leopard shark	*Triakis semifasciata*
Longnose skate	*Raja rhina*
Spiny dogfish	*Squalus suckleyi*
Roundfish	
Cabezon	*Scorpaenichthys marmoratus*
Kelp greenling	*Hexagrammos decagrammus*
Lingcod	*Ophiodon elongatus*
Pacific cod	*Gadus macrocephalus*
Pacific whiting (hake)	*Merluccius productus*
Sablefish	*Anoplopoma fimbria*
Rockfish	
Aurora rockfish	*Sebastes aurora*
Bank rockfish	*S. rufus*
Black rockfish	*S. melanops*
Black and yellow rockfish	*S. chrysomelas*
Blackgill rockfish	*S. melanostomus*
Blackspotted rockfish	*S. melanostictus*
Blue rockfish	*S. mystinus*
Bocaccio	*S. paucispinis*
Bronzespotted rockfish	*S. gilli*
Brown rockfish	*S. auriculatus*
Calico rockfish	*S. dallii*
California scorpionfish	*Scorpaena gutatta*
Canary rockfish	*Sebastes pinniger*
Chameleon rockfish	*S. phillipsi*
Chilipepper rockfish	*S. goodei*
China rockfish	*S. nebulosus*
Copper rockfish	*S. caurinus*

Common Name	Species Name
Cowcod	*S. levis*
Darkblotched rockfish	*S. crameri*
Deacon rockfish	*S. diaconus*
Dusky rockfish	*S. ciliatus*
Dwarf-red rockfish	*S. rufinanus*
Flag rockfish	*S. rubrivinctus*
Freckled rockfish	*S lentiginosus*
Gopher rockfish	*S. carnatus*
Grass rockfish	*S. rastrelliger*
Greenblotched rockfish	*S. rosenblatti*
Greenspotted rockfish	*S. chlorostictus*
Greenstriped rockfish	*S. elongatus*
Halfbanded rockfish	*S. semicinctus*
Harlequin rockfish	*S. variegatus*
Honeycomb rockfish	*S. umbrosus*
Kelp rockfish	*S. atrovirens*
Longspine thornyhead	*Sebastolobus altivelis*
Mexican rockfish	*Sebastes macdonaldi*
Olive rockfish	*S. serranoides*
Pink rockfish	*S. eos*
Pinkrose rockfish	*S. simulator*
Pygmy rockfish	*S. wilsoni*
Pacific Ocean perch	*S. alutus*
Quillback rockfish	*S. maliger*
Redbanded rockfish	*S. babcocki*
Redstripe rockfish	*S. proriger*
Rosethorn rockfish	*S. helvomaculatus*
Rosy rockfish	*S. rosaceus*
Rougheye rockfish	*S. aleutianus*
Sharpchin rockfish	*S. zacentrus*
Shortraker rockfish	*S. borealis*
Shortspine thornyhead	*Sebastolobus alascanus*
Silvergray rockfish	*Sebastes brevispinis*
Speckled rockfish	*S. ovalis*
Splitnose rockfish	*S. diploproa*
Squarespot rockfish	*S. hopkinsi*
Sunset rockfish	*S. crocotulus*
Starry rockfish	*S. constellatus*
Stripetail rockfish	*S. saxicola*
Swordspine rockfish	*S. ensifer*
Tiger rockfish	*S. nigrocinctus*
Treefish	*S. serriceps*
Vermilion rockfish	*S. miniatus*
Widow rockfish	*S. entomelas*
Yelloweye rockfish	*S. ruberrimus*
Yellowmouth rockfish	*S. reedi*
Yellowtail rockfish	*S. flavidus*
Flatfish	
Arrowtooth flounder (turbot)	*Atheresthes stomias*
Butter sole	*Isopsetta isolepis*

Common Name	Species Name
Curlfin sole	*Pleuronichthys decurrens*
Dover sole	*Microstomus pacificus*
English sole	*Parophrys vetulus*
Flathead sole	*Hippoglossoides elassodon*
Pacific sanddab	*Citharichthys sordidus*
Petrale sole	*Eopsetta jordani*
Rex sole	*Glyptocephalus zachirus*
Rock sole	*Lepidopsetta bilineata*
Sand sole	*Psettichthys melanostictus*
Starry flounder	*Platichthys stellatus*

4-3 Habitat Areas of Particular Concern

HAPCs are a discreet subset of habitats within an EFH that are distinguished by characteristics including their high ecological value and vulnerability to anthropogenic stressor. HAPCs are considered high priority areas for conservation, management, or research because they are rare, sensitive, stressed by development, or important to ecosystem function (NMFS 2025). The HAPC designation does not necessitate additional protections or restrictions upon an area, but the help to prioritize and focus conservation efforts (NMFS 2025). Although these habitats are particularly important for healthy fish populations, other EFH areas that provide suitable habitats are also necessary to support and maintain sustainable fisheries and a healthy ecosystem (NMFS 2025). Current HAPC types are estuaries, canopy kelp, seagrass, and rocky reefs.

There were no HAPCs designated within the Project site.

5 Laws and Regulations

5-1.1 Coastal Zone Management Act of 1972

The Coastal Zone Management Act of 1972 is administered by the National Oceanic and Atmospheric Administration's (NOAA) Office of Ocean and Coastal Resource Management, provides for management of the nation's coastal resources and balances economic development with environmental conservation.

The Coastal Zone Management Act outlines two national programs. The National Coastal Zone Management Program includes 34 coastal programs. The goal of these programs are to balance competing land and water issues in the coastal zone. The National Estuarine Research Reserve System creates field laboratories that provide a greater understanding of estuaries and how humans affect them. The overall program objectives of the act are to "preserve, protect, develop, and where possible, to restore or enhance the resources of the nation's coastal zone."

The Coastal Zone Management Act ensures that development projects in coastal areas are designed and permitted in a manner that is consistent with coastal zone land uses, maximizes public health and safety, and ensures that biological resources (e.g., wetlands, estuaries, beaches, and fish and wildlife and their habitat) within the coastal zone are protected. The California Coastal Commission enforces the Coastal Zone Management Act by certifying that any proposed project is consistent with the California Coastal Act of 1976 (as amended). The enforceable policies of the Coastal Zone Management Act are found in Chapter 3 of the California Coastal Act.

5-1.2 Rivers and Harbors Act (Section 10)

The USACE is authorized to regulate any activity within or over any navigable water of the United States pursuant to Section 10 of the Rivers and Harbors Act. Rivers and Harbors Act Section 10 jurisdiction is defined as "those waters that are subject to the ebb and flow of the tide and/or are presently used, or have been used in the past, or may be susceptible for use, to transport interstate or foreign commerce" (33 Code of Federal Regulations 322). The San Diego Bay is considered a traditional navigable water regulated under Section 10 of the Rivers and Harbors Act.

5-1.3 Endangered Species Act of 1973

Species listed as endangered and/or threatened by the USFWS are protected under Section 9 of the federal Endangered Species Act, which forbids any person to "take" an endangered or threatened species. Take is defined in Section 3 of the act as "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." The U.S. Supreme Court ruled in 1995 that the term "harm" includes destruction or modification of habitat. Sections 7 and 10 of the Act may authorize "incidental take" for an otherwise lawful activity (a development project, for example) if it is determined that the activity would not jeopardize survival or recovery of the species. Section 7 applies to projects where a federally listed species is present and there is a federal nexus, such as a federal Clean Water Act (CWA) Section 404 permit (e.g., impacts on waters of the U.S.) that is required. Section 10, requiring an incidental take permit, applies when a federally listed species is present, but there is no federal nexus.

5-1.4 Magnuson-Stevens Fishery Management and Conservation Act, as amended 1996 (Public Law 104-267)

Federal agencies must consult with NOAA Fisheries on actions that may adversely affect EFH. EFH is defined as those "waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity." NOAA Fisheries encourages streamlining the consultation process using review procedures under the National Environmental Policy Act, Fish and Wildlife Coordination Act, the CWA, and/or the federal Endangered Species Act (ESA) provided that documents meet requirements for EFH assessments under Section 600.920(g). EFH assessments must include (1) a description of the proposed action, (2) an analysis of effects, including cumulative effects, (3) the federal agency's views regarding the effects of the action on EFH, and (4) proposed mitigation, if applicable. The EFH is discussed in Section 5 of this report.

5-1.5 Marine Mammal Protection Act of 1972

The Marine Mammal Protection Act (MMPA) of 1972 prohibits, with certain exceptions, the take of marine mammals in U.S. waters and by U.S. citizens on the high seas, and the importation of marine mammals and marine mammal products into the United States. Congress passed the MMPA based on the following findings and policies: (1) some marine mammal species or stocks may be in danger of extinction or depletion as a result of human activities, (2) these species of stocks must not be permitted to fall below their optimum sustainable population level (depleted), (3) measures should be taken to replenish these species or stocks, (4) there is inadequate knowledge of the ecology and population dynamics, and (5) marine mammals have proven to be resources of great international significance.

The MMPA was amended substantially in 1994 to provide for: (1) certain exceptions to the take prohibitions, such as for Alaska Native subsistence, and for permits and authorizations for scientific research; (2) a program to authorize and control the taking of marine mammals incidental to commercial fishing operations; (3) preparation of stock assessments for all marine mammal stocks in waters under U.S. jurisdiction; and (4) studies of pinniped-fishery interactions. Additionally, under the 1994 amendments to the MMPA, harassment is statutorily defined as any act of pursuit, torment, or annoyance that:

- Has the potential to injure a marine mammal or marine mammal stock in the wild (Level A harassment); or
- Has the potential to disturb a marine mammal or marine mammal stock in the wild by causing disruption of behavior patterns, including, but not limited to migration, breathing, nursing, breading, feeding, or sheltering but which does not have the potential to injure a marine mammal or marine mammal stock in the wild (Level B harassment).

NOAA Fisheries and USFWS administer the MMPA. The proposed Project must be analyzed to ensure that marine mammals protected under the MMPA would not be harassed or injured as a result of future activities in or adjacent to waters. Any future Project activities that may result in Level A or B harassment, injury, or mortality would require consultation with NOAA Fisheries and USFWS under the MMPA.

5-1.6 Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) was enacted in 1918 to prohibit the killing or transport of native migratory birds, or any part, nest, or egg of any such bird, unless allowed by another regulation adopted in accordance with the MBTA. Under the MBTA, “take” means to kill, directly harm, or destroy individuals, eggs, or nests or to otherwise cause failure of an ongoing nesting effort. Migratory bird species that are protected by the MBTA is maintained by USFWS, which regulates most aspects of the taking, possession, transportation, sale, purchase, barter, exportation, and importation of migratory birds. The USFWS does not issue permits for “incidental take” of migratory birds that results from otherwise lawful activities such as construction of development projects.

5-1.7 Clean Water Act

The major federal legislation governing water quality is the Federal Water Pollution Control Act Amendments of 1972, commonly known as the CWA (33 United States Code [USC] 1251–1376), as amended by the Water Quality Act of 1987. The intention of the CWA is to “restore and maintain the chemical, physical, and biological integrity of the nation’s waters.” Discharges into waters of the United States (WoUS) are regulated under CWA Section 404 and includes (1) all navigable waters (including all waters subject to the ebb and flow of the tide); (2) all interstate waters and wetlands; (3) all other waters, such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sand flats, wetlands, sloughs, or natural ponds; (4) all impoundments of waters mentioned above; (5) all tributaries to waters mentioned above; (6) the territorial seas; and (7) all wetlands adjacent to waters mentioned above. Important applicable sections of the CWA are discussed below.

- **Section 401** requires any federal permit applicant that proposes an activity that may result in a discharge into WoUS to obtain certification from the state that the discharge will comply with the CWA. A 401 certification is provided by the Regional Water Quality Control Board (RWQCB) assigned to the Project's region. A Section 401 certification from the San Diego RWQCB would be required this Project if a Section 404 permit and Rivers and Harbor Act (Section 10) permit is required.

- **Section 404** certification is required where USACE issues permits for discharge of dredged or fill material into WoUS. These permits typically include conditions to minimize impacts on water quality. Common conditions include: (1) USACE review and approval of sediment quality analysis before dredging; (2) a detailed pre- and post-construction monitoring plan that includes disposal site monitoring; and (3) requiring compensation for loss of WoUS.

5-1.8 California Eelgrass Mitigation Policy

Eelgrass, *Zostera* spp., is protected under the CWA as a habitat forming species and the resource is managed locally under the California Eelgrass Mitigation Policy (CEMP) as developed by NOAA fisheries (NMFS 2014). Additionally, due to the high ecological value of eelgrass as essential fish habitat, eelgrass is also designated as a habitat area of particular concern (HAPC) by NOAA Fisheries. The CEMP requires that an eelgrass survey be performed prior to construction to evaluate the presence of eelgrass and or potential eelgrass habitat.

NMFS has provided this policy to other state and federal agencies, including the California Department of Fish and Wildlife (CDFW), as guidance for handling project-related impacts on eelgrass habitat.

5-2 State

5-2.1 California Coastal Act of 1976

California ports, harbors, and coastline beaches are recognized as primary economic and coastal resources and as essential elements of the national maritime industry by the California Coastal Act of 1976. Decisions to undertake specific development projects are to be based on consideration of alternative locations and designs to minimize any adverse environmental impacts. The California Coastal Act is implemented by the California Coastal Commission (CCC).

5-2.2 California Endangered Species Act; Fully Protected Species

The California Endangered Species Act (CESA) establishes the policy of the State to conserve, protect, restore, and enhance threatened or endangered species and their habitats. Projects that would jeopardize the continued existence of threatened or endangered species if reasonable and prudent alternatives are available should not be approved according to the CESA. For projects that affect both a state- and federally listed species, compliance with the federal ESA will satisfy the CESA if the CDFW determines that the federal incidental take authorization is consistent with the CESA under California Fish and Game Code Section 2080.1. Also, California Fish and Game Code Sections 3511, 4700, 5050, and 5515 prohibit take or possession of fully protected species.

5-2.3 California Fish and Game Code

Other sections of the California Fish and Game Code establish the Fish and Game Commission, as authorized by Article IV, Section 20, of the Constitution of the State of California. Under Sections 200-221 the Fish and Game Commission is responsible for regulating the take of fish and game, not including the taking, processing, or use of fish, mollusks, crustaceans, kelp, or other aquatic plants for commercial purposes. The Fish and Game Commission does regulate aspects of commercial fishing, including fish reduction; shellfish cultivation; take of herring, lobster, sea urchins, and abalone; kelp leases; leases of state water bottoms for oyster allotments; and aquaculture operations. The resource protection is responsible for setting recreational and commercial limits on species collection, collection method, and determines the conditions under which permits, or licenses may be issued or revoked by CDFW. The Fish and Game Commission also oversees the establishment of wildlife areas and ecological reserves and regulates their use and sets policy for CDFW.

CDFW is a state agency that manages native fish, wildlife, plant species, and natural communities for their ecological value and their benefits to people. CDFW oversees the management of marine species through several programs, some in coordination with NMFS and other agencies.

5-2.4 Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act is the California or state equivalent of the federal CWA. It provides for statewide coordination of water quality regulations through the establishment of the State Water Resources Control Board (SWRCB) and nine separate RWQCBs that oversee water quality on a day-to-day basis at the regional/local level. The RWQCB regulates actions involving “discharging waste, or proposing to discharge waste, within any region that could affect the water of the state” (Water Code Section 13260(a)), pursuant to provisions of the Porter-Cologne Act. Waters of the state (WoS) are defined as “any surface water or groundwater, including saline waters, within the boundaries of the state” (Water Code Section 13050 (e)).

The RWQCB regulates WoS under Section 401 of the CWA. This requires states to certify that federally authorized activities comply with state water quality standards. A Water Quality Certification or a waiver must be obtained from the RWQCB if an activity requiring a Section 404 permit would affect WoS. Additionally, the RWQCB issues waste discharge requirements for discharges to WoS for fill of wetlands and other waters that are not regulated by Section 404 of the federal CWA.

6 Potential Impacts and Recommendations

The construction of the Ventura West Marina Redevelopment Project has potential to impact the biological community in and surrounding the Project site. Considerations for overwater coverage, changes in fill, hydroacoustics, and water quality are detailed in the sections below.

6-1 Overwater Coverage

The existing docks have a footprint of 90,400 square feet (sf) whereas the proposed docks have a decreased footprint of 89,000 sf, resulting in a net loss of overwater coverage. The proposed docks decrease the area of cover overwater, however they are in a different configuration than the existing docks. The majority of the existing dock footprint will be retained and the proposed footprint will allow for a more diverse range of vessel sizes and the alteration of the marina channels will improve navigational flow. Since the soft-bottom habitat that comprised the majority of the Project site was unvegetated, the impacts of a change in dock orientation would be de minimis for primary productivity. The net loss of overwater coverage is beneficial to foraging birds, such as the egrets and herons observed at the site, as it increases the area available for foraging. Overall, no recommendations are necessary to mitigate for possible impacts of overwater coverage as the net loss of coverage poses more benefits than losses.

6-2 Changes in Fill

The existing marina is comprised of a total of 299 piles, 14 of which are 12 inch round steel piles, with the other 285 being 12 inch square concrete piles. The new dock configuration reduces the total number of pilings to 183, 90 of which will be 12 inch round steel piles and the other 93 being 14 inch round steel piles, both with HDPE sleeves. The existing piles cover an area of 296.95 sf and the area of the proposed piles is 264.63 sf, resulting in a net decrease in fill as well as number of piles. The decreased ocean fill will increase the amount of benthic habitat available for species to colonize as well as decrease the effects that pilings have on the hydrodynamics of the Project site. The decrease in both the amount of fill and number of piles results in a net benefit.

6-3 Hydroacoustics

Pile driving activities have potential to cause noise disturbance to marine mammals, birds, and fishes. The proposed installation method utilizes vibratory and impact-hammer techniques. The piles will be vibrated first, using the impact hammer to reach final pile tip elevation. Noise levels from both installation methods have the potential to cause either injury or harassment to sensitive marine species. An analysis of hydroacoustic impacts on marine mammals was done by MTS and attached as Appendix X. This noise analysis and monitoring plan assesses the potential impacts to marine mammals and implements a plan to minimize disturbance of the Project on sensitive marine mammals. Such mitigation measures satisfy the requirements of the Marine Mammal Protection Act,

Several sensitive marine and marine-dependent species were observed within the Project area, including bottlenose dolphins, California sea lions, snowy egrets, and great blue herons. Noise from pile driving can impact the behavior of both foraging and nesting birds, so it is recommended that an avian monitoring plan be developed. Bottlenose dolphins do not typically enter marinas, but were observed swimming within the slips of the marina by surveyors and marina residence on different occasions. California sea lions were also observed at the site and frequent areas outside of the Project site that would fall into the acoustic zone of influence. Due to these protected marine mammals being present within and around the site, it is recommended that a marine mammal monitoring plan be developed. This plan may involve monitoring for the presence of marine mammals within the acoustic zone of influence, utilizing a soft-start for pile driving, and limiting the amount of piles driven on a given day. The implementation of an avian monitoring plan and marine mammal monitoring plan will reduce the potential noise impacts on sensitive species.

MTS performed a hydroacoustic evaluation on the impacts of construction generated noise on marine mammals and fishes for this Project and devised a marine mammal and avian monitoring plan based on the results. This report is included as Appendix A.

6-4 Water Quality

Potential water quality impacts may arise from various construction activities including pile removal, pile driving, incidental spills, and vessel operations. Piles will be removed by pulling with a crane, utilizing jetting as necessary while pile driving methods include both vibratory and impact-hammer. These pile activities can increase turbidity within the water column, effectively reducing the clarity of water which can impact foraging activities of piscivorous avian species as well as reducing the amount of light available for primary producers. Vessel operations can also disturb the bottom and increase turbidity via incidental contact with bottom substrate or propeller wash in shallow water. Finally, the inadvertent introduction of pollutants such as fuel, oil, and/or other industrial and mechanical fluids into waters of the U.S., either from construction equipment, landside construction vehicles, construction vessels, and partially completed structures could potentially result in impacts to protected or sensitive species. These potential impacts to water quality would be reduced by the implementation of several Best Management Practices (BMPs). The development of a BMP plan is recommended to include the utilization of silt curtains and booms, implementation of spill kits and containment structures, having depth sounders on all vessels, and educating contractors.

7 Discussion

The biological communities present within the designated study area are typical of the bays and shorelines in the region with some instances of sensitive species. Fish and invertebrate species that were observed during the SCUBA survey are considered common throughout the region and would generally not be put at risk by activities such as those proposed by this Project. However, sensitive marine mammals and piscivorous avian species were observed within the Project site and have potential to be impacted by construction.

There were no Habitats of Particular Concern identified within the Project area. The marine habitat within the Project site is generally composed of subtidal unvegetated soft-bottom with most marine life belonging to fouling communities on artificial structures such as dock floats, pilings, and riprap. Many of the pacific coast groundfish and coastal pelagic fish species are unlikely to occur at the Project site due to the lack of structural complexity and primary food sources. The lack of foundational species decreases the likelihood of these fisheries occurring in the area. Essential Fish Habitat designations at this site do not require any additional protections.

The proposed Project would consist of construction and operational activities in marine environments. Potential construction related impacts on marine resources that could occur from this Project include construction-induced noise impacts, increases in turbidity, and release of particulates and chemicals of concern into U.S. or State waters. It is not anticipated that any permanent operational impacts will occur due to both the area of overwater cover and fill decreasing. Ultimately, the decrease of overwater cover and amount of structural fill pose benefits to the marine environment by increasing the foraging area for piscivorous birds, increasing primary productivity, increasing benthic substrate for colonization, and improving hydrodynamics in the area.

8 References

[Atwood and Minsky 1983] Atwood, J.L. and D.E. Minsky. 1983. Least tern foraging ecology at three major California breeding colonies. Western Birds 14:57-72.

[CWB 2018] California Water Board. 2018. 2018 California Integrated Report (Clean Water Act Section 303(d) List and 305(b) Report). Available at: https://www.waterboards.ca.gov/water_issues/programs/water_quality_assessment/2018_integrated_report.html

[Harvey & Associates 2012] Harvey & Associates. 2012. Least Tern Literature Review and Study Plan Development, Final Report. Prepared for U.S. Army Corps of Engineers, February 2012.

[McCain 2005] McCain, B.B, S.D. Miller, and W.W Wakefield II. 2005. Essential Fish Habitat West Coast Groundfish Appendix B; Part 2: Life History, Geographical Distribution, and Habitat Associations of 82 West J Dock Marine Biological Resources January 2020 12 Coast Groundfish Species (A Literature Review). Seattle, WA: National Marine Fisheries Service, Northwest Fisheries Science Center.

[NMFS 2014] National Marine Fisheries Service. 2014. California Eelgrass Mitigation Policy and Implementing Guidelines. October 2014.

[NMFS 2018] National Marine Fisheries Service. 2018. Technical Guidance for Assessing the Effects of Anthropogenic Sound on Marine Mammal Hearing: Underwater Acoustic Thresholds for Onset of Permanent and Temporary Threshold Shifts. 2018 Revision. Available online at: https://media.fisheries.noaa.gov/dam-migration/tech-memo-acoustic-guidance-20-pdf-508.pdf

[NMFS 2025a] National Marine Fisheries Service. 2025a. NOAA Fisheries ESA Threatened and Endangered List. Available at: https://www.fisheries.noaa.gov/species-directory/threatened-endangered

[NMFS 2025b] National Marine Fisheries Service. 2025b. Essential Fish Habitat: Habitat Areas of Particular Concern (HAPC). Available at: https://www.westcoast.fisheries.noaa.gov/habitat/fish_habitat/hpac.html

[NMFS 2023] National Marine Fisheries Service. 2023. Draft Biological Report for the Designation of Marine Critical Habitat for Six Distinct Population Segments of the Green Turtle, Chelonia mydas. Available at: https://www.fisheries.noaa.gov/s3/2023-07/DraftGreenTurtleCH-BiologicalReport-June2023.pdf

[NOAA 2023] National Oceanic and Atmospheric Administration. 2023. U.S. Pacific Marine Mammal Stock Assessments:2022. Available at: https://media.fisheries.noaa.gov/2023-08/Final-2022-Pacific-SAR.pdf

[PFMC 2023] Pacific Fishery Management Council. 2023. Coastal Pelagic Species Fishery Management Plan. Available at: https://www.pcouncil.org/documents/2023/06/coastal-pelagic-species-fishery-management-plan.pdf/

[PFMC 2022] Pacific Fishery Management Council. 2022. Pacific Coast Groundfish Fishery Management Plan. Available at: https://www.pcouncil.org/documents/2022/08/pacific-coast-groundfish-fishery-management-plan.pdf/

[Steinbeck et al. 2005] Steinbeck, J.R., C.P. Ehler, J.E. Roth, M.L. Elliot, A. Abraham, W.J. Sydeman, and A. Ziodis. 2005. Oakland Harbor Deepening Project (-50’): Least Tern, Fish, and Plume Monitoring Final Report, Project Year 2004. Tetra Tech, Inc., San Francisco, California. March 2005.

[USQ FTWS 2006] United States Fish and Wildlife Service. 2006. California least tern (Sternula antillarum browni) 5-year review summary and evaluation. Prepared by U.S. Fish and Wildlife Service Carlsbad Fish and Wildlife Office. Carlsbad, California. Sept 2006.

[USQ FTWS 2025] US Fish and Wildlife Service. 2025. IPaC: Information for Planning and Consultation. Available at: https://ecos.fws.gov/ipac/location/index

Noise Analysis and Monitoring Plan for the Ventura West Marina Project

May 16, 2025

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Noise Analysis and Monitoring Plan for the Ventura West Marina Project

May 16, 2025

1 Introduction

Marine Taxonomic Services Ltd. (MTS) was contracted by Summit Environmental Group to provide a hydroacoustic analysis and monitoring plan for the Ventura West Marina Redevelopment Project (Project) (Figure 1).

The intent of the hydroacoustic analysis is to provide an assessment of potential underwater sound levels generated by planned construction activities involved with the Project. This assessment is based on information provided by project designers consisting of draft pile layout sheet and estimated pile-driving data. This assessment focuses on the sound impacts associated with potential pile-driving activities that could affect marine mammals and other species. This assessment does not address environmental airborne noise impacts that affect people associated with the Project. An assessment of noise impacts on people was developed by RCHGROUP Planning & Environmental Consulting (RCHGROUP 2025).

Additionally, this document provides a monitoring plan for marine mammals and sensitive avian species. The marine mammal monitoring plan was developed based on the results of the acoustic analysis which determines zones of influence for various construction activities on marine mammals. The avian monitoring plan is a generalized survey plan developed by MTS biologists based on prior avian monitoring experience and proposed construction elements. Any additional avian survey requirements required by regulatory authorities should be adhered to.

1-1 Project Location

Ventura West Marina is located at 1198 Navigator Dr, Ventura, CA 93001. The marina is just inside the entrance channel of Ventura Harbor. Ventura Harbor is located within the City of Ventura and is a 274-acre multiuse recreational and commercial fishing small craft harbor owned and operated by the Ventura Port District (District). The District's property holdings include approximately 122 acres of water area and 152 acres of land. The location of the Project is shown in Figure 1.

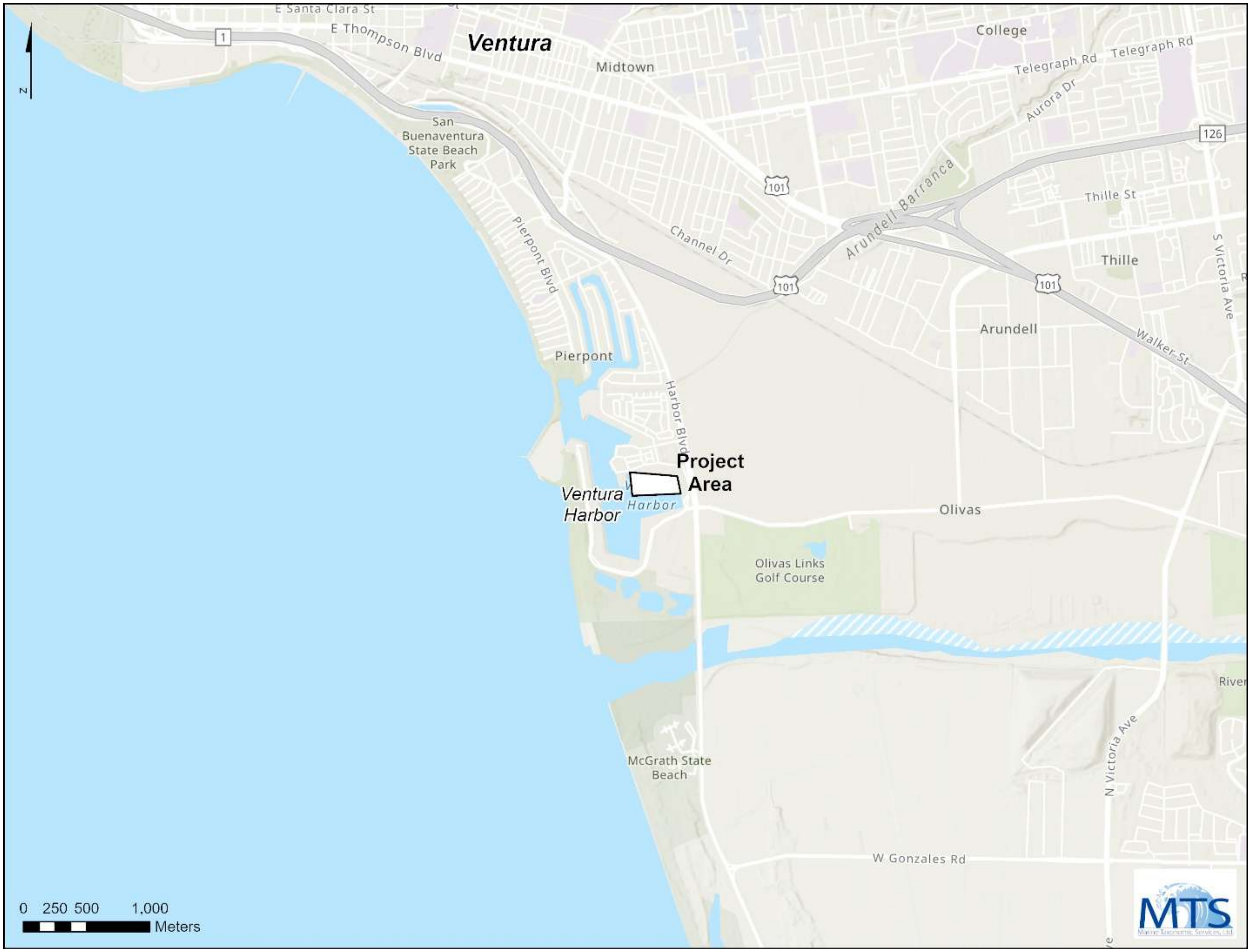


Figure 1. Vicinity map of the Project area at Ventura West Marina.

1-2 Project Background

The TBBW Company, LP (TBBW) serves as the current master tenant and original developer of the 18.5-acre Ventura West Marina, situated on Ventura Harbor Parcel 17 (APN 080-0-240-325). This parcel encompasses 12.5 acres of waterside amenities, which include the Ventura West Marina, along with an adjacent 6-acre landside area that features coastal-related and supportive harbor commercial land uses, marina parking, landscaping, and pedestrian walkways.

TBBW is approaching the 50th year of its partnership with the District. TBBW supports the shared goals of the District to provide first class facilities for recreational boaters, enhanced coastal public access, sustainable and environmentally friendly business operations, and advancement of long-term economic resiliency to sustain the Harbor, City, and the region.

TBBW is currently proposing to redevelop the waterside 12.5 acres of their Parcel 17 leasehold(s). Project need is driven largely by the age and decreasing utility of the existing improvements and infrastructure on site. Modernization of Parcel 17 waterside structures and facilities is intended to considerably enhance the visitor experience consistent with TBBW, District, and City objectives. No changes are currently proposed for the landside portion of Parcel 17 which is currently under study for a land use planning change as part of the City of Ventura General Plan Update that is currently underway.

1-3 Project Description

The Ventura West Marina Redevelopment Project is a proposed redevelopment project of the waterside portion of Parcel 17 within Ventura Harbor. The Project applicant is TBBW. The proposed improvement project is designed to reflect contemporary regional demographics and meet recreational boating demands for larger and wider boat slips, provide more utility infrastructure on the docks and more services and amenities to enhance and improve the experience of recreational boaters, their families, and visitors to Ventura Harbor. The project is also intended to meet the increased demand for coastal public access to the waterfront and provide improved opportunities to participate in no cost and low-cost recreational activities compared to the current existing facilities and infrastructure. The proposed Project includes the replacement of the existing aged docks and pilings with new state-of-the art docks and pilings. Replacing and upgrading the existing facilities, which are nearing the end of their useful life, are needed to ensure the marina's long-term continuation of operations for boaters, visitors and the general public.

The proposed Project has been designed to state-of-the-art standards by incorporating current environmentally sustainable design features that will contribute to the overall character of the marina and Ventura Harbor. Project benefits include upgraded facilities consistent with current ADA standards, energy efficient energy and wastewater systems, increased recycling facilities, increased public access, and water saving plumbing and irrigation systems. The Project would be completed in a single phase to minimize disruption to the public and the boating community. Construction is planned to occur in 2026 and will take approximately 12 months to complete. TBBW is proposing to redevelop the 12.5-acre waterside portion of the site to include the following elements:

- Remove the existing 45-year-old dock system including all floating elements, submerged piles, and related infrastructure

- Install all new, environmentally sustainable state-of-the art dock systems with a marina slip layout that allows a more diverse range of vessel sizes
- Enhance the existing marina channels to improve navigational flow and accommodate larger vessels
- Average slip size will increase by approximately 1 foot as shown in Table 1
- Total number of slips will change from 387 to approximately 379
- Add new public access and public areas on the docks
- Add electrical charging infrastructure to support electric powered watercraft
- Provide individual wastewater pump out systems for mariners
- Updated dock layout design to ensure compliance with CA Dept. of Boating & Waterways Design Guidelines

Waterside improvements would be located within the existing waterside portion of Parcel 17 and largely retain the current dock footprint. The current marina configuration has approximately 299 piles. It is estimated that all existing piles would be removed, and new piles would be installed. A total of 90, 12-inch diameter steel extra strong (SCH. XH) 0.5-inch wall pipe piles and 93, 14-inch diameter SCH. XH) 0.5-inch wall pipe piles.

2 Noise Analysis

2-1 Underwater Sound Background

2-1.1 Underwater Sound Fundamentals

Underwater sound is characterized using various physical quantities, including acoustic energy, power, intensity, and pressure. Most commonly, underwater sound is expressed in decibels (dB), which represent a logarithmic ratio relative to a reference pressure. The typical reference pressure for underwater measurements is 1 micro Pascal (µPa), while in air it is 20 µPa. Several sound level metrics are used to evaluate underwater acoustic impacts, including peak sound pressure (Peak), root-mean-square (RMS) pressure, and sound exposure level (SEL).

The primary sounds of concern produced by the Project are from pile driving. Impact pile driving produces impulsive sounds. Vibratory pile installation and removal produces continuous underwater sounds that are considered non-impulsive. This Project proposes to install piles using both vibratory and impact-hammer techniques. The piles will first be vibrated for the first few feet then an impact hammer will be used to reach the final pile tip elevation.

Table 1. Summary table of underwater acoustic definitions used in this report.

Term	Definition
Cumulative SEL (SEL_{Cum})	A measure of the total acoustic energy a receptor (such as a marine mammal) is exposed to during a pile-driving event (one day in this report).
Peak Sound Pressure (Peak)	The maximum absolute value of an instantaneous sound pressure measured during an acoustic event. This pressure is expressed in this report as dB referenced to a pressure of 1 µPa.
Pulse SEL (SEL_{ss})	A metric expressing the total energy of a single sound pulse, calculated as the time integral of the squared sound pressure over the duration of that pulse. It is reported in dB re 1 $\mu Pa^2 \cdot sec$ and helps quantify the energy from individual impulsive events like pile strikes. Commonly used terms are SEL_{pulse} – SEL per pulse or impulse, SEL_{ss} – SEL per single pile strike.
Impulsive and non-impulsive sound	National Marine Fisheries Service (NMFS) groups sound into two categories: Impulsive or Non-impulsive. NMFS considers sounds such as impact pile driving as impulsive and other sounds such as drilling or vibratory driving are considered non-impulsive.
RMS Sound Pressure Level (RMS_{cont})	This represents the square root of the mean squared pressure over a given time interval (usually one second) and is commonly used to assess sustained acoustic exposure. It is expressed in dB re 1 µPa. This measure is typically used to assess acoustic impacts on marine mammals from non-impulsive sounds.
RMS Sound Pressure Level, (NMFS Criterion)	A more specific version of the RMS metric, tailored for impact pile driving. It calculates the average pressure over the 90% energy portion of a single pulse and is often applied in regulatory assessments to evaluate marine mammal exposure. This measure is typically used to assess acoustic impacts on marine mammals from impulsive sounds.
Transmission Loss (TL)	Transmission loss quantifies the reduction in sound intensity as it propagates through water away from its source. It accounts for spreading, absorption, and scattering of sound energy in the aquatic environment.

2-1.2 Underwater Sound Thresholds for Marine Mammals

Under the Marine Mammal Protection Act, NMFS has defined levels of harassment for marine mammals. Level A harassment is defined as "Any act of pursuit, torment, or annoyance which has the potential to injure a marine mammal or marine mammals stock in the wild." Level B harassment is defined as "Any act of pursuit, torment, or annoyance which has the potential to disturb a marine mammal or marine mammal stock in the wild by causing disruption of behavioral patterns, including but not limited to migration, breathing, nursing, breeding, feeding, or sheltering." Sounds in water and air can cause both Level A and B harassment. Table 2 summarizes the Level A and Level B harassment criteria as indicated by NMFS 2024. Marine mammals with potential to occur within the vicinity of the Project area are listed within the marine Biological Assessment for the Project (MTS 2025).

Table 2. Thresholds for Level A and Level B harassment of marine mammals underwater.

Species	Underwater noise Thresholds (dB in reference to 1µPa)				
	Non-Impulsive Disturbance Threshold (Level B Harassment)	Impulsive Disturbance Threshold (Level B harassment)	Marine Mammal Hearing Group	Auditory Injury SELcum Threshold (Level A Harassment)	
				Peak - dB in reference to 1µPa	
				SELcum - dB in reference to 1µPa^2-sec	
				Impulsive (Impact Pile Driving)	Non-Impulsive (Vibratory Pile Driving)
Cetaceans	120 dB RMS	160 dB RMS	Low Frequency	222 dB Peak 183 dB SELcum	197 dB SELcum
			High Frequency	230 dB Peak 193 SELcum	201 dB SELcum
			Very High Frequency	202 dB Peak 159 dB SELcum	181 dB SELcum
Pinnipeds	120 dB RMS	160 dB RMS	Phocid	223 dB Peak 183 dB SELcum	195 dB SELcum
			Otariid	230 dB Peak 185 dB SELcum	199 dB SELcum

The application of the 120-dB RMS threshold for Level B harassment is used to address vibratory pile driving (or pile removal). This level can sometimes be problematic because this threshold level can be either at or below the ambient noise level of certain locations.

2-1.3 Underwater Sound Thresholds for Fishes

To protect fish from pile-driving activities NOAA's NMFS, U.S. Fish and Wildlife Service, Department of Transportation for California, Oregon, and Washington, California Department of Fish and game, and the U.S. Federal Highway Administration agreed upon interim criteria for injury (Table 3). These criteria have been applied to fish protected under the Endangered Species Act or other fish protected under State laws. The criteria listed in Table 3 is for impulse sound types (i.e. impact pile driving) and does not address sound from vibratory driving. The SEL criteria are not applied to vibratory driving sounds for assessing impacts to fish. There are no thresholds for non-impulsive sounds (i.e. vibratory pile driving) that apply to fishes.

Table 3. Summary table of adopted fish criteria.

Interim Criteria for Injury	Sound Levels Agreed Upon
Peak	206 dB re 1 µPa
Cumulative SEL	187 dB in reference to 1 μPa^2-sec – for fish size of 2 grams or greater*183 dB in reference to 1 μPa^2-sec – for fish size of less than 2 grams* 183 dB in reference to 1 μPa^2-sec – for fish size of less than 2 grams*

2-1.4 Project Underwater Sound-Generating Activities

The primary activities that have potential to elevate underwater sound levels are the removal of existing piles using a vibratory pile driver and the installation of piles using both vibratory and impact hammer pile drivers. These activities could result in both Level A and B harassment of marine mammals.

A portion of the dock demolition involves removal of 14, 12-inch round steel pipe piles using the vibratory pile driver. The number of 12-inch steel piles proposed for removal is 2 per day. The value of 2 is utilized in the noise analysis as it is the approximate average of 12-inch steel pipe piles occurring across the dock structures. This assumes project demolition would occur in phases where each dock would be removed sequentially where docks 100, 200, 300, 400, 500, 600, and 700 only have a single 12-inch steel pipe pile, dock 800 does not have any 12-inch steel pipe piles, and dock 900 has 7, 12-inch steel pipe piles. Given the existing pile layout, the total number of 12-inch steel piles removed is estimated to be between 2 piles per day and between 1 and 7 piles per week (assuming 5-day work weeks). The remainder of dock demolition involves the removal of 285, 12-inch square concrete piles. The number of 12-inch concrete piles proposed for removal per day is 8. The number of piles removed is estimated to be 8 piles per day, and 40 piles per week (assuming 5-day work weeks). For 12-inch round steel pipe pile and 12-inch square concrete pile removal, it is estimated that 10 minutes of vibration will be required to remove each pile.

Like the removal process, the number of SCH. XH piles installed per day/week would vary based on the difficulty of the installation process in a given area. A total of 90, 12-inch diameter SCH. XH 0.5-inch wall pipe piles and 93, 14-inch diameter SCH. XH 0.5-inch wall pipe piles are proposed for installation to support the proposed dock structure. Generally, the number of SCH. XH piles to be installed per day would be approximately 4 piles per day, and 20 piles per week (assuming 5-day work weeks). For the installation of SCH. XH piles, regardless of size, it is estimated that 10 minutes of vibration will be required followed by pile strikes by hammer. Where the number of pile strikes is estimated to be 480 blows per pile. Pile strikes will be delivered using a diesel generated impact hammer with the ability to generate 1 blow per 1.5 seconds (40 blows per minute).

Table 4 summarizes the pile replacement activities with potential to generate elevated underwater sound. The actual number of piles removed/installed per day/week would vary based on the difficulty of the removal/installation process in a given area. The locations of piles proposed for removal are included as Appendix A. Figure 2 shows the location of piles proposed for placement.

Table 4. Pile replacement sound generating activities proposed for the Project.

Removal or Installation	Pile Type	Pile Location	Vibratory Duration (minutes)	Estimated Blows per Pile	Piles per Day	Total Number of Piles
Removal	12-inch round steel pipe pile	In water	10	0	2	14
	12-inch square concrete pile	In water	10	0	8	285
Installation	12-inch SHC. XH	In water	10	480	4	90
	14-inch SHC. XH	In water	10	480	4	93

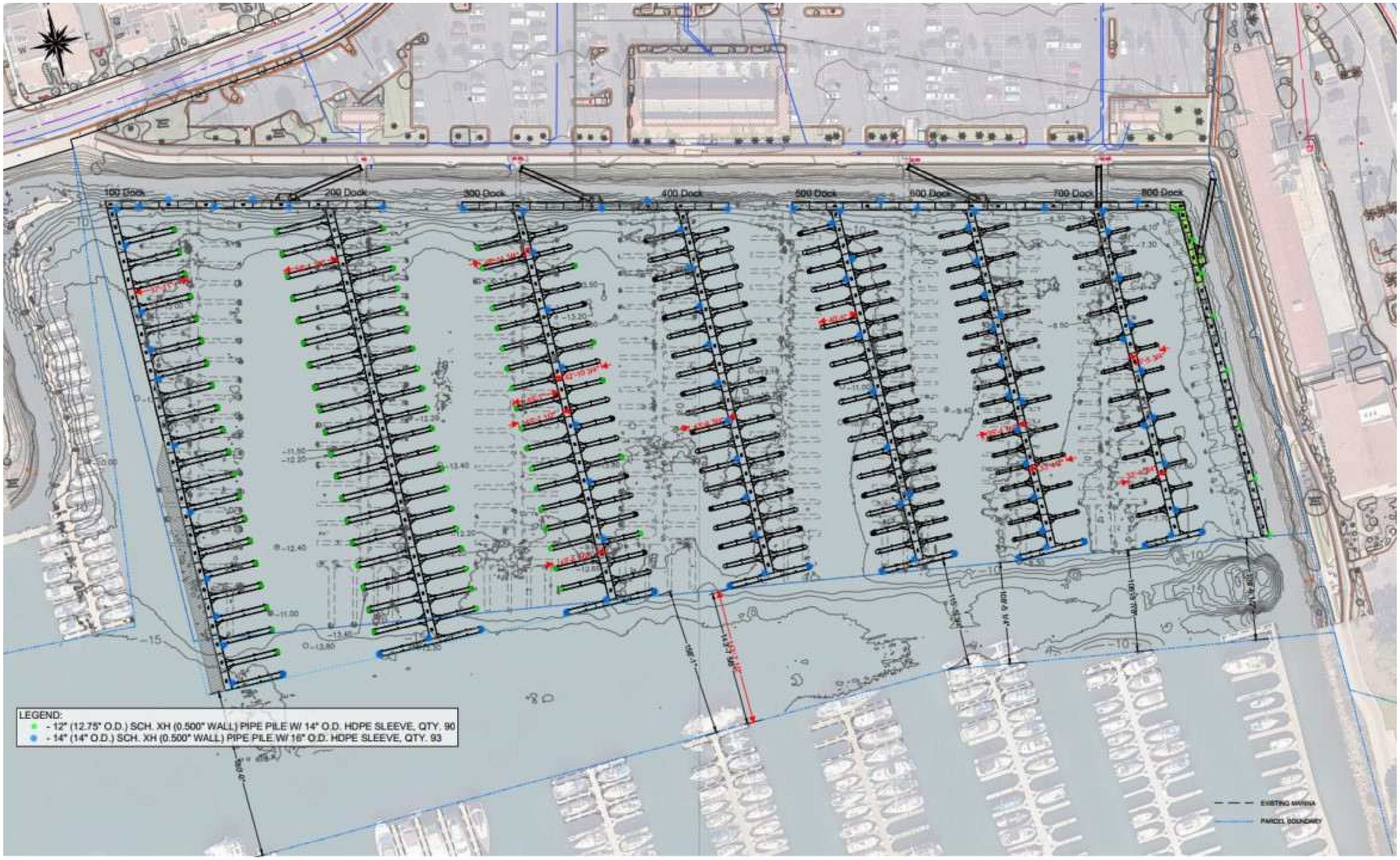


Figure 2. Map of proposed pile layout. Twelve-inch piles are shown in green and 14-inch piles are shown in blue. Plan map provided by Bellingham Marine Industries.

2-2 Methods

The Multi-Species Pile Driving Calculator Tool (Calculator) developed by NOAA NMFS (2024) was utilized to determine acoustic zones of influence (isopleths) for marine mammals and fishes where pile driving thresholds may be exceeded. Sea Turtles were not evaluated as they were deemed unlikely to occur within the Project area (MTS 2025).The Calculator requires the input of known sound levels (i.e. proxy sound levels) based on pile size, material, and removal/installation method (i.e. diesel impact hammer or vibratory). The known sound levels utilized in the Calculator are in reference to data reported by Caltrans (2015, 2020) that are also included in the NMFS 2024 Calculator. The values in Table 5 are sound levels measured at 10 meters (m) or 33 feet (ft) from the piles for conditions similar to those that would occur for this project. Detailed information on the measurements that make up these levels is provided in the notes section of the table. Sound levels were not available for vibratory pile driving method applied to concrete piles. As such, the greatest isopleths calculated for disturbance to marine mammals evaluated across all methods were used in development of the marine mammal monitoring plan (Section 3-1).

Additionally, NMFS guidance defines frequency dependent marine mammal auditory weighting factor adjustments (WFA) that reflect hearing or susceptibility to underwater sound-included hearing loss (NMFS 2018, 2024). The default WFA for impact pile diving is based on a single 1/3rd-octave band frequency adjustment at 2 kHz. For vibratory driving, the adjustment is at 2.5 kHz. This adjustment is the default setting in the Calculator that is applied to all impact or vibratory pile driving sounds, regardless of the pile type or attenuation.

Attenuated sound levels were calculated along with unattenuated sound levels. Attenuated sound levels account for the use of a sound attenuation device such as a bubble curtain. NMFS recommends a 5 dB sound level reduction for noise generated by construction activities.

The estimated values for sound generating activities in Table 5 were input as quantitative project-specific information to calculate sound metrics.

Table 5. Measured levels for activities generating underwater sound impacts used for analysis.

Driving Method	Pile Type	Size	Sound Pressure Level in dB at 10 m Peak	RMS	SELss	TL	Notes
Impact	Steel pipe pile in water	12-inch	192	177	167	15	Caltrans 2020 - Point Isabel Foundation Repair/El Cerrito, CA - San Francisco Bay. Piles driven using a diesel impact hammer. Piles installed in shallow water near land.
Impact	Steel pipe pile in water	14-inch	199	184	169	15	Caltrans 2020 - Richmond/San Rafael Bridge Fender Repair/Richmond, CA San Francisco Bay. Fender pile measurements made at 2 depths, 3 m and 15 m. Piles installed using diesel impact hammer.
Vibratory	Steel pipe pile in water	12-inch	171*	155	N/A	15	Caltrans 2015 - Generic example
Vibratory	Steel pipe pile in water	14-inch	171*	154	N/A	15	Caltrans 2020 - Richmond/San Rafael Bridge Fender Repair/Richmond, CA San Francisco Bay. Fender pile measurements made at 2 depths, 3 m and 10m during the removal of piles
Vibratory	Square concrete pile	12-inch	Proxy sound levels were not available for vibratory pile driving method applied to concrete piles. Since no assessment of noise for vibratory method could be applied to vibratory removal of 12-inch square concrete piles the greatest isopleth distances calculated across all calculations completed should be applied for disturbance to marine mammals.				

*NMFS does not rely upon Peak sound metrics to evaluate vibratory pile driving.

*Steel pipe piles were used in approximating isopleths for SCH. HX piles proposed for installation.

2-3 Results

Measured sound pressure levels generated in water for pile replacement activities are presented in Table 6. The distances described in the following section represent the greatest distance where cetaceans or pinnipeds hearing groups would endure Level A or Level B harassment. For distance thresholds for specific hearing groups within each category refer to Table 6. Copies of the NMFS 2024 Multi-Species Calculator results are attached as Appendix B.

Vibratory methods for pile replacement result in very short distances for Level A harassment. For Level A harassment to occur from the use of vibratory methods for pile replacement activities cetaceans would need to occur within 2.8 m and pinnipeds would need to occur within 3.6 m of the sound source. The greatest distance where Level B harassment could occur is within 2,154 m of the sound source when vibratory methods are applied.

Impact driving of piles increased the distance thresholds for Level A harassment and decreased distance thresholds for Level B harassment compared to vibratory methods for pile replacement. The greatest distance for Level A harassment was 277 m and 177 m for cetaceans and pinnipeds, respectively. Level B harassment for all marine mammals was calculated to be 398 m when impact pile driving methods are applied for pile replacement activities.

If attenuation methods are applied to the source of sound generated by pile replacement activities distance thresholds for both Level A and Level B harassment are decreased. The application of attenuation for vibratory methods would reduce the distance of Level A harassment to approximately 1 m for cetaceans and pinnipeds and 1,000 m or less for Level B harassment. The application of attenuation for impact methods would reduce the distance of Level A harassment to 129 m and 74 m for cetaceans and pinnipeds, respectively. Level B harassment for all marine mammals would reduce to 185 m if impact pile driving methods were attenuated.

Table 6. Distance to marine mammal Level A and B harassment thresholds for pile replacement construction activities.

Removal or Installation	Method	Pile Type	Pile Size	Piles per day	# of strikes or minutes per pile	Condition	Level A injury zone (m [ft]) (using SELcum Threshold) Cetaceans			Pinnipeds		Level B harassment zone
							LF	HF	VHF	PW	OW	RMS
Removal	Vibratory	Steel pipe pile in water	12-inch	2	10	Unattenuated	1.8 m [5.8 ft]	0.7 m [2.2 ft]	1.4 m [4.7 ft]	2.3 m [7.5 ft]	0.8 m [2.5 ft]	2,154 m [7,068 ft]
						Attenuated	0.8 m [2.7ft]	0.3 m [1.0 ft]	0.7 m [2.2 ft]	1.1 m [3.5 ft]	0.4 m [1.2 ft]	1,000 m [3,281 ft]
		Concrete square pile in water	12-inch	8	10	N/A*	N/A*	N/A*	N/A*	N/A*	N/A*	N/A*
Installation	Impact	Steel pipe pile in water	12-inch	4	480	Unattenuated	132 m [433 ft]	17 m [55 ft]	204 m [669 ft]	117 m [384 ft]	44 m [143 ft]	136 m [446 ft]
						Attenuated	61 m [201 ft]	8 m [26 ft]	95 m [311 ft]	54 m [178 ft]	20 m [67 ft]	63 m [207 ft]
		Steel pipe pile in water	14-inch	4	480	Unattenuated	179 m [588 ft]	23 m [75 ft]	277 m [910 ft]	159 m [522 ft]	59 m [195 ft]	398 m [1,306 ft]
						Attenuated	83.2 m [273 ft]	11 m [35 ft]	129 m [422 ft]	74 m [242 ft]	28 m [90 ft]	185 m [606 ft]
	Vibratory	Steel pipe pile in water	12-inch	4	10	Unattenuated	2.8 m [9.2 ft]	1.1 m [3.5 ft]	2.3 m [7.5 ft]	3.6 m [11.8 ft]	1.2 m [4.0 ft]	2,154 m [7,068 ft]
						Attenuated	1.3 m [4.3 ft]	0.5 m [1.6 ft]	1.1 m [3.5 ft]	1.7 m [5.5 ft]	0.6 m [1.8 ft]	1,000 m [3,281 ft]
		Steel pipe pile in water	14-inch	4	10	Unattenuated	2.4 m [7.9 ft]	0.9 m [3.0 ft]	2.0 m [6.4 ft]	3.1 m [10.1 ft]	1.0 m [3.4ft]	1,848 m [6,063 ft]
						Attenuated	1.1 m [3.7 ft]	0.4 m [1.4 ft]	0.9 m [3.0 ft]	1.4 m [4.7 ft]	0.5 m [1.6 ft]	858 m [2,814 ft]

*Distance thresholds for vibratory pile driving methods applied to 12-inch square concrete should utilize the greatest distances derived for pile driving methodology calculated.

Table 7. Distance to adopted fish thresholds for onset of physical injury and behavior for pile replacement construction activities.

Removal or Installation	Method	Pile Type	Pile Size	Piles per day	# of strikes or duration per pile	Condition	Distance to Adopted Fish Thresholds: Onset of Physical Injury – Peak Isopleth	Onset of Physical Injury – SEL_{cum} Isopleth: Fish ≥ 2g	Onset of Physical Injury – SEL_{cum} Isopleth: Fish <2 g	Behavior RMS Isopleth
Removal	Vibratory	Steel pipe pile in water	12-inch	2	10	Unattenuated	N/A	N/A	N/A	21.5 m [70.7 ft]
						Attenuated	N/A	N/A	N/A	10.0 m [32.8 ft]
		Concrete square pile in water	12-inch	8	10	N/A	N/A	N/A	N/A	N/A
Installation	Impact	Steel pipe pile in water	12-inch	4	480	Unattenuated	1.2 m [3.8 ft]	71.7 m [235.2 ft]	132.5 m [434.7 ft]	631.0 m [2070.1 ft]
						Attenuated	0.5 m [1.8 ft]	33.3 m [109.2 ft]	61.5 m [201.8 ft]	292.9 m [960.8 ft]
		Steel pipe pile in water	14-inch	4	480	Unattenuated	3.4 m [11.2 ft]	97.5 m [319.8 ft]	590.9 m [180.1 ft]	1,847.8 m [6,062.5 ft]
						Attenuated	1.6 m [5.2 ft]	45.2 m [148.4 ft]	83. 6 m [274.3 ft]	857 m [2,814 ft]
	Vibratory	Steel pipe pile in water	12-inch	4	10	Unattenuated	N/A	N/A	N/A	21.5 m [70.7 ft]
						Attenuated	N/A	N/A	N/A	10.0 m [32.8 ft]
		Steel pipe pile in water	14-inch	4	10	Unattenuated	N/A	N/A	N/A	18.5 m [60.6 ft]
						Attenuated	N/A	N/A	N/A	8.6 m [28.1 m]

3 Monitoring Plan

The following monitoring protocols described in this section do not negate any additional monitoring requirements or special conditions set by regulatory authorities or Project permits.

3-1 Marine Mammal Monitoring

The proposed marine mammal monitoring (MMM) plan utilizes the noise analysis included in Section 2 of this report. The intent of the MMM plan is to incorporate disturbance thresholds calculated in the noise analysis to delineate distances for monitors surveying for marine mammals during pile replacement activities resulting in elevated noise thresholds.

The marine mammal survey boundaries cover waters within Level B harassment distances for vibratory and impact driving methods. Due to the presence of land, the 2,154 m Level B harassment zone calculated for vibratory methods does not reasonably need to be observed as land feature will interfere with the sound from traveling that full distance. The marine mammal survey area during impact pile methods is 398 m and results in a slightly reduced survey boundary relative to the vibratory marine mammal survey boundary. The impact survey boundary may be shifted as construction activities occur in eastern portions of the construction boundary. The survey area represented in Figure 3 presents the furthest surveyor distance relative to the southwestern corner of the construction boundary after considering the effects of sound shadows produced by the shoreline interference. Marine mammal survey boundaries for vibratory and impact pile driving methods are shown in Figure 3. These survey areas would allow protected species observers (PSO) to monitor any marine mammals with potential to enter zones of influence. This area includes dock structures where pinnipeds may be hauled out and have potential to enter the water during noise-generating construction activities.

A PSO would begin monitoring each day 15 minutes before the commencement of in-water pile replacement activities, during all pile replacement activities, and for 15 minutes after pile replacement activities have concluded for the day or stop for more than an hour. For work occurring within western portions of the construction area it may be possible for monitoring to be completed by a single observer, however as construction activities move further east, a second monitor may be required to gain full view of the survey boundary.

The recommended shutdown zone is 5 m for vibratory driving for all marine mammals. The shut down zone is relatively small for vibratory methods and may not extend beyond in-water work vessels. Should in water work vessels utilizing vibratory methods for driving occupy waters beyond 5 m from the source of sound it is recommended that a 20 m distance around in-water vessel be utilized to prevent the potential for physical injury to marine mammals that could result from construction activities (i.e. pile falling on animal if dropped from crane).

The recommended shutdown zones when impact driving methods are utilized are 177 m from the source of sound for pinnipeds and 277 m from the source of sound for cetaceans. Figure 4 details an example layout of the recommended shutdown zones described above. The actual delineation of the shutdown zones would change depending on the location of the source of sound.

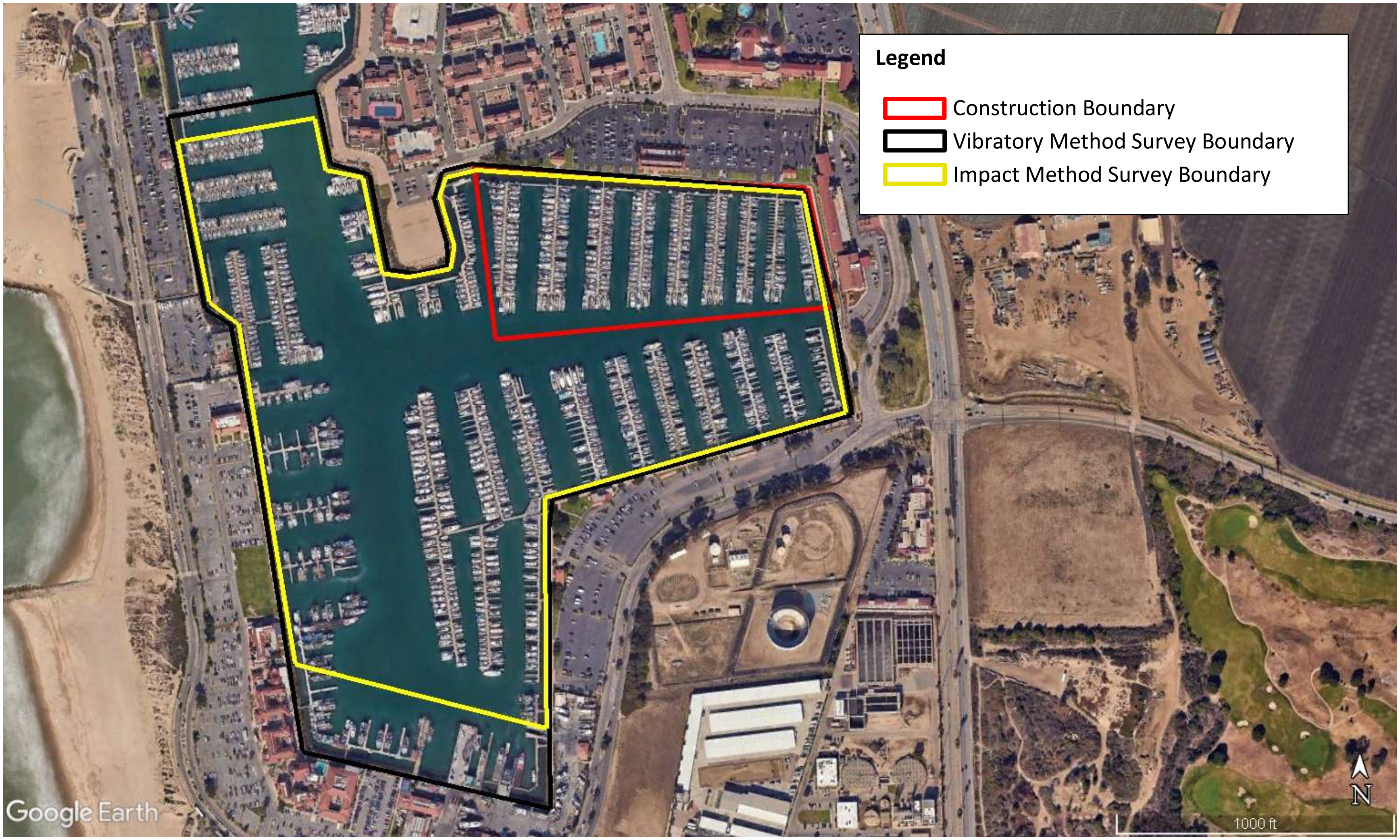


Figure 3. Monitoring map delineating the marine mammal survey zones when vibratory or impact pile driving methods are used. Impact method survey boundary may be shifted as construction activities occur in eastern portions of the construction boundary.

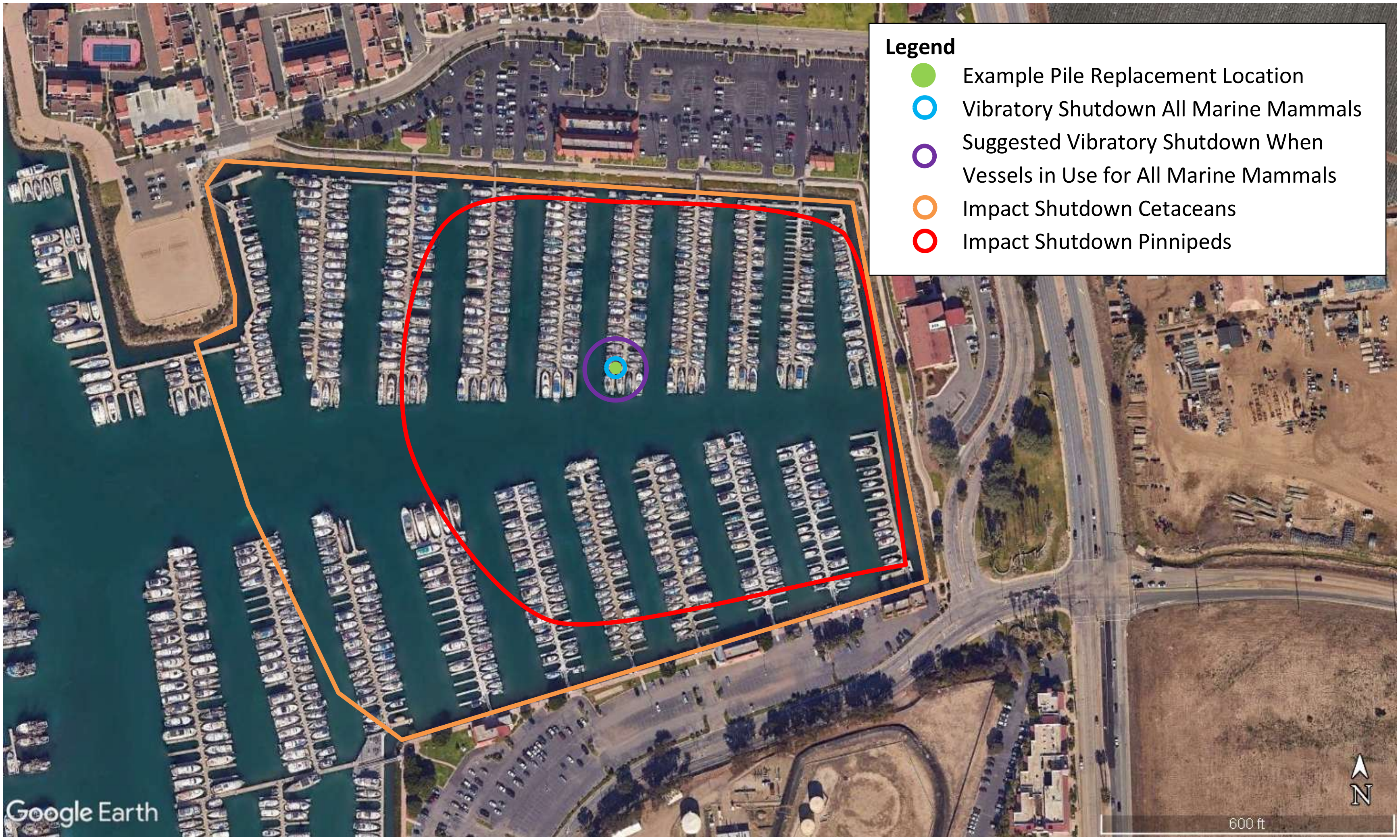


Figure 4. Monitoring map delineating approximate shut down zones for cetaceans or pinnipeds when vibratory or impact pile driving methods are used on an example pile location. The actual extent of the shutdown zone will depend on the location of the source of noise occurring at the time of observation.

If a marine mammal is observed within the shutdown zone, work should wait for the animal to be observed outside of the shutdown zone or until 15 minutes have passed. Monitors would be authorized to stop or halt work if marine mammals occur in waters within the shutdown zone, potential for animal injury is observed, or animal injury occurs.

A soft start is recommended for impact pile driving methods. It is recommended that impact pile driving soft start be utilized at the beginning of each day or after 30 minutes of pile driving pause.

During each monitoring day the PSO will record general environmental conditions, their ability to view the full survey area, construction activities related to pile replacement, and location of marine mammal sightings. Additional details pertaining to marine mammals sightings that would be recorded if the PSO is able to observe include the animals behavior (loafing, transiting, direction of travel, feeding, hauled out), sex, maturity, and resighting. Additional notes would be recorded if marine mammal observations result in subsequent work stop or halt.

3-2 Other In-Water Receptors

Other in-water receptors can be impacted by construction noise. These receptors include the green sea turtle (Chelonia mydas) and various species of fishes. These receptors are analyzed when inputting data into the NOAA Calculator (NMFS 2024). Green sea turtles were deemed unlikely to occur within the Project area. However, they can be monitored alongside marine mammals and if they were to occur within the Project vicinity, work would be halted. Impacts to fishes can be avoided with best management practices such as implementation of soft-start methods.

3-3 Avian Monitoring

The proposed avian monitoring plan is adapted from previous survey knowledge and survey requirements that MTS performed for similar projects occurring in marinas and harbors of Southern California.

The proposed avian survey boundary covers all areas within 500 feet of the construction boundary (Figure 5). Should construction occur in phases, the construction boundary and avian survey boundary should be adapted to reflect the actual extent of that construction phase and associated 500-foot avian survey boundary.

Avian species targeted for monitoring efforts may include but are not limited to black-crowned night herons, great blue herons, snowy egrets, or other sensitive species listed in the federal or California Endangered Species Act or any California bird species of special concern that exhibit reproductive or nesting behaviors within the avian survey boundary. The avian survey would be performed by a qualified biologist. The biologist would survey the area within the avian survey boundary by foot and record observations of avian species with the aid of binoculars. All avian observations would be recorded on a survey tablet along with the corresponding date, time, and weather conditions.

The proposed survey schedule is once prior to the start of construction and weekly thereafter when construction activities require the use of equipment with potential to generate elevated noise levels. Should target avian species be observed exhibiting nesting behaviors within 300-ft of construction activities, daily avian monitoring is proposed to evaluate if construction activities result in the disturbance of target avian species.

Several measures could be put into place if reproductive or nesting behavior is observed, such as implementing no-disturbance zones, installing noise-dampening structures, and using quieter methodologies for construction. Appropriate mitigation measures will be determined on a Project-basis.

Figure 5. Survey map showing the approximate construction boundary and avian survey boundary for the entirety of the Project construction area.

4 References

[Caltrans 2015] California Department of Transportation Division of Environmental Analysis Environmental Engineering Hazardous Waste, Air, Noise, Paleontology Office. 2015. CALTRANS Engineering Technical Brief OVERVIEW OF THE EVALUATION OF PILE DRIVING IMPACTS ON FISH FOR THE PERMITTING PROCESS. October 16, 2015.

[Caltrans 2020] California Department of Transportation Division of Environmental Analysis Environmental Engineering Hazardous Waste, Air, Noise, Paleontology Office. 2020. Technical Guidance for the Assessment of Hydroacoustic Effects of Pile Driving on Fish. October 2020.

[MTS 2025] Marine Taxonomic Services Ltd. 2025. Marine Biological Resources Report and Essential Fish habitat Assessment for the Ventura West marina Project. Prepared for Summit Environmental Group, Inc. March 12, 2025.

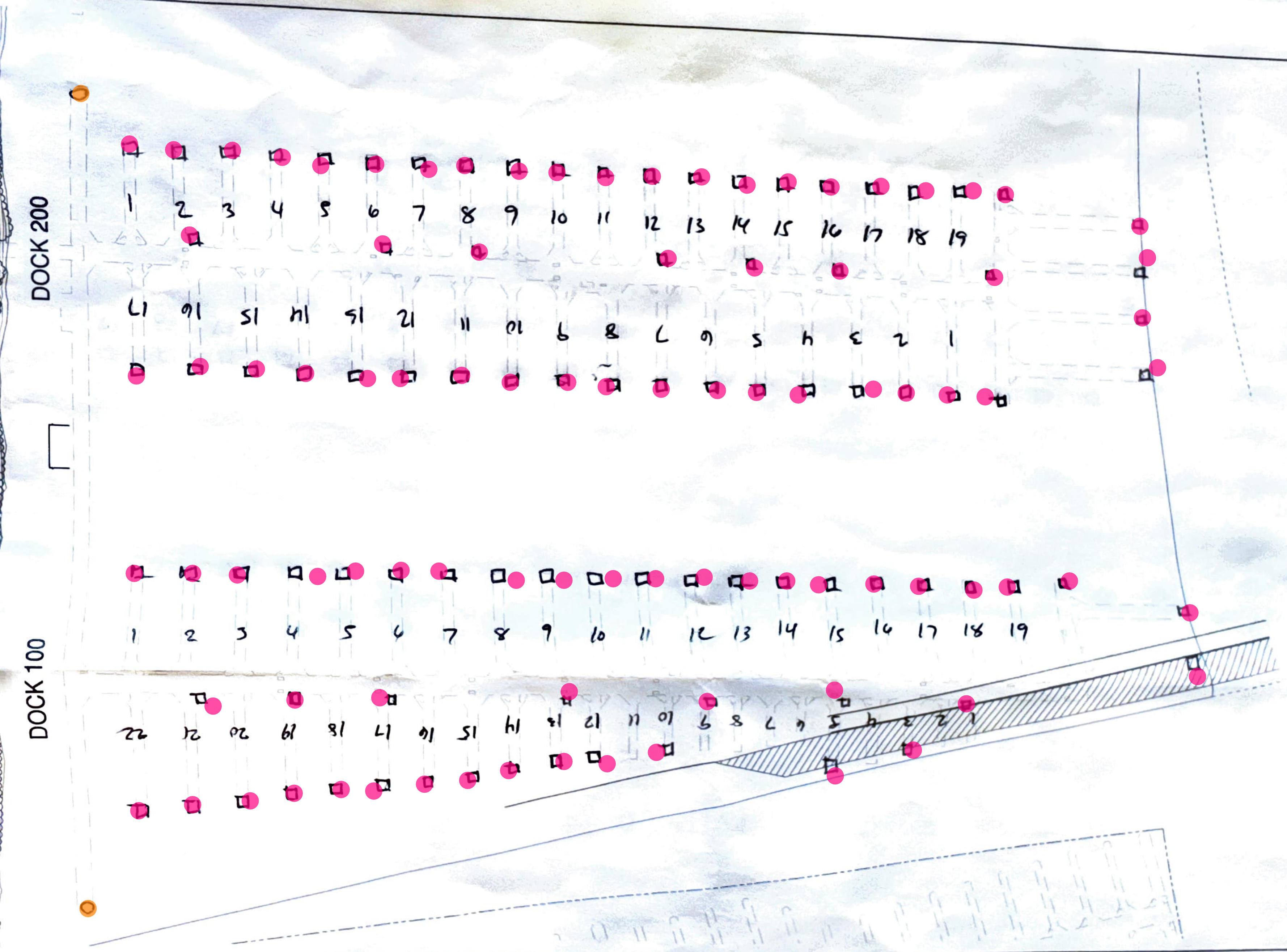
[NMFS 2018] National Marine Fisheries Service. 2018. 2018 Revision to: Technical Guidance for Assessing the Effects of Anthropogenic Sound on Marine Mammal Hearing (Version 2.0) - Underwater Acoustic Thresholds for Onset of Permanent and Temporary Threshold Shifts. April 2018.

[NMFS 2024] National Marine Fisheries Service. 2024. Optional Multi-Species Pile Driving Calculator Version 2.0. October 2024.

[NMFS 2023] NOAA National Marine Fisheries Service. 2023. National Marine Fisheries Service: Summary of Marine Mammal Protection Act Acoustic Thresholds. February 2023.

[RCHGROUP 2025] RCHGROUP Planning & Environmental Consulting. 2025. Noise Technical Report. Prepared for Summit Environmental Group. May 1, 2025.

Appendix A: Existing Pile Layout



DOCK	100	200	300	400	500	600	700	800	900	OVERALL
12" Round Steel Pipe Pile	1	1	1	1	1	1	1	0	7	14
12" Square Concrete Pile	43	49	50	39	25	23	21	24	11	285

DESCRIPTION	BY
REVISIONS	

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FAX: (707) 678-1760

PROJECT NUMBER: -
ENGINEER / DESIGNER:
PROJECT MANAGER:
CHECKED BY:

VENTURA WEST MARINA
PHASE I
EXISTING LAYOUT

Bellingham

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CA LICENSE #442499
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DIXON, CA 95620
(707) 678-2385

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ENGINEER / DESIGNER:

PROJECT MANAGER:

VENTURA WEST MARINA

PHASE I

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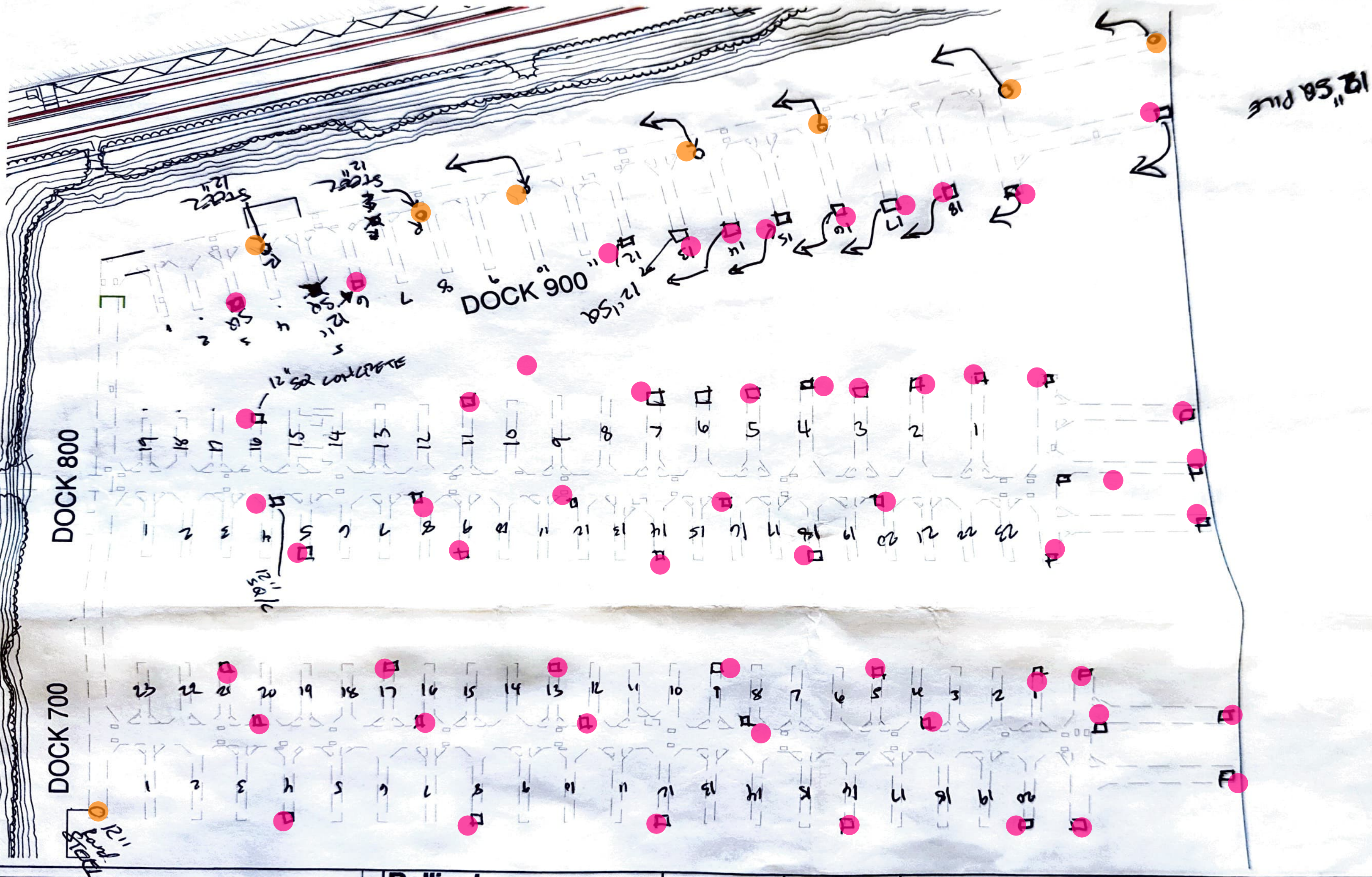

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VENTURA WEST MARINA

PHASE I

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Appendix B: NMFS Calculator Reports

VIBRATORY PILE DRIVING REPORT

PRINT IN **LANDSCAPE** TO CAPTURE ENTIRE SCREEN

(if OTHER INFO or NOTES get cut-off, please include information elsewhere)

VERSION 2.0-Multi-Species: 2024

Removal 12-in steel (unattenuated)

PROJECT INFORMATION	RMS
Sound pressure level (dB)	155
Distance associated with sound pressure level (meters)	10
Transmission loss constant	15
Number of piles per day	2
Duration to drive pile (minutes)	10
Duration of sound production in day	1200
Cumulative SEL at measured distance	186

OTHER INFO Bellingham Marine Industries

NOTES Assumes dock removal sequntially suchthat 12-inch steel pipe piles would not be removed continuously.

Attenuation 0

RESULTANT ISOPLETHS
(Range to Effects)

FISHES

Fishes present

	BEHAVIOR
	RMS Isopleth
ISOPLETHS (meters)	21.5
ISOPLETHS (feet)	70.7

SEA TURTLES

NO SEA TURTLES

	PTS ONSET	BEHAVIOR
	SEL_{cum} Isopleth	RMS Isopleth
ISOPLETHS (meters)	0.1	0.5
ISOPLETHS (feet)	0.2	1.5

MARINE MAMMALS

	LF Cetacean	MF Cetaceans	HF Cetaceans	PW Pinniped	OW Pinnipeds
UD INJ ONSET (SELcum isopleth, meters)	1.8	0.7	1.4	2.3	0.8
AUD INJ ONSET (SELcum isopleth, feet)	5.8	2.2	4.7	7.5	2.5
	ALL MM	MF Cet. present	NO HF CET.	Phocids present	Otariids present
Behavior (RMS isopleth, meters)	2,154.4	LF Cet. present			
Behavior (RMS isopleth, feet)	7,068.4				

VIBRATORY PILE DRIVING REPORT

PRINT IN **LANDSCAPE** TO CAPTURE ENTIRE SCREEN

VERSION 2.0-Multi-Species: 2024

(if OTHER INFO or NOTES get cut-off, please include information elsewhere)

Removal 12-in steel (attenuated)

PROJECT INFORMATION	RMS
Sound pressure level (dB)	150
Distance associated with sound pressure level (meters)	10
Transmission loss constant	15
Number of piles per day	2
Duration to drive pile (minutes)	10
Duration of sound production in day	1200
Cumulative SEL at measured distance	181

OTHER INFO: Bellingham Marine Industries

NOTES: Assumes dock removal sequntially suchthat 12-inch steel pipe piles would not be removed continuously.

Attenuation: 5

RESULTANT ISOPLETHS
(Range to Effects)

FISHES (Fishes present)

	BEHAVIOR
	RMS Isopleth
ISOPLETHS (meters)	10.0
ISOPLETHS (feet)	32.8

SEA TURTLES (NO SEA TURTLES)

	PTS ONSET	BEHAVIOR
	SEL_{cum} Isopleth	RMS Isopleth
ISOPLETHS (meters)	0.0	0.2
ISOPLETHS (feet)	0.1	0.7

MARINE MAMMALS

	LF Cetacean	MF Cetaceans	HF Cetaceans	PW Pinniped	OW Pinnipeds
UD INJ ONSET (SELcum isopleth, meters)	0.8	0.3	0.7	1.1	0.4
AUD INJ ONSET (SELcum isopleth, feet)	2.7	1.0	2.2	3.5	1.2
		MF Cet. present	NO HF CET.	Phocids present	Otariids present

	ALL MM
Behavior (RMS isopleth, meters)	1,000.0
Behavior (RMS isopleth, feet)	3,280.8

LF Cet. present

IMPACT PILE DRIVING REPORT

VERSION 2.0-Multi-Species: 2024

12-inch steel (unattenuated)

PRINT IN LANDSCAPE TO CAPTURE ENTIRE SCREEN

(if OTHER INFO or NOTES get cut-off, please include information elsewhere)

PROJECT INFORMATION	PEAK	SELss	RMS
Single strike level (dB)	192	167	177
Distance associated with single strike level (meters)	10	10	10
Transmission loss constant	15		
Number of piles per day	4		
Number of strikes per pile	480		
Number of strikes per day	1920		
Cumulative SEL at measured distance	200		

OTHER INFO Bellingham Marine Industries

NOTES 0

Attenuation 0

RESULTANT ISOPLETHS

(Range to Effects)

FISHES

	ONSET OF PHYSICAL INJURY			BEHAVIOR	
	Peak Isopleth	SEL_{cum} Isopleth Fish ≥ 2 g	SEL_{cum} Isopleth Fish < 2 g	RMS Isopleth	
ISOPLETHS (meters)	1.2	71.7	132.5	631.0	Fishes present
Isopleth (feet)	3.8	235.2	434.7	2,070.1	

SEA TURTLES

	PTS ONSET		BEHAVIOR	
	Peak Isopleth	SEL_{cum} Isopleth	RMS Isopleth	
ISOPLETHS (meters)	0.0	5.3	13.6	NO SEA TURTLES
Isopleth (feet)	0.1	17.3	44.6	

MARINE MAMMALS

	LF Cetacean	MF Cetaceans	HF Cetaceans	PW Pinniped	OW Pinnipeds
AUD INJ ONSET (Peak isopleth, meters)	0.1	0.0	2.2	0.1	0.0
AUD INJ ONSET (Peak isopleth, feet)	0.3	0.1	7.1	0.3	0.1
AUD INJ ONSET (SEL_{cum} isopleth, meters)	131.8	16.8	204.0	117.1	43.7
AUD INJ ONSET (SEL_{cum} isopleth, feet)	432.5	55.2	669.3	384.2	143.2
	ALL MM	MF Cet. present	HF Cet. present	Phocids present	Otariids present
Behavior (RMS isopleth, meters)	135.9	LF Cet. present			
Behavior (RMS isopleth, feet)	446.0				

IMPACT PILE DRIVING REPORT

VERSION 2.0-Multi-Species: 2024

12-inch steel (attenuated)

PRINT IN LANDSCAPE TO CAPTURE ENTIRE SCREEN
(if OTHER INFO or NOTES get cut-off, please include information elsewhere)

PROJECT INFORMATION	PEAK	SELss	RMS
Single strike level (dB)	187	162	172
Distance associated with single strike level (meters)	10	10	10
Transmission loss constant	15		
Number of piles per day	4		
Number of strikes per pile	480		
Number of strikes per day	1920		
Cumulative SEL at measured distance	195		

OTHER INFO: Bellingham Marine Industries

NOTES: 0

Attenuation: 5

RESULTANT ISOPLETHS
(Range to Effects)

FISHES

	ONSET OF PHYSICAL INJURY			BEHAVIOR
	Peak Isopleth	SEL_{cum} Isopleth: Fish ≥ 2 g	SEL_{cum} Isopleth: Fish < 2 g	RMS Isopleth
ISOPLETHS (meters)	0.5	33.3	61.5	292.9
Isopleth (feet)	1.8	109.2	201.8	960.8

Fishes present

SEA TURTLES

	PTS ONSET		BEHAVIOR
	Peak Isopleth	SEL_{cum} Isopleth	RMS Isopleth
ISOPLETHS (meters)	0.0	2.5	6.3
Isopleth (feet)	0.0	8.0	20.7

NO SEA TURTLES

MARINE MAMMALS

	LF Cetacean	MF Cetaceans	HF Cetaceans	PW Pinniped	OW Pinnipeds
AUD INJ ONSET (Peak isopleth, meters)	0.0	0.0	1.0	0.0	0.0
AUD INJ ONSET (Peak isopleth, feet)	0.2	0.0	3.3	0.1	0.0
AUD INJ ONSET (SEL_{cum} isopleth, meters)	61.2	7.8	94.7	54.4	20.3
AUD INJ ONSET (SEL_{cum} isopleth, feet)	200.8	25.6	310.7	178.3	66.5
	ALL MM	MF Cet. present	HF Cet. present	Phocids present	Otariids present
Behavior (RMS isopleth, meters)	63.1	LF Cet. present			
Behavior (RMS isopleth, feet)	207.0				

VIBRATORY PILE DRIVING REPORT

PRINT IN **LANDSCAPE** TO CAPTURE ENTIRE SCREEN

(if OTHER INFO or NOTES get cut-off, please include information elsewhere)

VERSION 2.0-Multi-Species: 2024

12-in steel (unattenuated)

PROJECT INFORMATION	RMS
Sound pressure level (dB)	155
Distance associated with sound pressure level (meters)	10
Transmission loss constant	15
Number of piles per day	4
Duration to drive pile (minutes)	10
Duration of sound production in day	2400
Cumulative SEL at measured distance	189

OTHER INFO Bellingham Marine Industries

NOTES Assumes dock removal sequntially suchthat 12-inch steel pipe piles would not be removed continuously.

Attenuation 0

RESULTANT ISOPLETHS
(Range to Effects)

FISHES

Fishes present

	BEHAVIOR
	RMS Isopleth
ISOPLETHS (meters)	21.5
ISOPLETHS (feet)	70.7

SEA TURTLES

NO SEA TURTLES

	PTS ONSET	BEHAVIOR
	SEL_{cum} Isopleth	RMS Isopleth
ISOPLETHS (meters)	0.1	0.5
ISOPLETHS (feet)	0.3	1.5

MARINE MAMMALS

	LF Cetacean	MF Cetaceans	HF Cetaceans	PW Pinniped	OW Pinnipeds
UD INJ ONSET (SELcum isopleth, meters)	2.8	1.1	2.3	3.6	1.2
AUD INJ ONSET (SELcum isopleth, feet)	9.2	3.5	7.5	11.8	4.0
	ALL MM	MF Cet. present	NO HF CET.	Phocids present	Otariids present
Behavior (RMS isopleth, meters)	2,154.4	LF Cet. present			
Behavior (RMS isopleth, feet)	7,068.4				

VIBRATORY PILE DRIVING REPORT

PRINT IN **LANDSCAPE** TO CAPTURE ENTIRE SCREEN

VERSION 2.0-Multi-Species: 2024

(if OTHER INFO or NOTES get cut-off, please include information elsewhere)

12-in steel (attenuated)

PROJECT INFORMATION	RMS
Sound pressure level (dB)	150
Distance associated with sound pressure level (meters)	10
Transmission loss constant	15
Number of piles per day	4
Duration to drive pile (minutes)	10
Duration of sound production in day	2400
Cumulative SEL at measured distance	184

OTHER INFO Bellingham Marine Industries

NOTES Assumes dock removal sequntially suchthat 12-inch steel pipe piles would not be removed continuously.

Attenuation 5

RESULTANT ISOPLETHS

(Range to Effects)

FISHES — Fishes present

	BEHAVIOR
	RMS Isopleth
ISOPLETHS (meters)	10.0
ISOPLETHS (feet)	32.8

SEA TURTLES — NO SEA TURTLES

	PTS ONSET	BEHAVIOR
	SEL_{cum} Isopleth	RMS Isopleth
ISOPLETHS (meters)	0.0	0.2
ISOPLETHS (feet)	0.1	0.7

MARINE MAMMALS

	LF Cetacean	MF Cetaceans	HF Cetaceans	PW Pinniped	OW Pinnipeds
UD INJ ONSET (SELcum isopleth, meters)	1.3	0.5	1.1	1.7	0.6
AUD INJ ONSET (SELcum isopleth, feet)	4.3	1.6	3.5	5.5	1.8
	ALL MM	MF Cet. present	NO HF CET.	Phocids present	Otariids present
Behavior (RMS isopleth, meters)	1,000.0	LF Cet. present			
Behavior (RMS isopleth, feet)	3,280.8				

IMPACT PILE DRIVING REPORT

VERSION 2.0-Multi-Species: 2024

14-inch steel (attenuated)

PRINT IN LANDSCAPE TO CAPTURE ENTIRE SCREEN

(if OTHER INFO or NOTES get cut-off, please include information elsewhere)

PROJECT INFORMATION	PEAK	SELss	RMS
Single strike level (dB)	194	164	179
Distance associated with single strike level (meters)	10	10	10
Transmission loss constant	15		
Number of piles per day	4		
Number of strikes per pile	480		
Number of strikes per day	1920		
Cumulative SEL at measured distance	197		

OTHER INFO Bellingham Marine Industries

NOTES 0

Attenuation 5

RESULTANT ISOPLETHS

(Range to Effects)

FISHES

	ONSET OF PHYSICAL INJURY			BEHAVIOR	
	Peak Isopleth	SEL$_{cum}$ Isopleth Fish ≥ 2 g	SEL$_{cum}$ Isopleth Fish < 2 g	RMS Isopleth	
ISOPLETHS (meters)	1.6	45.2	83.6	857.7	Fishes present
Isopleth (feet)	5.2	148.4	274.3	2,814.0	

SEA TURTLES

	PTS ONSET		BEHAVIOR	
	Peak Isopleth	SEL$_{cum}$ Isopleth	RMS Isopleth	
ISOPLETHS (meters)	0.0	3.3	18.5	NO SEA TURTLES
Isopleth (feet)	0.1	10.9	60.6	

MARINE MAMMALS

	LF Cetacean	MF Cetaceans	HF Cetaceans	PW Pinniped	OW Pinnipeds
AUD INJ ONSET (Peak isopleth, meters)	0.1	0.0	2.9	0.1	0.0
AUD INJ ONSET (Peak isopleth, feet)	0.4	0.1	9.6	0.4	0.1
AUD INJ ONSET (SEL$_{cum}$ isopleth, meters)	83.2	10.6	128.7	73.9	27.5
AUD INJ ONSET (SEL$_{cum}$ isopleth, feet)	272.9	34.8	422.3	242.4	90.4
	ALL MM	MF Cet. present	HF Cet. present	Phocids present	Otariids present
Behavior (RMS isopleth, meters)	184.8	LF Cet. present			
Behavior (RMS isopleth, feet)	606.2				

IMPACT PILE DRIVING REPORT

VERSION 2.0-Multi-Species: 2024

14-inch steel (unattenuated)

PRINT IN LANDSCAPE TO CAPTURE ENTIRE SCREEN

(if OTHER INFO or NOTES get cut-off, please include information elsewhere)

PROJECT INFORMATION	PEAK	SELss	RMS
Single strike level (dB)	199	169	184
Distance associated with single strike level (meters)	10	10	10
Transmission loss constant	15		
Number of piles per day	4		
Number of strikes per pile	480		
Number of strikes per day	1920		
Cumulative SEL at measured distance	202		

OTHER INFO: Bellingham Marine Industries

NOTES: 0

Attenuation: 0

RESULTANT ISOPLETHS

(Range to Effects)

FISHES

	ONSET OF PHYSICAL INJURY			BEHAVIOR
	Peak Isopleth	SEL_{cum} Isopleth Fish ≥ 2 g	SEL_{cum} Isopleth Fish < 2 g	RMS Isopleth
ISOPLETHS (meters)	3.4	97.5	180.1	1,847.8
Isopleth (feet)	11.2	319.8	590.9	6,062.5

Fishes present

SEA TURTLES

	PTS ONSET		BEHAVIOR
	Peak Isopleth	SEL_{cum} Isopleth	RMS Isopleth
ISOPLETHS (meters)	0.1	7.2	39.8
Isopleth (feet)	0.2	23.5	130.6

NO SEA TURTLES

MARINE MAMMALS

	LF Cetacean	MF Cetaceans	HF Cetaceans	PW Pinniped	OW Pinnipeds
AUD INJ ONSET (Peak isopleth, meters)	0.3	0.1	6.3	0.3	0.1
AUD INJ ONSET (Peak isopleth, feet)	1.0	0.3	20.7	0.8	0.3
AUD INJ ONSET (SEL_{cum} isopleth, meters)	179.2	22.9	277.3	159.2	59.3
AUD INJ ONSET (SEL_{cum} isopleth, feet)	588.0	75.0	909.9	522.3	194.7
	ALL MM	MF Cet. present	HF Cet. present	Phocids present	Otariids present
Behavior (RMS isopleth, meters)	398.1	LF Cet. present			
Behavior (RMS isopleth, feet)	1,306.1				

VIBRATORY PILE DRIVING REPORT

PRINT IN **LANDSCAPE** TO CAPTURE ENTIRE SCREEN

VERSION 2.0-Multi-Species: 2024

(if OTHER INFO or NOTES get cut-off, please include information elsewhere)

14-in steel (attenuated)

PROJECT INFORMATION	RMS
Sound pressure level (dB)	149
Distance associated with sound pressure level (meters)	10
Transmission loss constant	15
Number of piles per day	4
Duration to drive pile (minutes)	10
Duration of sound production in day	2400
Cumulative SEL at measured distance	183

OTHER INFO Bellingham Marine Industries

NOTES Assumes dock removal sequntially suchthat 12-inch steel pipe piles would not be removed continuously.

Attenuation 5

RESULTANT ISOPLETHS
(Range to Effects)

FISHES

Fishes present

	BEHAVIOR
	RMS Isopleth
ISOPLETHS (meters)	8.6
ISOPLETHS (feet)	28.1

SEA TURTLES

NO SEA TURTLES

	PTS ONSET	BEHAVIOR
	SEL_{cum} Isopleth	RMS Isopleth
ISOPLETHS (meters)	0.0	0.2
ISOPLETHS (feet)	0.1	0.6

MARINE MAMMALS

	LF Cetacean	MF Cetaceans	HF Cetaceans	PW Pinniped	OW Pinnipeds
UD INJ ONSET (SELcum isopleth, meters)	1.1	0.4	0.9	1.4	0.5
AUD INJ ONSET (SELcum isopleth, feet)	3.7	1.4	3.0	4.7	1.6
	ALL MM	MF Cet. present	NO HF CET.	Phocids present	Otariids present
Behavior (RMS isopleth, meters)	857.7	LF Cet. present			
Behavior (RMS isopleth, feet)	2,814.0				

VIBRATORY PILE DRIVING REPORT

PRINT IN **LANDSCAPE** TO CAPTURE ENTIRE SCREEN

VERSION 2.0-Multi-Species: 2024

(if OTHER INFO or NOTES get cut-off, please include information elsewhere)

14-in steel (unattenuated)

PROJECT INFORMATION	RMS
Sound pressure level (dB)	154
Distance associated with sound pressure level (meters)	10
Transmission loss constant	15
Number of piles per day	4
Duration to drive pile (minutes)	10
Duration of sound production in day	2400
Cumulative SEL at measured distance	188

OTHER INFO Bellingham Marine Industries

NOTES Assumes dock removal sequntially suchthat 12-inch steel pipe piles would not be removed continuously.

Attenuation 0

RESULTANT ISOPLETHS
(Range to Effects)

FISHES

Fishes present	BEHAVIOR
	RMS Isopleth
ISOPLETHS (meters)	18.5
ISOPLETHS (feet)	60.6

SEA TURTLES

NO SEA TURTLES	PTS ONSET	BEHAVIOR
	SEL_{cum} Isopleth	RMS Isopleth
ISOPLETHS (meters)	0.1	0.4
ISOPLETHS (feet)	0.2	1.3

MARINE MAMMALS

	LF Cetacean	MF Cetaceans	HF Cetaceans	PW Pinniped	OW Pinnipeds
AUD INJ ONSET (SELcum isopleth, meters)	2.4	0.9	2.0	3.1	1.0
AUD INJ ONSET (SELcum isopleth, feet)	7.9	3.0	6.4	10.1	3.4
	ALL MM	MF Cet. present	NO HF CET.	Phocids present	Otariids present
Behavior (RMS isopleth, meters)	1,847.8	LF Cet. present			
Behavior (RMS isopleth, feet)	6,062.5				

APPENDIX C

Cultural Resources Evaluation

Ventura West Marina Redevelopment Project

Cultural Resources Technical Report

prepared for

Summit Environmental Group, Inc.
Carlsbad, California
Contact: Leslea Meyerhoff, AICP, Principal

prepared by

Rincon Consultants, Inc.
180 North Ashwood Avenue
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February 2025

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Executive Summary

Summit Environmental Group Inc. retained Rincon Consultants Inc. (Rincon) to perform a cultural resources technical report for the Ventura West Marina Redevelopment Project (project). Located in the City and County of Ventura, the project will redevelop the Ventura West Marina and will be limited to waterside improvements. It is anticipated the project will require a permit from the United States Army Corps of Engineers (USACE) and therefore would be subject to Section 106 of the National Historic Preservation Act (Section 106) with the USACE acting as the federal lead agency. The project is also subject to the California Environmental Quality Act (CEQA) with the Ventura Port District (District) acting as the lead agency under CEQA. This cultural resources technical report was prepared to support compliance with Section 106 and CEQA and included a cultural resources delineation of the Area of Potential Effects (APE), records search, Native American Heritage Commission Sacred Land File (SLF) search, background research, field survey, submerged and terrestrial archaeological resources sensitivity analysis, cultural resources evaluation, and preparation of this technical report.

The background research, archaeological sensitivity analysis, and cultural resources survey indicate that both the land and waterside areas have low sensitivity for subsurface archaeological resources. Further, this report identified one historic age property in the APE, Ventura West Marina at 1198 Navigator Drive, which was recorded and evaluated for listing in the National Register of Historic Places (NRHP) and the California Register of Historical Resources (CRHR), and for designation as a City of Ventura Landmark and Point of Interest. The property is recommended ineligible for federal, state, and local designation due to a lack of historic significance or architectural merit. Therefore, Ventura West Marina is not considered a historic property for the purposes of Section 106 or a historical resource under CEQA.

Based on the information summarized above, Rincon recommends a finding of ***no historic properties affected*** for the undertaking under Section 106. In the event of a post review discovery during ground disturbance associated with the undertaking, the procedures under 36 CFR Part 800.13 should be followed by the lead federal agency.

Under CEQA, Rincon recommends a finding of ***no impact to historical resources*** and of ***less than significant impact with mitigation for archaeological resources.*** As standard best management practices under CEQA, Rincon has recommended measures in the unlikely event of an unanticipated discovery during construction.

1 Introduction

Summit Environmental Group Inc. retained Rincon Consultants Inc. (Rincon) to perform a cultural resources technical report for the Ventura West Marina Redevelopment Project (project) in the City and County of Ventura. The purpose of this technical report is to document the tasks conducted by Rincon: specifically, a delineation of the Area of Potential Effects (APE), records search, Native American Heritage Commission Sacred Land File (SLF) search, background research, field survey, submerged and terrestrial archaeological resources sensitivity analysis, cultural resources evaluation, and preparation of this technical report. Cultural resources work performed in support of the project has been completed pursuant to the requirements of the Section 106 of the National Historic Preservation Act (NHPA) and the California Environmental Quality Act (CEQA). Rincon understands that the proposed project will require a 404 permit from the United States Army Corps of Engineers (USACE). The USACE is the lead federal agency for the purposes of Section 106 of the NHPA and the District is the lead agency for the purposes of CEQA.

1.1 Project Description

The following project description has been adapted from information provided by Summit Environmental Group on June 6, 2024 and November 20, 2024. The APE is located at 1198 Navigator Drive, Ventura, California within Parcel 17 of Ventura County Assessor's Parcel Number (APN) 080-0-240-325. The project will redevelop the property which contains the Ventura West Marina. The current project is limited to the waterside redevelopment which includes the replacement of existing docks and pilings, decreasing the number of slips from 387 to 379. Other improvements include updated facilities that meet current ADA and energy standards, enhanced marina channels to improve navigational flow, new electrical charging infrastructure to support electric powered watercraft, and new public access and public areas on the docks (Figure 2). It is anticipated that the project will include usage of a temporary staging area in the parking lot of Parcel 17. The extant Ventura West Marina buildings will remain unchanged.

The project encompasses portions of Section 23 of Township 2 North, Range 23 West on the *Oxnard*, *California* United States Geological Survey (USGS) 7.5-minute topographic quadrangle (Figure 1).

1.2 Area of Potential Effects

The Area of Potential Effects (APE) is the geographic area or areas within which an undertaking may directly or indirectly cause changes in the character or use of historic properties. Determination of the APE is influenced by the project's setting, the scale and nature of the undertaking, and the different kinds of effects that may result from the undertaking (36 CFR 800.16[d]).

The APE was developed by Rincon in late August and early September 2024 to identify resources in the area that have potential for historic significance, that should be evaluated for eligibility for the National Register of Historic Places (NRHP), and that may be directly or indirectly affected by the undertaking, pursuant to 36 CFR 800.16(d).

The APE encompasses the property on which the undertaking will occur (1198 Navigator Drive/ Parcel 17 of Ventura West Marina) and does not include any adjacently located properties (Figure

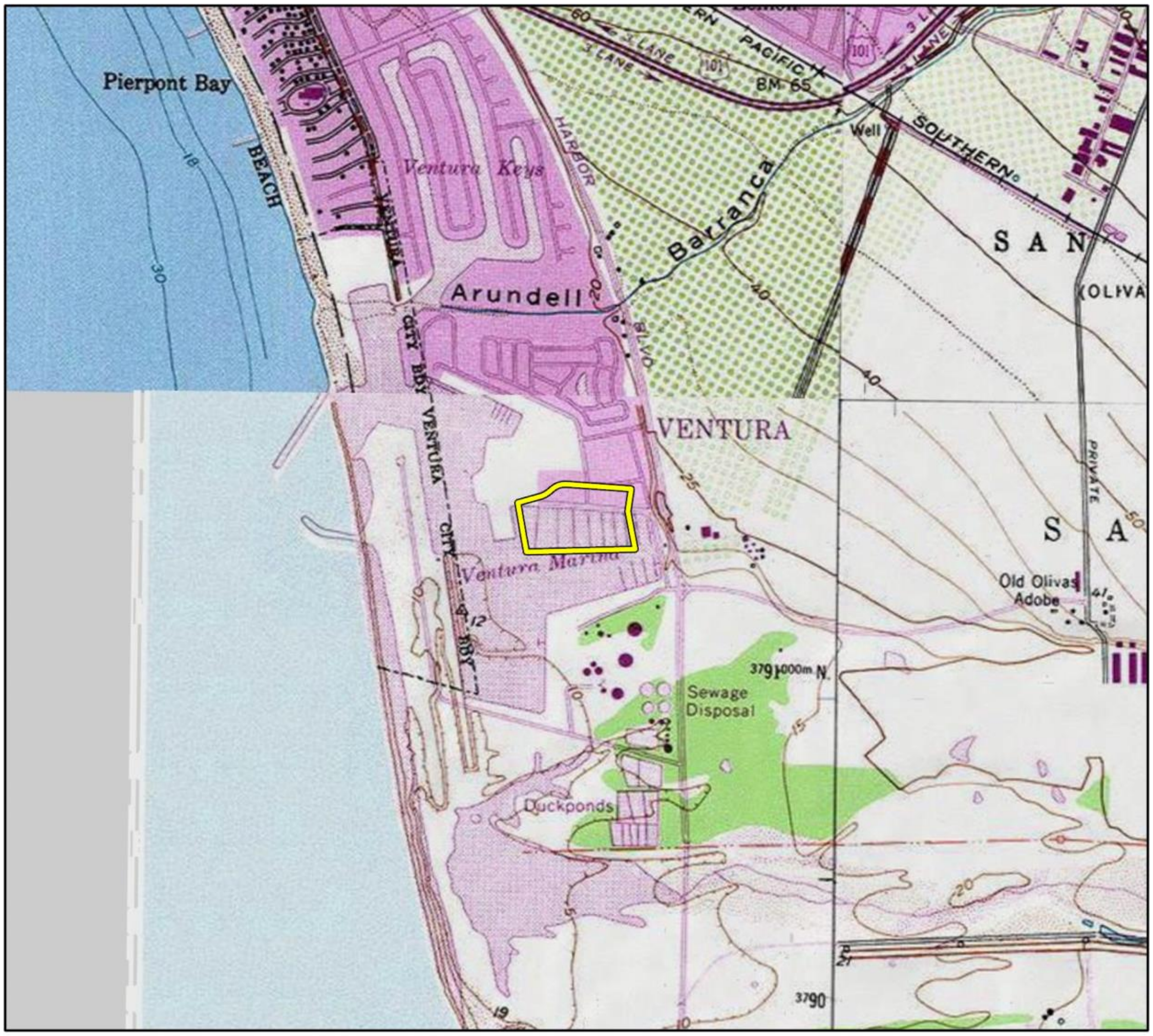
3). It is currently developed with Ventura West Marina consisting of docks, boat slips, three buildings, and associated parking lot, is part of a larger parcel (APN 080-0-240-325) which encompasses not only Parcel 17 but the length of Ventura Harbor including additional docks, slips, and buildings. The entire parcel is not included within the APE as work will be limited only to the waterside portion of Parcel 17. The project will therefore not significantly alter the existing setting or surrounding character of the larger harbor property nor any properties in its vicinity.

The APE must also be considered as a three-dimensional space that encompasses the maximum below and above grade extent of the project. As the project is still in the design phase, the exact depth and height of disturbance is currently unknown; however, the height and depth will be limited to the height and depth of the new pilings, which is expected to be the same as the existing pilings.

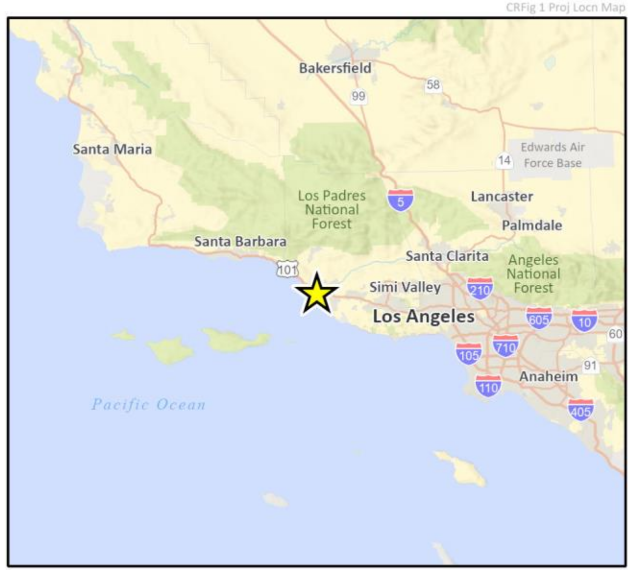
1.3 Personnel

Architectural Historian Ashley Losco, MHP, is the primary author of this report. Rincon Senior Architectural Historian JulieAnn Murphy, MHP, provided management oversight for this cultural resources technical report. Senior Architectural Historian Rachel Perzel, MA, conducted the cultural resources field survey. Archaeologist Andrea Ogaz, MA, RPA, performed the cultural resources records search. Maritime Archaeologist Elaine Foster, MA, RPA, conducted archaeological sensitivity analysis. Ms. Murphy, Ms. Losco, Ms. Perzel, Ms. Ogaz, and Ms. Foster meet the Secretary of the Interior's Professional Qualifications Standards in their respective fields (National Park Service [NPS] 1983). Geographic Information Systems Analyst Paul Rigby prepared the figures found in this report. Cultural Resources Director Steven Treffers, MHP, and Cultural Resources Principal Nichole Jordan, RPA, reviewed this report for quality control.

Figure 1 Regional Location



Basemap provided by National Geographic Society, Esri and their licensors © 2024. Oxnard Quadrangle. T02N R23W S23. The topographic representation depicted in this map may not portray all of the features currently found in the vicinity today and/or features depicted in this map may have changed since the original topographic map was assembled.



Area of Potential Effects

0 1,000 2,000 Feet

N

Figure 2 Proposed Slip Design

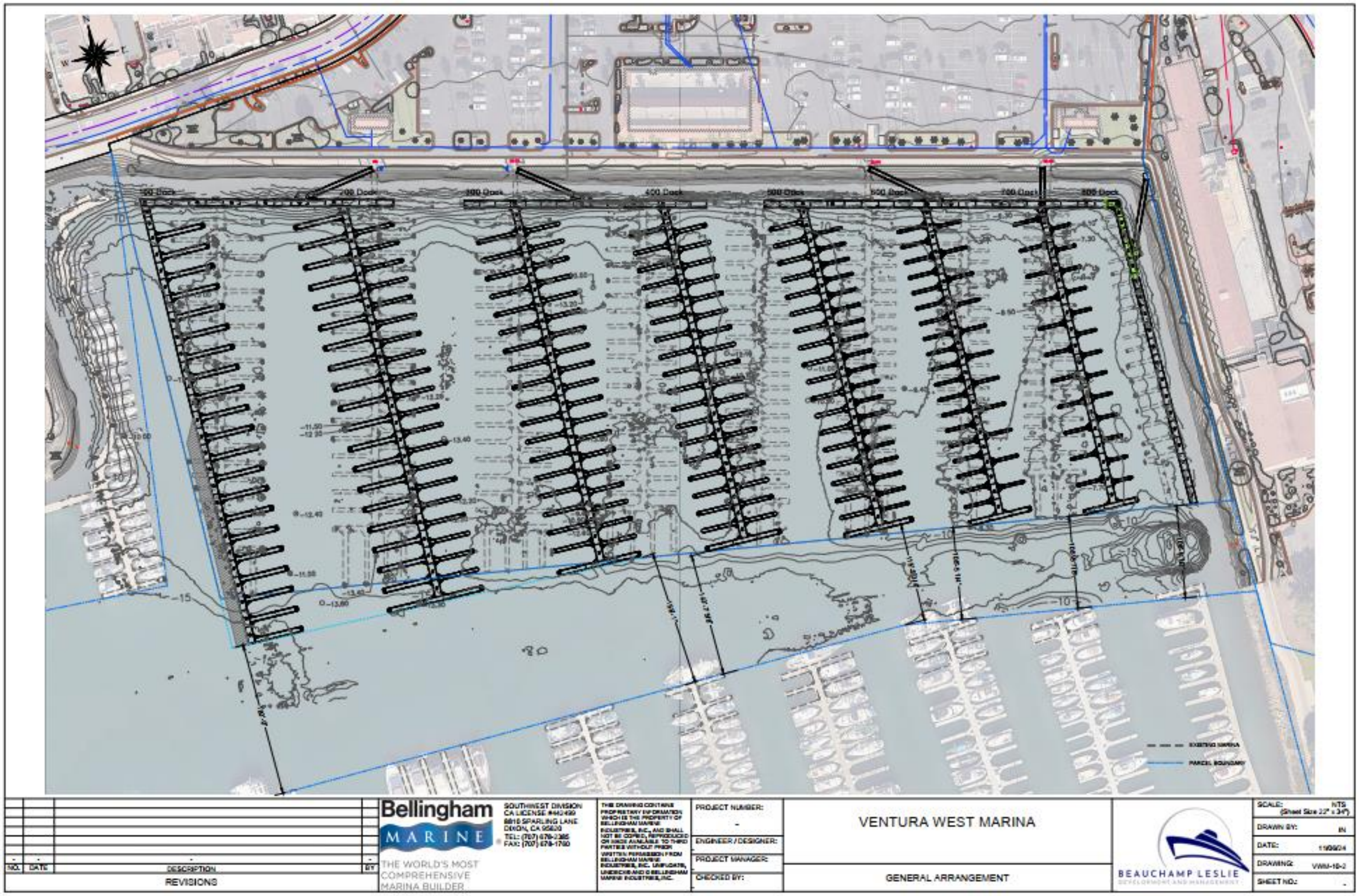


Figure 3 Area of Potential Effects

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24-16349 CR
CRFig 2 APE

2 Regulatory Setting

This section includes a discussion of the applicable federal, state, and local laws, ordinances, regulations, and standards governing cultural resources, which must be adhered to before and during implementation of the project.

2.1 Federal

Rincon understands the project requires the issuance a federal permit from the USACE. Projects that involve federal permitting must comply with the provisions of the National Historic Preservation Act of 1966 (NHPA), as amended (16 United States Code [USC] 470f). The NHPA of 1966 established a federal program for the preservation of historic properties, including built environment, archaeological, and traditional cultural resources. Towards this end, the NHPA establishes both institutions and defined processes to direct federal agencies and support state and local governments in their historic preservation programs and activities. These institutions and processes include the Advisory Council on Historic Preservation (ACHP), State Historic Preservation Officers, the NRHP, and the Section 106 review process.

2.1.1 Section 106 of the NHPA

Section 106 (16 USC 470f) requires federal agencies to account for the effects of their undertakings on historic properties, and to afford the ACHP a reasonable opportunity to comment on such undertakings. Historic properties are defined as buildings, structures, districts, sites, or objects which are included in or eligible for inclusion in the NRHP. Section 106 is implemented through 36 CFR Part 800, which outlines the process for historic preservation review, including participants, identification efforts, and the assessment and resolution of adverse effects. Per 36 CFR 800.16(y), a federal undertaking is defined as any project requiring or receiving a federal permit, license, approval, or funding. Federal agencies must take steps to determine if the undertaking would result in an adverse effect to historic properties and take measures to avoid or resolve those effects as feasible.

2.1.2 National Register of Historic Places

Authorized by Section 101 of the NHPA, the NRHP is the nation’s official list of cultural resources worthy of preservation. The NRHP recognizes the quality of significance in American, state, and local history, architecture, archaeology, engineering, and culture is present in districts, sites, buildings, structures, and objects. Per 36 CFR Part 60.4, a property is eligible for listing in the NRHP if it meets one or more of the following criteria:

Criterion A: Is associated with events that have made a significant contribution to the broad patterns of our history

Criterion B: Is associated with the lives of persons significant in our past

Criterion C: Embodies the distinctive characteristics of a type, period, or method of installation, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction

Criterion D: Has yielded, or may be likely to yield, information important in prehistory or history

In addition to meeting at least one of the above designation criteria, resources must also retain integrity. The NPS recognizes seven aspects or qualities that, considered together, define historic integrity. To retain integrity, a property must possess several of these seven qualities—if not all—defined in the following manner:

Location: The place where the historic property was constructed or the place where the historic event occurred

Design: The combination of elements that create the form, plan, space, structure, and style of a property

Setting: The physical environment of a historic property

Materials: The physical elements that were combined or deposited during a particular period of time and in a particular pattern or configuration to form a historic property

Workmanship: The physical evidence of the crafts of a particular culture or people during any given period in history or prehistory

Feeling: A property's expression of the aesthetic or historic sense of a particular period of time

Association: The direct link between an important historic event or person and a historic property

Certain properties are generally considered ineligible for listing in the NRHP, including cemeteries, birthplaces, graves of historical figures, properties owned by religious institutions, relocated structures, or commemorative properties. Additionally, a property must be at least 50 years of age to be eligible for listing in the NRHP. The NPS states that 50 years is the general estimate of the time needed to develop the necessary historical perspective to evaluate significance (NPS 1997: 41). Properties which are less than 50 years must be determined to have "exceptional importance" to be considered eligible for NRHP listing.

2.1.3 Abandoned Shipwreck Act

Asserts federal title to three categories of abandoned shipwrecks located in or on state submerged land, including 1) embedded in submerged lands of a state, 2) embedded in coralline formations protected by a state on submerged lands of a state, and 3) on submerged lands of a state and is included in or determined eligible for inclusion in the NRHP. It further asserts the transfer of title to the respective state or territory in which that shipwreck is located.

2.1.4 Rivers and Harbors Act

Requires a permit for dredge and fill activities in accordance with Section 10 for any obstruction or alteration of any navigable water of the United States.

2.1.5 Sunken Military Craft Act

Confirms that sunken United States military vessels and aircraft are sovereign property of the United States, regardless of the passage of time.

2.2 State

2.2.1 California Environmental Quality Act

California Public Resources Code (PRC) Section 21084.1 requires lead agencies to determine if a project could have a significant impact on historical or unique archaeological resources. As defined in PRC Section 21084.1, a historical resource is a resource listed in, or determined eligible for listing in, the CRHR, a resource included in a local register of historical resources or identified in a historical resources survey pursuant to PRC Section 5024.1(g), or any object, building, structure, site, area, place, record, or manuscript that a lead agency determines to be historically significant. PRC Section 21084.1 also states resources meeting the above criteria are presumed to be historically or culturally significant unless the preponderance of evidence demonstrates otherwise. Resources listed in the NRHP are automatically listed in the CRHR, as are California Historical Landmarks 770 and above; both are therefore historical resources under CEQA. Historical resources may include eligible built environment resources and archaeological resources of the precontact or historic periods.

CEQA Guidelines Section 15064.5(c) provides further guidance on the consideration of archaeological resources. If an archaeological resource does not qualify as a historical resource, it may meet the definition of a “unique archaeological resource” as identified in PRC Section 21083.2. PRC Section 21083.2(g) defines a unique archaeological resource as an 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) it 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, or 3) is directly associated with a scientifically recognized important prehistoric or historic event or person.

If an archaeological resource does not qualify as a historical or unique archaeological resource, the impacts of a project on those resources will be less than significant and need not be considered further (*CEQA Guidelines* Section 15064.5[c][4]). *CEQA Guidelines* Section 15064.5 also provides guidance for addressing the potential presence of human remains, including those discovered during the implementation of a project.

According to CEQA, an impact that results in a substantial adverse change in the significance of a historical resource is considered a significant impact on the environment. A substantial adverse change could result from physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of the historical resource would be materially impaired (*CEQA Guidelines* Section 15064.5 [b][1]). Material impairment is defined as demolition or alteration in an adverse manner [of] those characteristics of a historical resource that convey its historical significance and that justify its inclusion in, or eligibility for inclusion in, the CRHR or a local register (*CEQA Guidelines* Section 15064.5[b][2][A]).

If it can be demonstrated that a project will 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 resources cannot be left undisturbed, mitigation measures are required (PRC Section 21083.2[a][b]).

The requirements for mitigation measures under CEQA are outlined in CEQA Guidelines Section 15126.4(a)(1). In addition to being fully enforceable, mitigation measures must be completed within a defined time period and be roughly proportional to the impact of the project. Generally, a project which is found to comply with the Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring, and Reconstructing Historic Buildings (the Standards) is considered to be mitigated below a level of significance (*CEQA Guidelines* Section 15126.4 [b][1]). For historical resources of an archaeological nature, lead agencies should also seek to avoid damaging effects where feasible. Preservation in place is the preferred manner to mitigate impacts to archaeological sites; however, data recovery through excavation may be the only option in certain instances (*CEQA Guidelines* Section 15126.4[b][3]).

California Register of Historical Resources

The CRHR was established in 1992 and codified by PRC Sections 5024.1 and Title 14 Section 4852. The CRHR is an authoritative listing and guide to be used by state and local agencies, private groups, and citizens in identifying the existing historical resources of the state and to indicate which resources deserve to be protected, to the extent prudent and feasible, from substantial adverse change (PRC 5024.1(a)). The criteria for eligibility for the CRHR are consistent with the NRHP criteria but have been modified for state use in order to include a range of historical resources that better reflect the history of California (PRC, 5024.1(b)). Unlike the NRHP however, the CRHR does not have a defined age threshold for eligibility; rather, a resource may be eligible for the CRHR if it can be demonstrated sufficient time has passed to understand its historical or architectural significance (California Office of Historic Preservation [OHP] 2011). Furthermore, resources may still be eligible for listing in the CRHR even if they do not retain sufficient integrity for NRHP eligibility (OHP 2011). Generally, the OHP recommends resources over 45 years of age be recorded and evaluated for historical resources eligibility (OHP 1995: 2).

A property is eligible for listing in the CRHR if it meets one of more of the following criteria:

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

Criterion 2: Is associated with the lives of persons important to our past

Criterion 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

Criterion 4: Has yielded, or may be likely to yield, information important in prehistory or history

2.2.2 California Health and Safety Code

Section 7050.5 of the California Health and Safety Code states that in the event of discovery or recognition of any human remains in any location other than a dedicated cemetery, there shall be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent remains until the County Coroner has determined if the remains are subject to the Coroner's authority. If the human remains are of Native American origin, the Coroner must notify the NAHC within 24 hours of this identification.

2.2.3 California Public Resources Code Section 5097.98

Section 5097.98 of the California PRC states that the NAHC, upon notification of the discovery of Native American human remains pursuant to Health and Safety Code Section 7050.5, shall immediately notify those persons (i.e., the Most Likely Descendant [MLD]) that it believes to be descended from the deceased. With permission of the landowner or a designated representative, the MLD may inspect the remains and any associated cultural materials and make recommendations for treatment or disposition of the remains and associated grave goods. The MLD shall provide recommendations or preferences for treatment of the remains and associated cultural materials within 48 hours of being granted access to the site.

2.3 Local

2.3.1 City of Ventura Historic Preservation Ordinance

The City of Ventura Historic Preservation Ordinance (Ordinance Nos. 2005-004, § 3, 5-2-05 and 2021-017, § 50, 12-13-21) authorizes the Cultural Heritage Board to designate local landmarks and points of interest, as approved by the City Council, by the procedures outlined in the ordinances. An eligible property may be nominated and designated as a landmark or point of interest if it satisfies the requirements set forth below.

Landmark

“Landmark” any real property such as building, structure, or archaeological excavation, or object that is unique or significant because of its location, design, setting, materials, workmanship or aesthetic feeling, and is associated with:

a) Events that have made a meaningful contribution to the nation, state or community;

b) Lives of persons who made a meaningful contribution to national, state or local history;

c) Reflecting or exemplifying a particular period of the national, state or local history;

d) Embodying the distinctive characteristics of a type, period or method of construction;

e) The work of one or more master builders, designers, artists or architects whose talents influenced their historical period, or work that otherwise possesses high artistic value;

f) Representing a significant and distinguishable entity whose components may lack individual distinction; or

g) Yielding, or likely to yield, information important to national, state or local history or prehistory.

Point of Interest

“Point of interest” shall mean any real property or object:

a) That is the site of a building, structure or object that no longer exists but was associated with historic events, important persons, or embodied a distinctive character of architectural style;

b) That has historic significance, but was altered to the extent that the integrity of the original workmanship, materials or style is substantially compromised;

c) That is the site of a historic event which has no distinguishable characteristics other than that a historic event occurred there and the historic significance is sufficient to justify the establishment of a historic landmark.

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3 Natural and Cultural Setting

This section provides background information pertaining to the natural and cultural context of the APE. It places the APE in the broader natural environment that has sustained populations throughout history. This section also provides an overview of regional indigenous history, local ethnography, and post-contact history. This background information describes the distribution and type of cultural resources documented in the vicinity of the APE to inform the cultural resources sensitivity assessment and the context in which resources have been evaluated.

3.1 Natural Setting

The current APE lies in Ventura County near the McGrath State Beach and Campground at an approximate elevation of 11 feet above mean sea level. None of the surrounding area retains its natural setting, with the current APE located within an area historically used for farming, and the extant harbor being manmade and artificially inundated. Located immediately west of the APE is the Pacific Ocean. Additionally, the Santa Clara River is approximately one mile to the south of the current APE. Vegetation within the vicinity of the site consists of agricultural lands, and a variety of native and non-native plants and grasses. Wildlife within the APE typically consists of gophers, squirrels, and various birds.

3.2 Cultural Setting

3.2.1 Indigenous History

During the twentieth century, many archaeologists developed chronological sequences to explain precontact cultural changes within all or portions of southern California (c.f., Jones and Klar 2007; Moratto 1984). Wallace (1955, 1978) devised a prehistoric chronology for the southern California coastal region based on early studies and focused on data synthesis that included four horizons: Early Man, Milling Stone, Intermediate, and Late Prehistoric. Though initially lacking the chronological precision of absolute dates (Moratto 1984:159), Wallace's (1955) synthesis has been modified and improved using thousands of radiocarbon dates obtained by southern California researchers over recent decades (Byrd and Raab 2007:217; Koerper and Drover 1983; Koerper et al. 2002; Mason and Peterson 1994). The prehistoric chronological sequence for southern California presented below is a composite based on Wallace (1955) and Warren (1968) as well as later studies, including Koerper and Drover (1983).

Early Man Horizon (ca. 10000 – 6000 B.C.)

Numerous pre-8000 B.C. sites have been identified along the mainland coast and Channel Islands of southern California (c.f., Erlandson 1991; Johnson et al. 2002; Jones and Klar 2007; Moratto 1984; Rick et al. 2001:609). The Arlington Springs site on Santa Rosa Island produced human femurs dated to approximately 13,000 years ago (Arnold et al. 2004; Johnson et al. 2002). On nearby San Miguel Island, human occupation at Daisy Cave (SMI-261) has been dated to nearly 13,000 years ago and included basketry greater than 12,000 years old, the earliest recorded on the Pacific Coast (Arnold et al. 2004).

Although few Clovis or Folsom style fluted points have been found in southern California (e.g., Dillon 2002; Erlandson et al. 1987), Early Man Horizon sites are generally associated with a greater emphasis on hunting than subsequent horizons. Recent data indicate that the Early Man economy was a diverse mixture of hunting and gathering, including a significant focus on aquatic resources in coastal areas (e.g., Jones et al. 2002) and on inland Pleistocene lakeshores (Moratto 1984). A warm and dry 3,000-year period called the Altithermal began around 6000 B.C. The conditions of the Altithermal are likely responsible for the change in human subsistence patterns at this time, including a greater emphasis on plant foods and small game.

Milling Stone Horizon (6000–3000 B.C.)

Wallace (1955:219) defined the Milling Stone Horizon as "marked by extensive use of milling stones and mullers, a general lack of well-made projectile points, and burials with rock cairns." The dominance of such artifact types indicates a subsistence strategy oriented around collecting plant foods and small animals. A broad spectrum of food resources was consumed including small and large terrestrial mammals, sea mammals, birds, shellfish and other littoral and estuarine species, near-shore fishes, yucca, agave, and seeds and other plant products (Kowta 1969; Reinman 1964). Variability in artifact collections over time and from the coast to inland sites indicates that Milling Stone Horizon subsistence strategies adapted to environmental conditions (Byrd and Raab 2007:220). Lithic artifacts associated with Milling Stone Horizon sites are dominated by locally available tool stone. Chopping, scraping, and cutting tools, are very common along with ground stone tools, such as manos and metates. Kowta (1969) attributes the presence of numerous scraper-plane tools in Milling Stone Horizon collections to the processing of agave or yucca for food or fiber. The mortar and pestle, associated with acorns or other foods processed through pounding, were first used during the Milling Stone Horizon and increased dramatically in later periods (Wallace 1955, 1978; Warren 1968).

Two types of artifacts that are considered diagnostic of the Milling Stone Horizon are the cogged stone and discoidal, most of which have been found within sites dating between 4000 and 1000 B.C. (Moratto 1984:149), though possibly as far back as 5500 B.C. (Couch et al. 2009). The cogged stone is a ground stone object that has gear-like teeth on the perimeter and is produced from a variety of materials. The function of cogged stones is unknown, but many scholars have postulated ritualistic or ceremonial uses (c.f., Dixon 1968:64-65; Eberhart 1961:367). Similar to cogged stones, discoidals are found in the archaeological record subsequent to the introduction of the cogged stone. Cogged stones and discoidals were often purposefully buried, or "cached." They are most common in sites along the coastal drainages from southern Ventura County southward and are particularly abundant at some Orange County sites, although a few specimens have been found inland at Cajon Pass (Dixon 1968:63; Moratto 1984:149). Cogged stones and discoidals have been found together at some Orange County sites, such as CA-ORA-83/86/144 (Van Bueren et al. 1989:772) and Los Cerritos Ranch (Dixon 1975). Cogged stones have been collected in Riverside County and their distribution appears to center on the Santa Ana River basin (Eberhart 1961).

Mortuary practices observed at Milling Stone Horizon sites include extended and loosely flexed burials. Flexed burials oriented north were common in Orange and San Diego counties, with reburials common in Los Angeles County (Wallace 1955, 1978; Warren 1968).

Intermediate Horizon (3000 B.C. – A.D. 500)

Wallace's Intermediate Horizon dates from approximately 3000 B.C.-A.D. 500 and is characterized by a shift toward a hunting and maritime subsistence strategy, as well as greater use of plant foods.

During the Intermediate Horizon, a noticeable trend occurred toward greater adaptation to local resources including a broad variety of fish, land mammals, and sea mammals along the coast. Tool kits for hunting, fishing, and processing food and materials reflect this increased diversity, with flake scrapers, drills, various projectile points, and shell fishhooks being manufactured.

Mortars and pestles became more common during this transitional period, gradually replacing manos and metates as the dominant milling equipment. Many archaeologists believe this change in milling stones signals a change from the processing and consuming of hard seed resources to the increasing reliance on acorn (e.g., Glassow et al. 1988; True 1993). Mortuary practices during the Intermediate Horizon typically included fully flexed burials oriented toward the north or west (Warren 1968:2-3).

Late Prehistoric Horizon (A.D. 500–Historic Contact)

During Wallace's (1955, 1978) Late Prehistoric Horizon the diversity of plant food resources and land and sea mammal hunting increased even further than during the Intermediate Horizon. More classes of artifacts were observed during this period and high quality exotic lithic materials were used for small, finely worked projectile points associated with the bow and arrow. Steatite containers were made for cooking and storage and an increased use of asphalt for waterproofing is noted. More artistic artifacts were recovered from Late Prehistoric sites and cremation became a common mortuary custom. Larger, more permanent villages supported an increased population size and social structure (Wallace 1955:223).

Warren (1968) attributes this dramatic change in material culture, burial practices, and subsistence focus to the westward migration of desert people he called the Takic, or Numic, Tradition in Los Angeles, Orange, and western Riverside counties. This Takic Tradition was formerly referred to as the "Shoshonean wedge" (Warren 1968), but this nomenclature is no longer used to avoid confusion with ethnohistoric and modern Shoshonean groups (Heizer 1978:5; Shipley 1978:88, 90). The modern Cahuilla groups in Riverside County are generally considered by archaeologists to be descendants of these prehistoric Uto-Aztecan, Takic-speaking populations.

3.2.2 Ethnographic Setting

The current APE is located in the traditional territory of the Ventureño Chumash, a linguistically and culturally distinct Chumash group. The Chumash spoke six closely related Chumashan languages that have been divided into three branches—Northern Chumash (consisting only of Obispeño), Central Chumash (consisting of Purisimeño, Ineseño, Barbareño, and Ventureño), and Island Chumash (Golla 2007). The name "Ventureño Chumash" denotes the people who were administered by the Spanish from the Mission San Buenaventura during the historic period. Their territory includes the areas of present-day Ventura. Ventureño Chumash extensively occupied interior areas, which had creek corridors that provided intermittent or perennial fresh water sources. A series of trailways into these areas facilitated trade between coastal and other neighboring groups such as the Salinan to the north, the Southern Valley Yokuts and Tataviam to the east, and the Gabrielino (Tongva) to the south (Roman 2017).

Early Spanish accounts from European-Native contact describe the Santa Barbara Channel as heavily populated. Estimates of the Chumash total population range from 8,000 to 10,000 (Kroeber 1925: 551) to 18,000 to 22,000 (Cook and Heizer 1965, Grant 1978a). Santa Cruz Island had at least six villages observed by Juan Rodriguez Cabrillo in 1542 (Johnson 1982). Typical house structures were large (up to 55 feet in diameter) and could accommodate 70 people (Kroeber 1925, Grant 1978b).

The village of šukuw, (or shuku), at Rincon Point, was encountered by Gaspar de Portola in 1769. This village had 60 houses and seven canoes, with an estimated population of 300 (Grant 1978b). Eastern coastal Chumash lived in hemispherical dwellings covered by interwoven grasses, such as tule, carrizo grass, wild alfalfa, and fern (Grant 1978b). Other structures in a village included small sweathouses and a large ceremonial chamber (Kroeber 1925: 557).

Ventureño Chumash groups were socially and religiously multifaceted (Gamble et al. 2001, Arnold and Green 2002). Historic Spanish period accounts suggest the overarching social structure to be patrilineal chiefdoms. These have been separated into three sub-chief categories: “Big Chief,” who lead groups of settlements, “Chief,” who was head of a single village, and “Lesser Chief,” who was subordinate to the others (Gamble et al. 2001). Social or economic status may also have been indicated through mortuary practices, although this is debated by archaeologists. Mourning rituals consisted of burials in cemeteries with grave goods, such as Olivella shell beads, and beads made from local shells. Other recorded mortuary rituals included burying individuals in the floor of a residence and burning the deceased’s house and possessions (Gamble et al. 2001, Arnold and Green 2002).

Chumash exploited multiple subsistence strategies. The acorn was an especially important resource. It could be gathered, stored, ground into meal, or cooked into paste. Other seeds or fruits like pine nuts and wild cherries would be gathered and processed with a mortar. Hunting and fishing were also an important aspect of Chumash subsistence. Hunters would use a bow and arrow for land mammals like deer, coyote, and fox (Grant 1978b). Sea mammals were hunted with harpoons, while deep-sea fish were caught using nets, hooks, and lines. Shellfish were gathered from beaches using digging sticks, and mussels and abalone were pried from rocks using wood or bone wedges (Johnson 1982). Other subsistence technology included skillet-like flat stones called comals, sandstone storage bowls, and wooden plates and bowls. Archaeological evidence suggests the Ventureño Chumash practiced lithic production of tools from quartzite, chalcedony, and chert in separate lithic workspaces nearby their occupation sites (Roman 2017). Woven baskets were also used for food storage and food preparation. Tightly woven baskets for holding were made with coiling or twining techniques (Grant 1978b).

The Chumash were heavily affected by the arrival of Europeans. The Spanish missions and later Mexican and American settlers dramatically altered traditional Chumash lifeways. The Chumash population was considerably reduced by the introduction of European diseases. However, many Chumash descendants still inhabit the region (Grant 1978a).

3.2.3 Post-Contact Setting

Post-Contact history for the state of California is generally divided into three periods: the Spanish Period (1769–1822), Mexican Period (1822–1848), and American Period (1848–present). Although Spanish, Russian, and British explorers visited the area for brief periods between 1529 and 1769, the Spanish Period in California begins in 1769 with the establishment of a settlement at San Diego and the founding of Mission San Diego de Alcalá, the first of 21 missions constructed between 1769 and 1823. Independence from Spain in 1821 marks the beginning of the Mexican Period, and the signing of the Treaty of Guadalupe Hidalgo in 1848, ending the Mexican-American War, signals the beginning of the American Period when California became a territory of the United States.

Spanish Period (1769-1822)

Spanish explorers made sailing expeditions along the coast of California between the mid-1500s and mid-1700s. In 1542, Juan Rodriguez Cabrillo led the first European expedition to observe what was known by the Spanish as Alta (upper) California. For more than 200 years, Cabrillo and other Spanish, Portuguese, British, and Russian explorers sailed the Alta California coast and made limited inland expeditions, but they did not establish permanent settlements (Bean 1968; Rolle 2003). The Spanish crown laid claim to Alta California based on the surveys conducted by Cabríllo and Vizcaíno (Bancroft 1885; Gumprecht 1999).

By the eighteenth century, Spain developed a three-pronged approach to secure its hold on the territory and counter against other foreign explorers. The Spanish established military forts known as presidios, as well as missions and pueblos (towns) throughout Alta California. The 1769 overland expedition by Captain Gaspár de Portolá marks the beginning of California's Historic period, occurring just after the King of Spain installed the Franciscan Order to direct religious and colonization matters in assigned territories of the Americas. Portolá established the Presidio of San Diego as the first Spanish settlement in Alta California in 1769. That same year Franciscan Father Junípero Serra also founded Mission San Diego de Alcalá, the first of the 21 missions that would be established in Alta California by the Spanish and the Franciscan Order between 1769 and 1823 (Graffy 2010).

The mission and presidio system relied on Chumash labor; eventually, the majority of the native population lived at the mission complex (Cole 1999). Construction of missions and associated presidios was a major emphasis during the Spanish Period in California to integrate the Native American population into Christianity and communal enterprise. Incentives were also provided to bring settlers to pueblos or towns; just three pueblos were established during the Spanish Period, only two of which were successful and remain as California cities (San José and Los Angeles).

Spain began making land grants in 1784, typically to retiring soldiers, although the grantees were only permitted to inhabit and work the land. The land titles technically remained property of the Spanish king (Livingston 1914).

Mexican Period (1822-1848)

Several factors kept growth within Alta California to a minimum, including the threat of foreign invasion, political dissatisfaction, and unrest among the indigenous population. After more than a decade of intermittent rebellion and warfare, New Spain won independence from Spain in 1821. In 1822, the Mexican legislative body in California ended isolationist policies designed to protect the Spanish monopoly on trade, and decreed California ports open to foreign merchants (Dallas 1955).

Extensive land grants were established in the interior during the Mexican Period, in part to increase the population inland from the more settled coastal areas where the Spanish had first concentrated their colonization efforts. The secularization of the missions following Mexico's independence from Spain resulted in the subdivision of former mission lands and establishment of many additional ranchos. Commonly, former soldiers and well-connected Mexican families were the recipients of these land grants, which now included the title to the land (Graffy 2010).

During the supremacy of the ranchos (1834–1848), landowners largely focused on the cattle industry and devoted large tracts to grazing. Cattle hides became a primary southern California export, providing a commodity to trade for goods from the east and other areas in the United States and Mexico. The number of nonnative inhabitants increased during this period because of the influx of explorers, trappers, and ranchers associated with the land grants. The rising California population contributed to the introduction and rise of diseases foreign to the Native American population, who had no associated immunities.

American Period (1848- Present)

The United States went to war with Mexico in 1846. During the first year of the war, John C. Fremont traveled from Monterey to Los Angeles with reinforcements for Commodore Stockton and evaded Californian soldiers in Santa Barbara's Gaviota Pass by taking the route over the San Marcos grade instead (Kyle 2002). The war ended in 1848 with the Treaty of Guadalupe Hidalgo, ushering California into its American Period.

California officially became a state with the Compromise of 1850, which also designated Utah and New Mexico (with present-day Arizona) as US territories (Waugh 2003). Horticulture and livestock, based primarily on cattle as the currency and staple of the rancho system, continued to dominate the southern California economy through 1850s. The discovery of gold in the northern part of the state led to the Gold Rush beginning in 1848, and, with the influx of people seeking gold, cattle were no longer desired mainly for their hides but also as a source of meat and other goods. During the 1850s cattle boom, rancho vaqueros drove large herds from southern to northern California to feed that region's burgeoning mining and commercial boom.

A severe drought in the 1860s decimated cattle herds and drastically affected rancheros' source of income. In addition, property boundaries that were loosely established during the Mexican era led to disputes with new incoming settlers, problems with squatters, and lawsuits. Rancheros often were encumbered by debt and the cost of legal fees to defend their property. As a result, much of the rancho lands were sold or otherwise acquired by Americans. Most of these ranchos were subdivided into agricultural parcels or towns (Dumke 1944).

Local History

The area that is now Ventura was missionized in 1782, with the founding of the San Buenaventura Mission, which became a secularized parish in 1836 (California Mission Resource Center 2019). The townsite of San Buenaventura (referred to as Ventura following 1889) was first laid out by Jose Arnaz in 1848 and became an official town when its post office was established in 1864. The city was incorporated by an act of state legislature in 1866. During this early period, the community was primarily accessible via ship and development was clustered in the vicinity of (and north and west of) the mission. In 1868, a stagecoach line was established, followed by the completion of the transcontinental railroad in 1869. After these developments, San Buenaventura's downtown area became denser and diversified to include varying ethnic backgrounds including Italian, French, German/Austrian and Chinese, many of whom established commercial enterprise (Historic Resources Group 2022).

The construction of a wharf was the first large-scale infrastructural improvement undertaken in Ventura. Construction began in 1872 and was completed January 1, 1873, spurring economic growth in the city and surrounding region. At the time of its construction, the wharf in Ventura was the longest wooden wharf in California (City of Ventura n.d.). Its presence not only increased the city's general accessibility but perhaps more importantly, it provided much needed shipping options for the area's already established and growing agricultural economy, and the lumber and oil industries (Historic Resources Group 2022; *Ventura County Star* 2015).

Following the turn of the century, Ventura greatly expanded its geographic boundaries. During this period, significant portions of recently annexed land remained in use for agricultural purposes and commercial and residential development in the downtown area persisted. The city made significant strides towards modernization and street lighting, sidewalks, and public areas such as parks and gardens developed during this period. A significant strike by Shell Oil in 1921 ushered in exponential growth in both the city and the county of Ventura and expansive residential development took place. While growth slowed during the Depression and the lead up to World War II, the postwar period ushered in tremendous growth. Between 1940 and 1960, the population more than doubled, from 13,264 to 29,114 (Historic Resources Group 2022). With greater reliance on the automobile, the city expanded east of downtown. In September 1962, U.S. Highway 101 was constructed, trending east-west along the ocean, with highways 33 and 126 constructed in the same decade. In the last several decades, development in the city has continued to expand east and densify. Ventura’s population was estimated at 111,128 in 2018 (U.S. Census Bureau 2018).

Ventura Harbor

The following context draws heavily on the *City of San Buenaventura Revised Draft for Historic Preservation Committee Review Historic Context Statement* (City of Ventura Draft HCS; Historic Resources Group 2022) and is provided to support the historical evaluation presented in Section 5 *Findings*.

Following World War II, the United States experienced an economic and construction boom leaving many Americans with increased disposable income and leisure time. During this period, due to the commercial availability of new technologies and the accessibility of products such as plastics and plywood, boat construction became less expensive, making boats more affordable to the consumer. This led to an increase in the number of recreational small crafts and, consequently, the construction of new marinas and harbors throughout Southern California (Historic Resources Group 2022). Additionally, during this period, the construction of recreational facilities increased in support of the growing number of Americans living in the country’s rapidly expanding suburbs, with facilities such as golf courses, parks, and recreational centers also constructed throughout the region (City of Los Angeles 2017).

The Ventura Port District was created in 1952 through general election for the purpose of constructing and operating a commercial and recreational boat harbor in the city of Ventura (Ventura Port District 2022). The District created initial designs for the harbor in the 1950s, and in 1962, after the release of $4.75 million in bonds, groundbreaking began by Macco Construction Company of Paramount (Historic Resources Group 2022). Completed in 1963, initial development of the Ventura Harbor, then known as Ventura Marina, carved out the shoreline west of Harbor Drive and south of Highway 101 and created a harbor trending north-south approximately 1 mile long. In 1963, Ventura Harbor consisted of a paved Spinnaker Drive and two singular floating docks in what is currently the harbor’s the southern portion (Ventura Port District 2022). By 1965, the number of docks had increased throughout the harbor and new buildings and a Union Oil station were constructed, including nine docks and three small buildings in the APE, referred to as Ventura West Marina (Figure 4). Ventura West Marina was a small portion at the southwestern end of the larger Ventura Harbor. Also, during this period, the harbor’s northern inlets were partially developed with single-family tracts known as Ventura Keys in support of increased leisure lifestyle activities (University of California Santa Barbara [UCSB] 2022; Historic Resources Group 2022).

Following its initial construction, the harbor experienced several issues including sand build-up, dangerous conditions at its entrance, and flooding of the Santa Clara River delta, located to its south. In response, in 1968, Congress directed the USACE to take over responsibility of the harbor’s dredging and further design. However, in 1969, the severe flooding of the Santa Clara River damaged the docks in the southern portion of the harbor within the APE, leaving the area unusable (Figure 5). In response, between 1969 and 1979, the damaged docks were replaced, the levy between the river delta and the harbor was reinforced, and an offshore breakwater was constructed (USACE 2022; NETR Online 2024) (Figure 6).

Into the latter twentieth century, Ventura Harbor developed further and continued to support recreational and leisure activities for Ventura residents and visitors. By 1984, Ventura Keys was completed and the southern portion of the harbor, along Spinnaker Drive was developed with commercial buildings, hotels, District buildings, and additional docks. Several District buildings which had been constructed in the northern portion of the harbor in 1965, were removed and replaced by the Harbortown Point Marina Resort and Club in 1984, and throughout the 1990s and 2000s the harbor experienced additional infill development.

Figure 4 Ventura West Marina, 1965 (Delineated in Red; Source: UCSB)

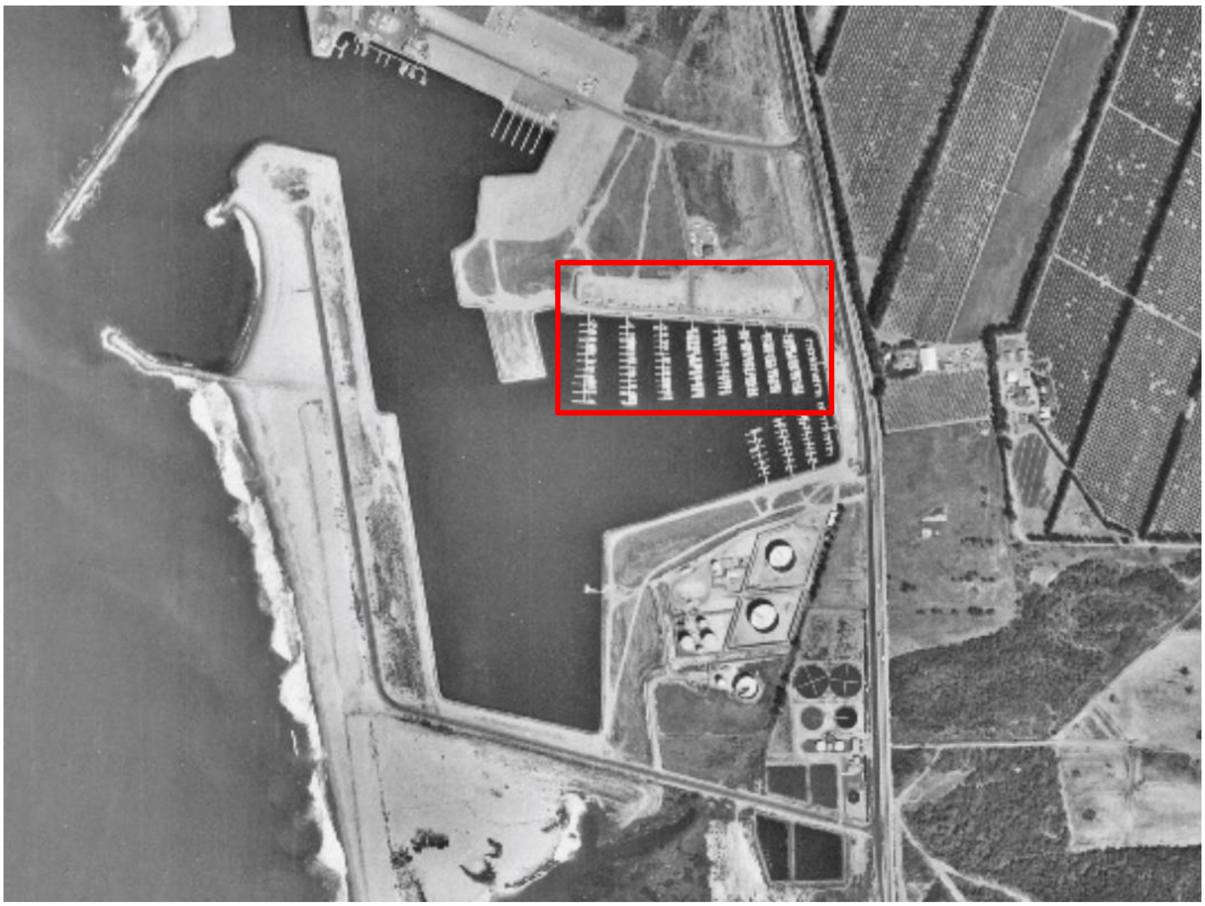


Figure 5 Ventura West Marina Destroyed by Flooding, 1969 (Source: UCSB)

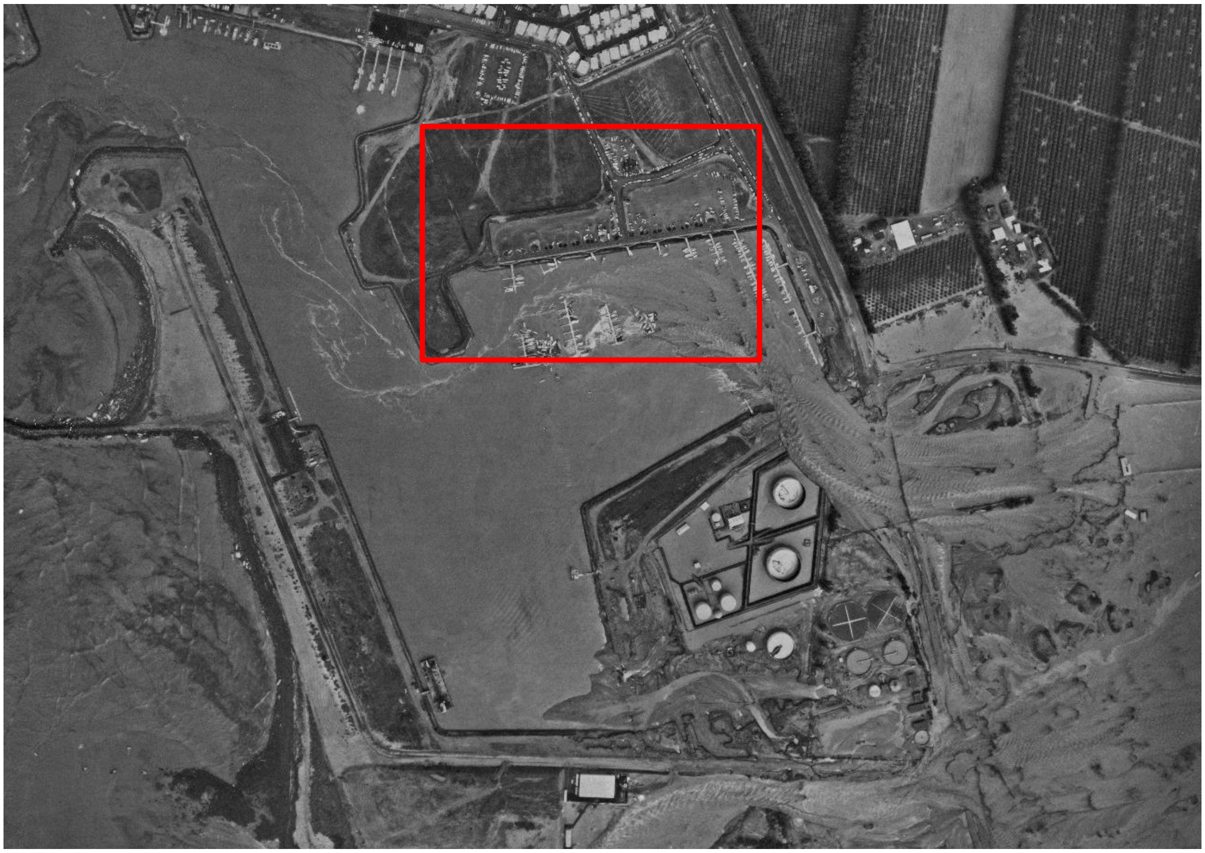


Figure 6 Ventura West Marina Reconstructed, 1980 (Source: UCSB)

4 Methods

This section presents the methods for each task completed during the preparation of this technical report.

4.1 Background and Archival Research

4.1.1 Archival Research

Rincon completed additional background and archival research in support of this technical report in September and October 2024. A variety of primary and secondary source materials were consulted. Sources included, but were not limited to, historical maps, aerial photographs, and written histories of the area. The following sources were utilized to develop an understanding of the APE and its context:

- City of Ventura Draft HCS prepared by Historic Resources Group in 2022
- Ventura County Assessor's Office
- Historical aerial photographs accessed via NETR Online
- Historical aerial photographs accessed via University of California, Santa Barbara Library FrameFinder
- Historical USGS topographic maps
- City of Ventura Building Permits Accessed via the City of Ventura Community Development
- Historical newspaper clippings obtained from Newspapers.com, ProQuest Historical Newspapers.com, and the California Digital Newspaper Collection
- Various historical records via Ancestry.com
- Geologic Maps via the USGS National Geologic Map Database
- USDA Web Soil Survey

4.1.2 California Historical Resources Information System Records Search

On September 19, 2024, Rincon received California Historical Resources Information System (CHRIS) search results from the South Central Coastal Information Center (SCCIC) (Appendix A). The SCCIC located at California State University Fullerton is the official state repository for cultural resources records and reports for Ventura County. The records search helps to identify previously recorded cultural resources, as well as previously conducted cultural resources studies in the APE and a 0.5-mile radius surrounding it. Rincon also reviewed the NRHP, the CRHR, the California Historical Landmarks list, the City of Ventura list of historic landmarks and points of interest, and the California OHP Built Environment Resources Directory. Results of the records search can be found in Appendix A of this cultural resources technical report.

4.1.3 Sacred Lands File Search

Rincon contacted the NAHC on September 17, 2024, to request a search of the SLF and a contact list of Native Americans culturally affiliated with the project vicinity (Appendix B).

4.2 Field Survey

Rincon Architectural Historian Rachel Perzel, MA, conducted a built environment survey of the APE on September 27, 2024. Built environment resources in the APE, including buildings, docks and boat slips, paved parking lot, and landscape elements were visually inspected. Pursuant to OHP Guidelines (California OHP 1995), properties over 45 years of age were evaluated for listing in the NRHP and recorded on California Department of Parks (DPR) 523 series forms. The overall condition and integrity of these resources were documented and assessed. Site characteristics and conditions were documented using notes and digital photographs which are maintained at the Rincon Ventura office. Due to the development of the APE and very limited ground exposure, Rincon did not conduct an archaeological survey as part of the project.

5 Findings

5.1 Known Cultural Resources Studies

The CHRIS records search and background research identified seven cultural resources studies within 0.5 miles from the APE (Appendix A). Of these studies, none include a portion of the APE or areas directly adjacent to the APE.

5.2 Known Cultural Resources

The CHRIS records search and background research identified no previously recorded cultural resources 0.5 miles from the APE (Appendix A).

5.3 Sacred Lands File Search

The NAHC responded to Rincon's SLF request on September 24, 2024, stating that the results of the SLF search were negative (Appendix B).

5.4 Aerial Imagery and Historical Topographic Maps Review

The following presented the results of a review of historical records, including aerial photographs and topographic maps, that was completed to document the developmental history of the APE locations and its surroundings (Table 1.

Table 1 Developmental History of the APE and Surroundings

Year	Description	Source
1947	Aerial imagery depicts the APE as undeveloped land with the coastline to the west and agricultural fields to the west. One building is depicted to the west and likely associated with the agricultural fields.	Aerial Imagery
1959	Aerial imagery depicts the APE as it appeared in the above aerial, and the area southeast of the APE was developed with an industrial property.	Aerial Imagery
1965; 1967	Aerial imagery depicts the APE with the Ventura West Marina which was developed with eight docks, three small buildings or structures, and an unpaved parking lot. The entire Ventura Harbor was constructed north of the APE with docks and additional buildings. A mobile home park and single-family residential development are also depicted north of the APE, and the industrial property is still depicted to the south.	Aerial Imagery
1969	Aerial imagery depicts the docks within the APE destroyed by flooding from the Santa Ana River: the eight docks are destroyed but the three small buildings and unpaved parking lot remain. No further changes were depicted.	Aerial Imagery
1970	Aerial imagery depicts the APE with the three small buildings but no docks within the marina. A dock and associated building are depicted on the peninsula to the west and additional single-family residences and mobile homes were constructed north of the APE within the existing developments.	Aerial Imagery

Year	Description	Source
1975; 1978	Aerial imagery depicts the APE as it appeared in the previous aerial. Additional docks are depicted within the harbor south of the APE.	Aerial Imagery
1980	Aerial imagery depicts the APE as it appears today: nine new docks, three buildings, a paved parking lot and Navigator Drive. Additional docks are depicted south of the APE.	Aerial Imagery
1984; 1994; 2005; 2009; 2010; 2012; 2014; 2016; 2018	Aerial imagery depicts the APE as it appeared in the previous aerial. Several docks and buildings are pictured on the peninsula west of the APE. New commercial development is pictured south and adjacent to the northeast of the APE, and the industrial property south of the APE was expanded.	Aerial Imagery
2020; 2022	Aerial imagery depicts the APE as it appeared in the previous aerial. New residential and commercial development is pictured directly north of the APE.	Aerial Imagery

Source: NETR Online 2024; UCSB Var.

5.5 Geoarchaeological Sensitivity Analysis

Rincon presents a geoarchaeological sensitivity analysis for both the terrestrial and submerged portions of the APE, below.

5.6 Terrestrial Area of Potential Effects

According to published geologic mapping, the terrestrial portion of the APE is underlain by coastal sand sheet deposits (Qs) consisting of sand with little or no relict grain recently accumulated from wind erosion (Jennings and Strand 1969). In addition, soils mapped within the terrestrial portion of the APE consist largely of fill land (90 percent), with lesser inclusions of the Camarillo Soil Series (4 percent) and Hueneme Soil Series (4 percent). The remaining 2 percent of the area includes unnamed soils with no available data. Fill land generally refers to highly populated and developed areas where development is present, such as the APE. According to the National Resources Conservation Service, human-transported materials, human-altered materials, or minimally altered or intact "native" soils can significantly change existing soils and exhibit a wide variety of conditions and properties (UC Davis 2024). Neither the Camarillo nor Hueneme Soil series are recorded with buried A Horizon soils, or subsurface top soils buried by geologic processes that have the potential to preserve archaeological sites. Therefore, the soils and underlying geologic units recorded within the terrestrial portion of the APE generally lack geoarchaeological sensitivity. In addition, while several Chumash villages have been recorded at the coast of Ventura County, none are in immediate proximity to the APE (Native Land Digital 2024), and historic-use of the area prior to the construction of the harbor was agricultural, reducing the potential for subsurface Native American archaeological deposits. Further, no archaeological resources have been recorded within the vicinity of the APE, and the development and construction of Ventura Harbor in the 1960s that carved out the previously utilized farmland would have destroyed any archaeological resources associated with historic-period farming activities. Given the general disturbance associated with construction of Ventura Harbor, lack of characteristically sensitive underlying soils and geologic units, and absence of previously recorded archaeological resources in the vicinity, the terrestrial portion of the APE has low sensitivity for intact subsurface archaeological deposits.

5.7 Submerged Area of Potential Effects

Bathymetric data collected in September 2024 depicts the seabed in the submerged portion of the APE as a relatively level surface with minor changes in depth generally between 9 and 14 feet, with shallower areas closer to the shoreline and deeper areas closer to the harbor entrance. Scour marks are evident on the seabed between docks and follow along pathways for boat traffic with sparse, irregularly shaped, and shallow divots scattered along the main path. These features are indicative of boating activities expected at Ventura Harbor, including boat wakes, anchor dragging, and mooring blocks (Fantina et al. 2018). Additionally, dredge channels are evident between docks, likely dredged in the construction and ongoing maintenance of the harbor (USACE 2022), which includes annual dredging between 12 and 15 feet below the mean lower low water line (the average height of the lowest tide). Underlying geologic units of the seabed in the submerged APE consist of Quarternary and Tertiary sediments dating to the Pliocene or Miocene age (Greene and Kennedy 1986). These geologic units pre-date recorded human occupation of the area and are unlikely to contain archaeological deposits. Further, the seabed consists of an artificial landscape constructed specifically for Ventura Harbor (formerly Ventura Marina) in the early 1960s. Due to the heavy disturbances from former agricultural activities, construction of Ventura Harbor, and ongoing maintenance dredging, the submerged portion of the APE is not considered sensitive for intact subsurface archaeological deposits.

5.8 Survey Results

5.8.1 Built Environmental Resources

The following section summarizes the results of all background research and fieldwork as they pertain to built environment resources. The fieldwork and background research resulted in the identification of one historic-age property in the APE, 1198 Navigator Drive, also known as the Ventura West Marina. This property was recorded and evaluated for NRHP, CRHR, and local listing eligibility on DPR series forms, which are included in Appendix C and summarized below.

Ventura West Marina – 1198 Navigator Drive

Physical Description

Ventura West Marnia at 1198 Navigator Drive is a commercial harbor and marina within the larger Ventura Harbor, located south of downtown Ventura. The property sits on an irregular parcel, Parcel 17, which includes the following: a two-story commercial building, two-bathroom buildings, a paved parking lot, landscaping, and a marina with nine piling docks. The paved parking lot is sited along Navigator Drive to the north with decorative landscaping fronting the street. The driveway continues south to the commercial building at the center of the property along the shoreline and is flanked by bathroom buildings to the east and west. South of the buildings, a paved driveway and walkway with decorative landscaping and palm trees run east to west along the shore to the nine docks, each lined with boat slips on both sides. These elements are described further below.

COMMERCIAL BUILDING

At the center of the parcel along the shoreline is a two-story commercial building designed in a Contemporary Spanish Revival style and constructed in 1979 (Figure 7). Sitting on a concrete foundation, the wood frame building is sheathed in rough stucco and capped with a hipped roof with wide overhanging eaves clad in red barrel tiles. The primary (southern) elevation faces the harbor and expresses a two-story porch which also extends to the west and east elevations. The porch sits under the primary roofline supported by square columns and enclosed with wood banisters. The second floor is accessible by three sets of wood frame stairs, one at each of the above elevations. The windows throughout are divided lite fixed pane windows, and each commercial space has an entrance with a wood-paneled door.

Along the north elevation, fronting the adjacent parking lot, is a one-story extension with a hipped roof, also clad in Spanish tiles. Along the north, east, and west elevations of the extension are lockers for customers to rent: two rows of lockers stacked on top of each other each with a wood door and metal lock (Figure 8). The commercial building is flanked on each side by small bathroom buildings.

BATHROOM BUILDINGS

At the east and west ends of the property, near the shoreline, are two bathroom buildings with similar appearances: both are rectangular in plan, trending east-west with the primary elevation facing south towards the harbor. Sited on a concrete foundation, the wood frame buildings are clad in rough stucco and capped with a side-gabled roof sheathed in Spanish tiles. The primary (south) elevation has two entrances to the Women's and Men's bathrooms recessed for customer privacy. The north elevation has a small, hipped roof extension clad composition shingles, and the siding is clad in rough stucco and horizontal wood siding. Adjacent to each of the buildings is a trash receptacle structure (Figure 9 and Figure 10).

MARINA DOCKS

South of the paved parking lot and three buildings is the marina with nine separate piling docks, each extending north-south from east-west trending docks along the shoreline (Figure 11). Each of the nine docks connect to the east-west docks by wood frame gangways or ramps with locked gates at the entrance and have smaller dock fingers extending out east or west creating the boat slips (Figure 12). The docks have concrete decking with wood framing along the sides within the individual slips, and the slips are approximately 12 feet to 20 feet wide to allow for small to big boats, and each has a fiberglass storage box with electrical and water hookups. At the end of each dock is a concrete piling that holds the structure in place (Figure 13 and Figure 14).

Figure 7 Commercial Building, South and West Elevations, Facing Northeast

Figure 8 Commercial Building One-story Extension, West Elevation, Facing East

Figure 9 Western End Bathroom Building, South Elevation, Facing North

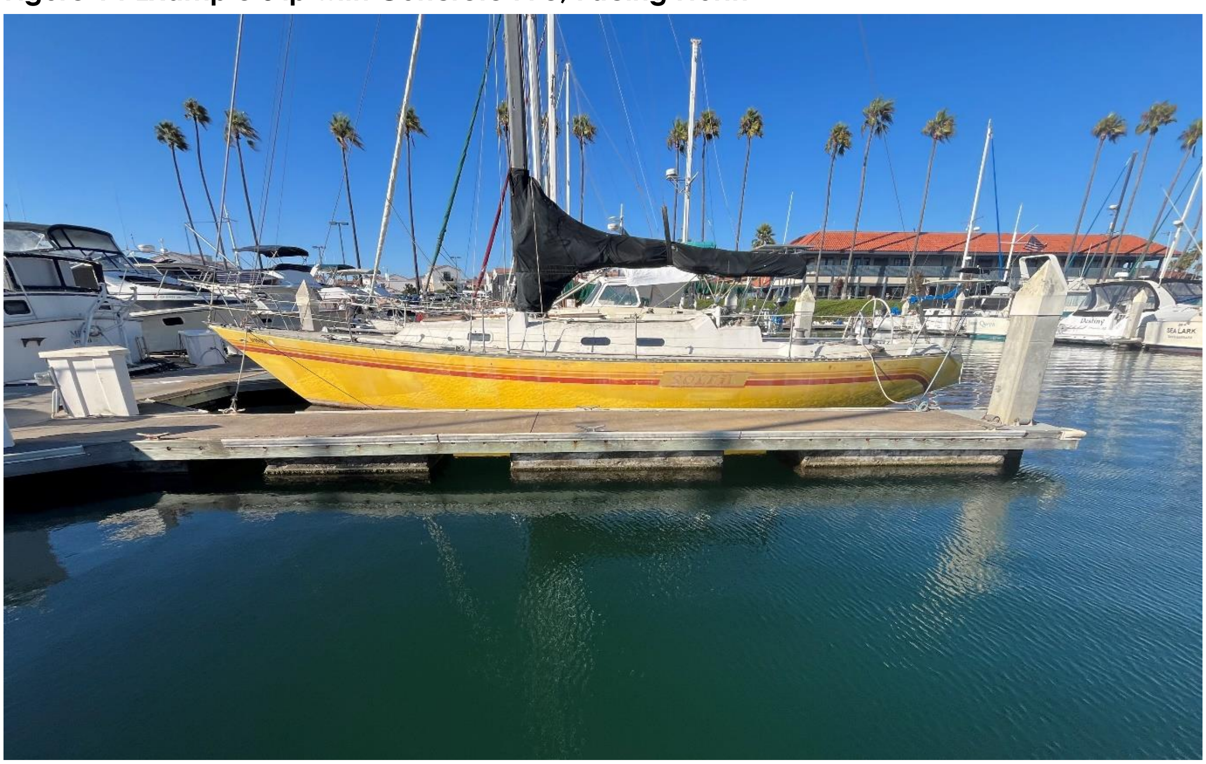
Figure 10 Eastern End Bathroom Building, West and South Elevations, Facing Northeast

Figure 11 Ventura West Marina Concrete Piling Docks, Facing South

Figure 12 Wood Frame Floating Gangway, Facing North

Figure 13 Docks and Gangways, Facing South

Figure 14 Example Slip with Concrete Pile, Facing North



Property History

As stated in *Section 3.2.3 Local History*, Ventura West Marina was initially constructed in 1962 by Macco Construction Company of Paramount, California (Historic Resources Group 2022). The original marina consisted of eight individual docks connected to the shoreline along a paved path, three small buildings, and an unpaved parking lot accessed by a central driveway leading to Navigator Drive (UCSB 1965).

Following its initial construction, the marina was used largely by residents in a recreational capacity. Soon after its initial development, however, the harbor experienced flooding of the Santa Clara River delta in 1969, which destroyed the eight docks in Ventura West Marina, leaving the area unusable (Historic Resources Group 2022; UCSB 1969). In response, between 1969 and 1975, USACE removed the damaged docks, reinforced the levy between the river delta and the harbor, and constructed an offshore breakwater (USACE 2022; NETR Online 2024) (Figure 15). Between 1978 and 1980, developers Richard Beauchamp and Paul Trautwein of Beauchamp Realty, Inc. developed the new Ventura West Marina which included construction of the extant nine docks and three new buildings (*Ventura County Star* 1980; NETR Online 2024). Beauchamp and Trautwein also developed the Dana West Marina in Dana Point and several marinas in San Diego (*Ventura County Star* 1980). The two small buildings were constructed as bathrooms and locker rooms while the larger building was a commercial space with harbor offices, a post office, delicatessen, radio shop, and frozen food lockers (*Ventura County Star* 1979a). Right after opening in 1979, the marina operated as a recreation boat marina. Boat slips were rented out for vessels from 22 feet to 65 feet, and included a portion of designated slips for boat owners to stay aboard their vessels on a month-to-month basis (*Ventura County Star* 1979b).

Though the property is owned by the Ventura Port District, the buildings and docks have been managed by one company since 1979. The extant buildings on the landside portion of Parcel 17 have had several occupants over the years and have hosted boat shows, parades, club events at the Mariner Lounge. Today, TBBW Company, LP is the master tenant of the property. Table 2 and Table 3 summarize the construction, alteration, and ownership/occupancy history of 1198 Navigator Drive.

Table 2 1198 Navigator Drive Construction History

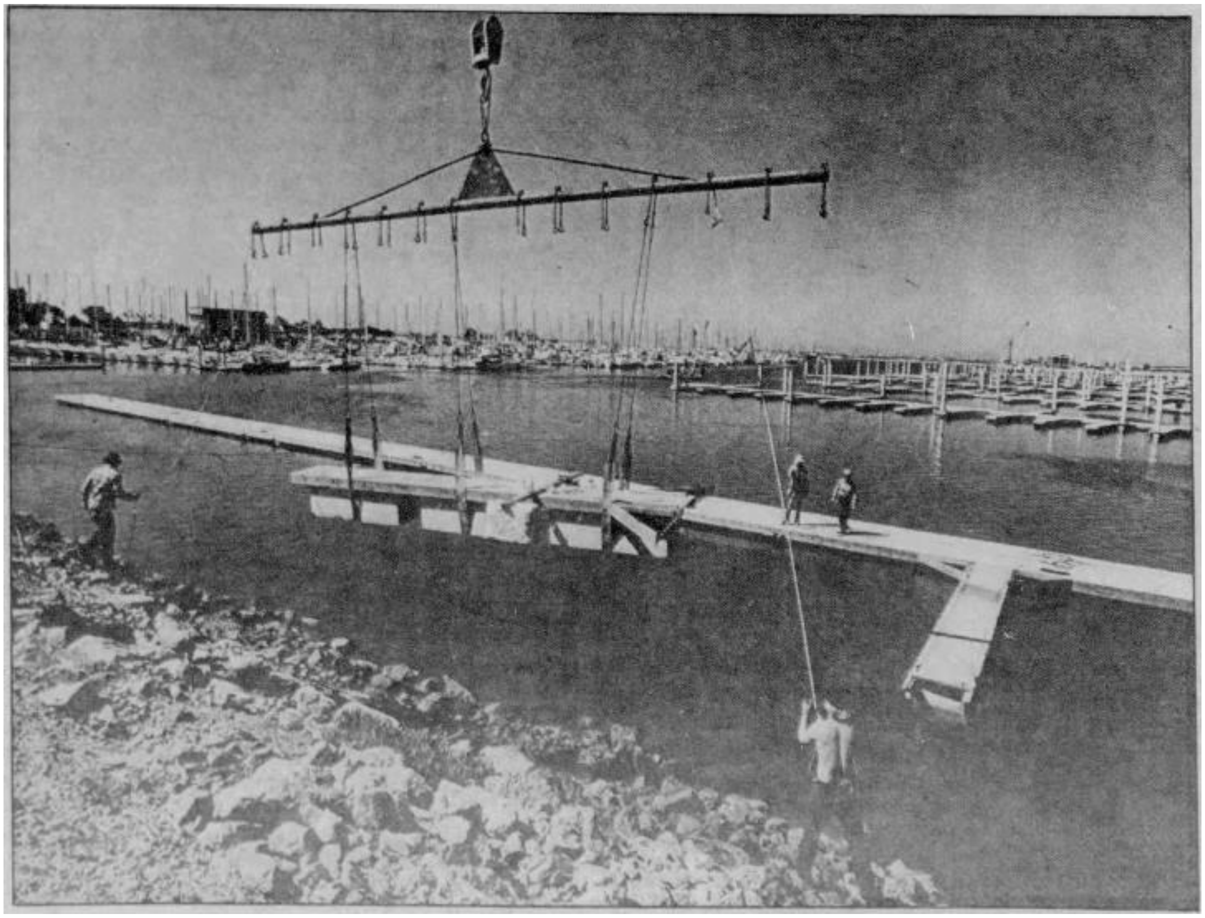
Date	Description of Work	Sources
1962	Construction of eight docks and three small buildings	Historic Resources Group 2022; UCSB 1965
1969	Eight docks destroyed by flooding	Historic Resources Group 2022; UCSB 1969
1979	Three 1962 buildings removed and extant nine docks and three buildings constructed	*Ventura County Star* 1980; NETR Online 2024

Table 3 Ventura West Marina Occupancy History

Date	Property Owners/Tenants	Source
1979	Ventura West Marina Yachtsmen Inc.	*Ventura County Star*

Date	Property Owners/Tenants	Source
1980	Ventura West Marina Yachtsmen, Inc. Boater's Lounge Ventura Marina Post Office The Island Hunter Bookstore Typesetting Beacon Marine Center	*Ventura County Star*
1981	Ventura West Marina Yachtsmen, Inc. Keith Smith Associates Arrow Floor Safe Co. Marine Electrical Services The Focs'le Boat Works Beacon Marine The Island Hunter Bookstore Nancy's First Mate's Deli Marine Power Consultants	*Ventura County Star*
1982	Ventura West Marina Mariner's Lounge The Island Hunter Bookstore Beacon Marine The McTighe Insurance Agency Far West Yachts	*Ventura County Star*
1983	Ventura West Marina Far West Yachts Beacon Marine First Mates Deli The McTighe Insurance Agency J.D.'s Typesetting	*Ventura County Star*
1984-1986	Ventura West Marina Far West Yachts Sealink Yacht Sales Beacon Marine First Mates Deli	*Ventura County Star*
1987-1989	Ventura West Marina Sealink Yacht Sales Waterfront Deli Ventura Boat Co. Recreation Room	*Ventura County Star*
1990	Ventura West Marina Ventura Harbor Marina West Clubhouse	*The Los Angeles Times*
1991-Present	Ventura West Marina	*Ventura County Star*

Figure 15 Docks under Construction in 1979 (*Ventura County Star* 1979a)



Significance Evaluation

In considering the significance of 1198 Navigator Drive, the following evaluation considers property-specific research and the City of Ventura Draft HCS. The latter identifies 'Ventura Marina & Growth of Leisure Culture' as a sub-theme of historical significance within the context of the city's post-World War II 'Expansion and Redevelopment (1961-1979)' under the theme of 'Commercial Development.' However, as it is currently in draft form, the HCS does not identify potentially significant property types under this sub-theme. The evaluation of the Ventura Harbor in its entirety was outside the scope of this technical report and not required given the Ventura West Marina's distinct development within the larger harbor; the current evaluation is therefore limited to the potential historical significance of the buildings and structures, inclusive of ramps, docks, and pilings, comprising the Ventura West Marina. Based on the research conducted for this technical report , 1198 Navigator Drive is recommended ineligible for listing in the NRHP, CRHR, or as a City of Ventura local landmark or point of interest under any significance criteria due to the lack of individual historical or architectural significance.

Constructed in 1962 and reconstructed in 1979, Ventura West Marina is an example of one of many harbors developed throughout Southern California in the post-World War II period, including Channel Islands Harbor in 1959, Marina del Rey in 1961, and Huntington Harbor in 1962. It was not the first or most prominent harbor in the region constructed during this period and was reconstructed at the tail end of the post-World War II redevelopment context. As previously presented in the City of Ventura Draft HCS, Ventura West Marina was developed within the context of the city's post-World War II period of Expansion and Redevelopment, in which the development of recreational facilities, such as harbors, throughout Southern California increased due to the new affordability of pleasure crafts and the rise in popularity of the leisure lifestyle. In Ventura, development of the harbor represents a large expansion of the city's recreational facilities, and its construction served as a population draw, leading to an increase in associated developments such as the Ventura Keys.

Within this larger sub-theme, the archival and background research conducted for this technical report identified no information to suggest the historic-period buildings within the subject property (commercial building and bathrooms buildings) are individually important within the history of the harbor's history or any other context relating to Ventura's commercial or tourism history.[1] Though the entire harbor which developed in 1963 was identified as a catalyst for further development, the buildings in Ventura West Marina were not part of the original development and were not in their own right catalysts for further development. According to NPS Guidance, mere association with a significant historic trend or pattern of events is not enough for a property to be eligible for listing in the NRHP, rather the property's specific association must also be considered important in relation to the trend or pattern of event to which it is associated (NPS 1997). The buildings provided general commercial services which would typically be expected of a marina or harbor and did not contribute to the development or history of the Ventura Harbor in a significant way. The subject property is therefore recommended ineligible for listing in the NRHP and CRHR and as a local landmark under Criteria A/1/a and c.

The research conducted for this report did not indicate that the property is associated with the lives of people significant in local, state, or national history; therefore, it is recommended ineligible for listing in the NRHP and CRHR and as a local landmark under Criteria B/2/b.

[1] No buildings are proposed to be modified as part of the proposed development.

The commercial building and bathrooms within the property were designed in a Contemporary Spanish Revival style in 1979 with Spanish tile roofing, rough stucco, and in the case of the commercial building, a wood framed porch and windows. However, there is little scholarly research and context available related to post-1970 commercial building styles and their respective character-defining features. The buildings are in good condition but there is no data to support that the buildings are architecturally significant. They are typical commercial buildings from 1979 and do not appear architecturally significant.

Ventura West Marina was developed by Richard Beauchamp and Paul Trautwein who developed a harbor in Dana Point and additional marinas in Ventura Harbor and San Diego Bay. The research did not identify that their work is architecturally significant. As a partnership, they appear to have produced a small body of work that exists and this design, typical of other post-World War II marina development, does not appear to be a significant or important example of their work. Additionally, the research conducted for this report failed to identify the architect of Ventura West Marina. The property does not express high artistic value; therefore, the subject property is recommended ineligible for listing in the NRHP, CRHR, and as a local landmark under Criteria C/3/d and e.

The background research conducted for this technical report, including review of CHRIS and NAHC SLF search results, failed to indicate the subject property has the potential to yield, information important to the prehistory or history of the local area, California, or the nation. Therefore, it is recommended ineligible for listing in the NRHP and CRHR and as a local landmark under Criteria D/4/g. In addition to its lack of NRHP, CRHR, and City of Ventura Landmark ineligibility, for the reasons enumerated above, the subject property is additionally recommended ineligible for listing as a city of Ventura point of Interest under Criteria a, b, and c.

Additionally, though the property meets the age threshold requiring evaluation in accordance with CEQA - 45 years old, the NRHP excludes properties that achieved significance in the last 50 years unless they are of “exceptional importance” (NPS 1997). As outlined above, the property is not eligible for listing on the NRHP under any criteria for a lack of architectural or historical significance. There is sufficient historical perspective to evaluate the property within its context of “post-World War II ‘Expansion and Redevelopment (1961-1979)’”, as evidenced by its inclusion in the context provided in the City of Ventura HCS. Research for this report, however, did not uncover any information to suggest that it has “exceptional importance” within that context.

6 Conclusions and Recommendations

The following sections present our recommended findings under Section 106 of the NHPA and CEQA.

Background research and field survey confirmed there is one built environment property located within the APE. 1198 Navigator Drive, which was constructed in 1979, was recorded and evaluated as part of this technical report and is recommended ineligible for federal, state, or local designation; it therefore is not considered a historic property under Section 106 of the NHPA nor a historical resource under CEQA.

6.1.1 Section 106 of the National Historic Preservation Act

Based on the results of this technical report, Rincon recommends a finding of ***no historic properties affected*** under Section 106 of the NHPA for the current undertaking. Furthermore, Rincon recommends no further archaeological resources work for the undertaking based on the previous disturbance within the APE and lack of archaeological and geoarchaeological sensitivity. Best management practices are recommended in case of unanticipated discoveries. In the event of a post review discovery during ground disturbance associated with the undertaking, the procedures under 36 CFR Part 800.13 should be followed by the lead federal agency.

6.1.2 CEQA

The impact analysis included here is organized based on the cultural resources thresholds included in *CEQA Guidelines* Appendix G: Environmental Checklist Form:

A. Would the project cause a substantial adverse change in the significance of a historical resource pursuant to Section 15064.5?
B. Would the project cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?
C. Would the project disturb any human remains, including those interred outside of dedicated cemeteries?

Threshold A broadly refers to historical resources. To more clearly differentiate between archaeological and built environment resources, we have chosen to limit analysis under Threshold A to built environment resources. Archaeological resources, including those that may be considered historical resources pursuant to Section 15064.5 and those that may be considered unique archaeological resources pursuant to Section 21083.2, are considered under Threshold B.

Historical Built Environment Resources

This technical report identified a single built environment resource in the APE, and Rincon has recommended it ineligible for listing in the NRHP, CRHR, and local listing, as discussed above; the resource therefore does not qualify as a historical resource under CEQA. Based on the results of this technical report, Rincon recommends a finding of ***no impact to historical resources***.

Historical and Unique Archaeological Resources

This technical report did not identify any previously recorded archaeological resources or archaeological deposits in the APE. Further, due to heavy disturbance of both the land and water side areas, lack of characteristically sensitive underlying geologic units and soils, and absence of previously recorded archaeological resources in the vicinity of the APE, Rincon has identified the APE as having low archaeological sensitivity. However, unanticipated discovery of archaeological resources is always a possibility during ground disturbing activities. Rincon presents the following recommended mitigation measure in the unlikely event that unanticipated discoveries are encountered during construction. With adherence to this measure, Rincon recommends a finding of ***less than significant impact with mitigation for archaeological resources*** under CEQA.

Recommended Mitigation

UNANTICIPATED DISCOVERY OF CULTURAL RESOURCES

In the event that archaeological resources are unexpectedly encountered during ground-disturbing activities, work within 50 feet of the find shall halt and an archaeologist meeting the Secretary of the Interior's Professional Qualifications Standards for archaeology (National Park Service 1983) shall be contacted immediately to evaluate the resource. If the resource is determined by the qualified archaeologist to be prehistoric, then a Native American representative shall also be contacted to participate in the evaluation of the resource. If the qualified archaeologist and/or Native American representative determines it to be appropriate, archaeological testing for CRHR eligibility shall be completed. If the resource proves to be eligible for the CRHR and significant impacts to the resource cannot be avoided via project redesign, a qualified archaeologist shall prepare a data recovery plan tailored to the physical nature and characteristics of the resource, per the requirements of the California Code of Regulations (CCR) Guidelines Section 15126.4(b)(3)(C). The data recovery plan shall identify data recovery excavation methods, measurable objectives, and data thresholds to reduce any significant impacts to cultural resources related to the resource. Pursuant to the data recovery plan, the qualified archaeologist and Native American representative, as appropriate, shall recover and document the scientifically consequential information that justifies the resource's significance. If the resource is located within the submerged APE, a qualified marine archaeologist shall be consulted regarding identification and evaluation. The City shall review and approve the treatment plan and archaeological testing as appropriate, and the resulting documentation shall be submitted to the regional repository of the California Historical Resources Information System, per CCR Guidelines Section 15126.4(b)(3)(C).

Human Remains

No human remains are known to be present in the APE. However, the discovery of human remains is always a possibility during ground disturbing activities. If human remains are found, California Health and Safety Code Section 7050.5 states that no further disturbance shall occur until the County Coroner has made a determination of origin and disposition pursuant to PRC Section 5097.98. In the event of an unanticipated discovery of human remains, the County Coroner must be notified immediately. If the human remains are determined to be of Native American origin, the Coroner will notify the Native American Heritage Commission, which will determine and notify a MLD. The MLD has 48 hours from being granted site access to make recommendations for the disposition of the remains. If the MLD does not make recommendations within 48 hours, the landowner shall reinter the remains in an area of the property secure from subsequent disturbance.

With adherence to existing regulations, Rincon recommends a finding of ***less-than-significant impact to human remains*** under CEQA.

7 References

Arnold, Jeanne E. and Teresa Green

2002 “Mortuary Ambiguity: The Ventureño Chumash Case.” American Antiquity 67(4): 760–771.

Arnold, Jeanne E., Michael R. Walsh, and Sandra E. Hollimon

2004 The Archaeology of California. Journal of Archaeological Research Vol. 12, No. 1

Bancroft, Hubert How

1885 History of California, Volume III: 1825-1840. San Francisco, California: A.L. Bancroft & Co.

Byrd, Brian F., and L. Mark Raab

2007 Prehistory of the Southern Bight: Models for a New Millennium. In *California Prehistory*, edited by T. L. Jones and K. A. Klar, pp. 215-228. Altimira Press, New York.

California Mission Resource Center

2019 San Buenaventura Mission. Electronic resource. https://missionscalifornia.com/san-buenaventura-mission. Accessed April 8, 2021.

California Office of Historic Preservation

2006 “California Register and National Register: A Comparison (for purposes of determining eligibility for the California Register),” *California Office of Historic Preservation Technical Assistance Series #10*. Department of Parks and Recreation, Sacramento, California

2011 “California Register and National Register: A Comparison (for purposes of determining eligibility for the California Register),” *California Office of Historic Preservation Technical Assistance Series #6*. Department of Parks and Recreation, Sacramento, California

1995 *Instructions for Recording Historical Resources*. Department of Parks and Recreation, Sacramento, California.

California Soil Resource Lab

1997 Soil Data Explorer – *Hueneme Series*. https://casoilresource.lawr.ucdavis.edu/sde/?series=hueneme#osd (accessed October 2022).

2015 *Soil Data Explorer – Camarillo Series*. https://casoilresource.lawr.ucdavis.edu/sde/?series=camarillo (accessed November 2022).

Cole, Alexandra

1999 Santa Barbara Waterfront Historic Context. Prepared by Preservation Planning Associates. Prepared for the City of Santa Barbara Community Development Department, Planning Division.

Cook, S.F. and Robert F. Heizer

1965 "The Quantitative Approach to the Relation Between Population and Settlement Size." *Reports of the University of California Archaeological Survey* 64: 1–97.

Couch, Jeffrey S., Joanne S. Couch, and Nancy Anastasia Wiley

2009 Saved by the Well: The Keystone Cache at CA-ORA-83, the Cogged Stone Site. *Proceedings of the Society for California Archaeology* 21:147-156.

Dallas, S.F.

1955 The Hide and Tallow Trade in Alta California 1822-1848. Ph.D. dissertation. Indiana University, Bloomington.

Dibblee, T.W, and H.E. Ehrenspeck

1998 Geologic Map of the Ventura and Pitas Point Quadrangles, Ventura, County, California.

Dillon, Brian D.

2002 California Paleo-Indians: Lack of Evidence, or Evidence of a Lack? In *Essays in California Archaeology: A Memorial to Franklin Fenenga*, edited by W. J. Wallace and F. A. Riddell, pp. 110–128. Contributions of the University of California Archaeological Research Facility, No. 60, Berkeley.

Dixon, Keith A.

1968 Cogged Stones and Other Ceremonial Cache Artifacts in Stratigraphic Context at ORA-58, a Site in the Lower Santa Ana River Drainage, Orange County. *Pacific Coast Archaeological Society Quarterly* 4(3):57-68.

1975 New Evidence for the Most Important Archaeological Discovery in Long Beach: the Cogged Stones and Discs of Rancho Los Cerritos. *Los Fierros* 12(2):20–31.

Dumke, Glenn S.

1994 The Boom of the 1880s in Southern California. Southern California Quarterly 76(1):99-114.

Eberhart, Hal

1961 The Cogged Stones of Southern California. *American Antiquity* 26(3):361-370.

Erlandson, Jon M.

1991 Early Maritime Adaptations on the Northern Channel Islands. In *Hunter-Gatherers of Early Holocene Coastal California*, edited by J. M. Erlandson and R. Colten. Perspectives in California Archaeology, Vol. 1. Institute of Archaeology, University of California, Los Angeles.

Erlandson, Jon M., Theodore Cooley, and Richard Carrico

1987 A Fluted Projectile Point Fragment from the Southern California Coast: Chronology and Context at CA-SBA-1951. *Journal of California and Great Basin Anthropology* 9:120–128.

Gamble, Lynn H., Phillip L. Walker, and Glenn S. Russell

2001 "An Integrative Approach to Mortuary Analysis: Social and Symbolic Dimensions of Chumash Burial Practices." *American Antiquity* 66(2): 185–212.

Glassow, Michael A, L. Wilcoxen, and J. M. Erlandson

1988 Cultural and Environmental Change during the Early Period of Santa Barbara Channel Prehistory. In *The Archaeology of Prehistoric Coastlines*, edited by G. Bailey and J. Parkington pp. 64–77. Cambridge University Press, Cambridge, England.

Golla, Victor

2007 "Linguistic Prehistory." In California Prehistory: Colonization, Culture, and Complexity. AltaMira Press, Lanham, Maryland.

Graffy, Neal

2010 Historic Santa Barbara: An Illustrated History. San Antonio, Texas: Historical Publishing Network.

Grant, Campbell

1978a "Chumash: Introduction." In California. Volume 8: Handbook of North American Indians, edited by Robert F. Heizer and William C. Sturtevant, pp. 505–508. Smithsonian Institution Scholarly Press, Washington D.C.

1978b "Eastern Coastal Chumash." In California. Volume 8: Handbook of North American Indians, edited by Robert F. Heizer and William C. Sturtevant, pp. 505–508. Smithsonian Institution Scholarly Press, Washington D.C.

Greene, H.G., and M.P. Kennedy

1986 Geology of the Mid-Southern California Continental Margin. 1:25k geologic map. National Geologic Map Database. https://ngmdb.usgs.gov/Prodesc/proddesc_43663.htm. (Accessed November 2024).

Gumprecht, Blake

1999 The Los Angeles River: Its Life, Death, and Possible Rebirth. Baltimore, Maryland: Johns Hopkins University Press.

Historic Resources Group (HRG)

2022 *City of San Buenaventura Revised Draft for Historic Preservation Committee Review Historic Context Statement*. Prepared for City of San Buenaventura Community Development Department. https://static1.squarespace.com/static/61f2e9ae7ed3231cfec8cba7/t/622a983a43e5b5177e9e14b2/1646958685954/Ventura+Citywide+Historic+Context+Statement_Revised+Draft+for+HPC+Review_March+2022_compressed+for+web.pdf (Accessed September 2024).

Jennings, C.W. and R.G. Strand

1969 Geologic Map of California: Los Angeles Sheet. 1:250k geologic map. National Geologic Map Database. https://ngmdb.usgs.gov/Prodesc/proddesc_16341.htm quadrangle. (Accessed November 2024).

Johnson, John R.

1982 "An Ethnohistoric Study of the Island Chumash." M.A. Thesis, University of California Santa Barbara.

Johnson, John R., Thomas W. Stafford, Jr., Henry O. Ajie, and Don P. Morris

2002 Arlington Springs Revisited in Proceedings of the Fifth California Islands Symposium. D. Browne, K. Mitchell and H. Chaney, eds. Pp. 541–545. Santa Barbara, California: USDI Minerals Management Service and the Santa Barbara Museum of Natural History.

2007 *California Prehistory: Colonization, Culture, and Complexity*. AltaMira Press, Berkeley, California.

Jones, Terry L. and Kathryn A. Klar

2007 California Prehistory: Colonization, Culture, and Complexity. AltaMira Press, Berkeley, California.

Koerper, Henry C., and Christopher E. Drover

1983 Chronology Building for Coastal Orange County: The Case from CA-ORA-119-A. *Pacific Coast Archaeological Society Quarterly* 19(2):1–34.

Koerper, Henry C., Roger D. Mason, and Mark L. Peterson

2002 Complexity, Demography, and Change in Late Holocene Orange County. In *Catalysts to Complexity: Late Holocene Societies of the California Coast*, edited by Jon M. Erlandson and Terry L. Jones, pp. 63–81. Perspectives in California Archaeology, Vol. 6, Costen Institute of Archaeology, University of California, Los Angeles.

Kowta, Makoto

1969 The Sayles Complex, A Late Milling Stone Assemblage from the Cajon Pass and the Ecological Implications of its Scraper Planes. *University of California Publications in Anthropology* 6:35–69. Berkeley, California.

Kroeber, Alfred J.

1925 *Handbook of the Indians of California.* Bureau of American Ethnology, Bulletin 78. Originally published 1925, Smithsonian Printing Office, Washington, D.C. Unabridged reprint 1976, Dover Publications, Inc. New York.

Kyle, Douglas E.

2002 Historic Spots in California. Stanford, California: Stanford University Press.

Livingston, M.M.

1914 The Earliest Spanish Land Grants in California. Annual Publication of the Historical Society of Southern California 9(3):195-199.

Los Angeles, City of

2017 *SurveyLA: Los Angeles Resources Survey.* "Los Angeles Citywide Historic Context Statement Context: Public and Private Institutional Development, 1850-1980 Sub-Context: Government Infrastructure and Services, 1850-1980 Theme: Municipal Parks, Recreation, and Leisure, 1886-1978."

Los Angeles Times

1982 "Advertisements." March 6. Accessed through newspapers.com.

Mason, Roger D., and Mark L. Peterson

1994 *Newport Coast Archaeological Project: Newport Coast Settlement Systems–Analysis and Discussion, Volume 1, part 1 of 2.* Prepared by The Keith Companies. On file, South Central Coastal Information Center, California State University, Fullerton.

Moratto, Michael

1984 *California Archaeology*. Academic Press, New York.

National Park Service (NPS)

1983 Secretary of the Interior's Standards and Guidelines for Professional Qualifications in Archaeology and Historic Preservation. Department of the Interior.

1997 *National Register Bulletin-How to Apply the National Register Criteria for Evaluation.* Accessed online at https://www.nps.gov/subjects/nationalregister/upload/NRB-15_web508.pdf (Accessed September 2024).

Native Land Digital

2024 Ventureño Chumash. https://native-land.ca/maps/territories/ventureno (Accessed November 2024).

NETR Online

2024 Historic aerials and topographic maps of the subject property and surrounding area. https://www.historicaerials.com/viewer (Accessed September 2024).

Reinman, Fred M.

1964 *Maritime Adaptations on San Nicolas Island, California*. University of California Archaeological Survey Annual Report 1963–1964:47–80.

Rick, Torben C., Jon M. Erlandson, and René Vellanoweth

2001 Paleocoastal Marine Fishing on the Pacific Coast of the Americas: Perspectives from Daisy Cave, California. *American Antiquity* 66:595–613.

Roman, Deborah V.

2017 "New AMS Dating Sequences for the Chumash Ventureño Early Period: Revisiting the Question of Antiquity of Ventureño Chumash Inland Occupation." *SCA Proceedings* 31: 181–194.

Shipley, William F.

1978 Native Languages of California. In *California*, edited by R. F. Heizer, pp. 80–90. *Handbook of North American Indians*, Vol. 8, W. C. Sturtevant, general editor, Smithsonian Institution, Washington D.C.

True, Delbert L.

1993 Bedrock Milling Elements as Indicators of Subsistence and Settlement Patterns in Northern San Diego County, California. *Pacific Coast Archaeological Society Quarterly* 29(2):1–26.

United States Army Corps of Engineers (USACE)

2022 "Ventra Harbor, California". https://www.spl.usace.army.mil/Missions/Civil-Works/Navigation/Ventura-Harbor/ (Accessed September 2024).

University of California Davis (UC Davis)

2024 California Soils Resource Lab SoilWeb App. Natural Conservation Service and UC Davis: Davis, California. https://casoilresource.lawr.ucdavis.edu/gmap/ (Accessed November 2024)

University of California Santa Barbara (UCSB)

1965 Flight AXI_1965, Frame 2FF-28. June 9, 1965. American Aerial Surveys, San Antonio, Texas. Accessed through FrameFinder September 2024.

1969 Flight HB_OI, Frame1. February 25, 1969. Mark Hurd Aerial Surveys, Inc. Accessed through FrameFinder September 2024.

1980 Flight LN8_RN1_8073, Frame 46. April 16, 1980. Environmental Protection Agency. Accessed through FrameFinder September 2024.

United States Army Corps of Engineers (USACE)

2022 Application for Permit, Ventura Harbor Maintenance Dredging Regional General Permit (RGP) No. 24. United States Army Corps of Engineers, Los Angeles District: Ventura, California.

United States Census Bureau

2018 QuickFacts for San Buenaventura (Ventura) city ,California. Accessed online at https://www.census.gov/quickfacts/sanbuenaventuraventuracitycalifornia. February 26, 2020.

United States Geological Survey (USGS) Topographic Maps

1904 Ventura, Calif. 7.5-minute topographic map. Topo View [HTMC, 1904 ed.]. https://ngmdb.usgs.gov/topoview/viewer/#15/34.2549/-119.2615 (Accessed November 23, 2022).

1941 Ventura, Calif. 7.5-minute topographic map. Topo View [HTMC, 1964 ed.]. https://ngmdb.usgs.gov/topoview/viewer/#13/34.2688/-119.3154 (Accessed November 23, 2022).

1955 Los Angeles, Calif. 7.5-minute topographic map. Topo View [HTMC, 1955 ed.]. https://ngmdb.usgs.gov/topoview/viewer/#13/34.2688/-119.3154 (Accessed November 23, 2022).

2022 Ventura, Calif. 7.5-minute topographic map. Topo View [US Topo]. https://ngmdb.usgs.gov/ht-bin/tv_browse.pl?id=e0a58d570fb22e912650394eee655287 (Accessed November 23, 2022).

Van Bueren, Thad M., Susan K. Goldberg, Michael J. Moratto, Portia Lee, and Jerrel H. Sorensen

1989 Inventory and Evaluation of Cultural Resources, Bolsa Chica Mesa and Huntington Beach Mesa, Orange County, California. September 30.

Ventura, City of

n.d. Ventura Pier Interpretive panels. Accessed online at https://www.cityofventura.ca.gov/DocumentCenter/View/3110/Ventura-Pier-Interpretive-Panels-PDF?bidId=. October 2024.

Ventura County Star

1979a "Business before pleasure". April 8, 1979. https://www.newspapers.com/image/932651706/?terms=%22ventura%20west%20marina%22 (Accessed September 2024).

1979b "Maritime Vagabonds". June 11, 1979. https://www.newspapers.com/image/932647029/?match=1&terms=%22ventura%20west%20marina%22 (Accessed September 2024).

1980 "Harbor Famine Now Feast". March 20, 1980. https://www.newspapers.com/image/926949854/?match=1&terms=%22ventura%20west%20marina%22 (Accessed September 2024).

Ventura Port District

2022 "History." Accessed November 2022, through https://venturaharbor.com/history/.

Wallace, William

1955 Suggested Chronology for Southern California Coastal Archaeology. *Southwestern Journal of Anthropology* 11:214–230.

1978 Post-Pleistocene Archaeology, 9000 to 2000 B.C. In *California*, edited by R. F. Heizer, pp. 25–36. *Handbook of North American Indians*, Vol. 8, W. C. Sturtevant, general editor, Smithsonian Institution, Washington D.C.

Warren, Claude N.

1968 Cultural Tradition and Ecological Adaptation on the Southern California Coast. In *Archaic Prehistory in the Western United States*, edited by C. Irwin-Williams, pp. 1–14. Eastern New Mexico University Contributions in Anthropology No. 1. Portales.

Waters, Michael R.

1983 Late Holocene Lacustrine Chronology and Archaeology of Ancient Lake Cahuilla, California. Quaternary Research 19:373-387.

Waugh, John C.

2003 On the Brink of Civil War: The Compromise of 1850 and How it Changed the Course of American History. Wilmington, Delaware: Scholarly Resources Inc.

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Appendix A

CHRIS Results

Report List

24-16394 Ventura Harbor

Report No.	Other IDs	Year	Author(s)	Title	Affiliation	Resources
VN-00219		1979	Lopez, Robert	An Archaeological Reconnaissance of the Area Involved in the Lusk Homes General Plan Amendment, City of San Buenaventura, Ventura County, California		
VN-00236		1980	Horne, Stephen	Final Report: Onshore Cultural Resources Assessment, Union Oil Company Platform Gina and Platform Gilda Project Federal Lease Ocs P-0202 and P-0216, Offshore Southern California	Dames & Moore/Stephen Horne	56-000553, 56-000662, 56-000663, 56-000664, 56-000665, 56-000666, 56-000667, 56-001234, 56-120002, 56-120003
VN-00590		1986	Lopez, Robert	An Archaeological Reconnaissance of the Five Area Involved in the Off-campus Center Siting Study for the California State Uinversity, Ventura County, California		56-000665
VN-00982		1991	Singer, Clay A. and John E. Atwood	Cultural Resources Survey and Impact Assessment for the Bristol Relief Sewer Phases Two and Three, in the City of Ventura, Ventura County, California.	C.A. Singer & Associates, Inc.	56-000031, 56-000815
VN-01509		1985	Sturm, Bradley L.	Ventura Marina Dredging Project	Army Corps of Engineers, Los Angeles District	
VN-01733		1985		Ventura Marina Dredging Project	Army Corps of Engineers, Los Angeles District	
VN-02477		2004	Bonner, Wayne H.	Cultural Resource Records Search Results and Site Visit for Cingular Telecommunications Facility Candidate Vy-530-01 (ventura Harbor) 3410 Olivos Park Drive, Ventura, Ventura County, California	Michael Brandman Associates	

Appendix B

Native American Heritage Commission SLF Results

NATIVE AMERICAN HERITAGE COMMISSION

NAHC HEADQUARTERS
1550 Harbor Boulevard
Suite 100
West Sacramento,
California 95691
(916) 373-3710

September 23, 2024

Ashley Losco
Rincon Consultants, Inc.

Via Email to: alosco@rinconconsultants.com

Re: Ventura Harbor West Marina Redevelopment (Rincon No. 24-16349) Project, Ventura County

To Whom It May Concern:

A record search of the Native American Heritage Commission (NAHC) Sacred Lands File (SLF) was completed for the information you have submitted for the above referenced project. The results were negative. However, the absence of specific site information in the SLF does not indicate the absence of cultural resources in any project area. Other sources of cultural resources should also be contacted for information regarding known and recorded sites.

Attached is a list of Native American tribes who may also have knowledge of cultural resources in the project area. This list should provide a starting place in locating areas of potential adverse impact within the proposed project area. I suggest you contact all of those indicated; if they cannot supply information, they might recommend others with specific knowledge. By contacting all those listed, your organization will be better able to respond to claims of failure to consult with the appropriate tribe. If a response has not been received within two weeks of notification, the Commission requests that you follow-up with a telephone call or email to ensure that the project information has been received.

If you receive notification of change of addresses and phone numbers from tribes, please notify me. With your assistance, we can assure that our lists contain current information.

If you have any questions or need additional information, please contact me at my email address: Mathew.Lin@nahc.ca.gov

Sincerely,

Mathew Lin

Mathew Lin
Cultural Resources Analyst

Attachment

Appendix C

DPR Forms

PRIMARY RECORD

Primary #
HRI #
Trinomial
NRHP Status Code

Other Listings
Review Code Reviewer Date

 ***Resource Name or #:** Ventura West Marina

P1. Other Identifier: N/A

***P2. Location:** ☐ **Not for Publication** ☒ **Unrestricted**

***a. County** Ventura **and**

***b. USGS 7.5' Quad** *Oxnard, Calif.* **Date** 1969 **T** 02N; **R** 23W; ¼ **of** ¼ **of Sec** 23 S.B.B.M

c. Address 1198 Navigator Drive City Ventura Zip 93001

d. UTM: Zone 11S, 291864.43 mE/ 3791818.52 mN

e. Other Locational Data: Ventura County Assessor's Parcel Number (APN) 080-0-240-325

***P3a. Description:** Ventura West Marnia at 1198 Navigator Drive is a commercial harbor and marina within the larger Ventura Harbor south of downtown Ventura. The property sits on an irregular parcel, Parcel 17, which includes a two-story commercial building, two bathroom buildings, a paved parking lot, landscaping, and a marina with nine piling docks. The paved parking lot sits along Navigator Drive to the north with decorative landscaping fronting the street. The driveway continues south to the commercial building at the center of the property along the shoreline and is flanked by bathroom buildings to the east and west. South of the buildings, a paved driveway and walkway with decorative landscaping and palm trees run east to west along the shore to the nine docks, each lined with boat slips on both sides. (*Continued on Page 4 of the Continuation Sheet*).

***P3b. Resource Attributes:** HP6. 1-3 Story Commercial Building HP39. Other (Harbor/Marina)

***P4. Resources Present:** ☒ Building ☐ Structure ☐ Object ☐ Site ☐ District ☐ Element of District ☐ Other

P5a. Photograph or Drawing

P5b. Description of Photo: Photo 1: Ventura West Marina, Facing Southeast.

P6. Date Constructed/Age and Source: ☒ Historic ☐ Prehistoric ☐ Both

1979 (Ventura County Star 1980; NETR Online 2024)

***P7. Owner and Address:** Ventura Port District

***P8. Recorded by:** Rachel Perzel, Rincon Consultants 180 N Ashwood Avenue Ventura, California 93003

***P9. Date Recorded:** 9/27/2024

***P10. Survey Type:** Pedestrian

***P11. Report Citation**: Losco, A., J. Murphy, and S. Treffers. 2024 *Ventura West Marina Redevelopment Project, Ventura County, California*. Rincon Consultants Project No. 24-16349. Report on file at the South Central Coastal Information Center, California State University Fullerton, California.

***Attachments:** ☐ NONE ☒Location Map ☒Continuation Sheet ☒Building, Structure, and Object Record
☐Archaeological Record ☐District Record ☐Linear Feature Record ☐Milling Station Record ☐Rock Art Record
☐Artifact Record ☐Photograph Record ☐Sketch Map ☐Other (List):

BUILDING, STRUCTURE, AND OBJECT RECORD

***NRHP Status Code** 6Z
***Resource Name or #** Ventura West Marina

B1. Historic Name: Ventura West Marina
B2. Common Name: Ventura West Marina
B3. Original Use: Harbor / Marina
B4. Present Use: Harbor / Marina
***B5. Architectural Style:** Contemporary Spanish Revival
***B6. Construction History:**
1962 – Construction of eight docks and three small buildings (Historic Resources Group 2022; UCSB 1965)
1969 – Eight docks destroyed by flooding (Historic Resources Group 2022; UCSB 1969)
1979 – Three 1962 buildings removed and Extant nine docks and three buildings constructed (Ventura County Star 1980; NETR Online 2024)

***B7. Moved?** ☒**No** ☐**Yes** ☐**Unknown** **Date:** N/A **Original Location:** N/A

***B8. Related Features:** N/A

B9a. Architect: Not Identified b. Builder: Beauchamp Realty, Inc.
***B10. Significance: Theme** Post-World War II Expansion and Redevelopment **Area:** Ventura
Period of Significance N/A **Property Type** Harbor/Marina **Applicable Criteria** N/A

Historic Context

Local History

The area that is now Ventura was missionized in 1782, with the founding of the San Buenaventura Mission, which became a secularized parish in 1836 (California Mission Resource Center 2019). The townsite of San Buenaventura (referred to as Ventura following 1889) was first laid out by Jose Arnaz in 1848 and became an official town when its post office was established in 1864. The city was incorporated by an act of state legislature in 1866. During this early period, the community was primarily accessible via ship and development was clustered in the vicinity of (and north and west of) the mission. In 1868, a stagecoach line was established, followed by the completion of the transcontinental railroad in 1869. After these developments, San Buenaventura's downtown area became denser and diversified to include varying ethnic backgrounds including Italian, French, German/Austrian and Chinese, many of whom established commercial enterprise (Historic Resources Group 2007).

The construction of a wharf was the first large-scale infrastructural improvement undertaken in Ventura. Construction began in 1872 and was completed January 1, 1873, spurring economic growth in the city and surrounding region. At the time of its construction, the wharf in Ventura was the longest wooden wharf in California (City of Ventura n.d.). Its presence not only increased the city's general accessibility but perhaps more importantly, it provided much needed shipping options for the area's already established and growing agricultural economy, and the lumber and oil industries (Historic Resources Group 2007; *Ventura County Star* 2015). (*Continued on Page 5 of the Continuation Sheet.*)

B11. Additional Resource Attributes: N/A

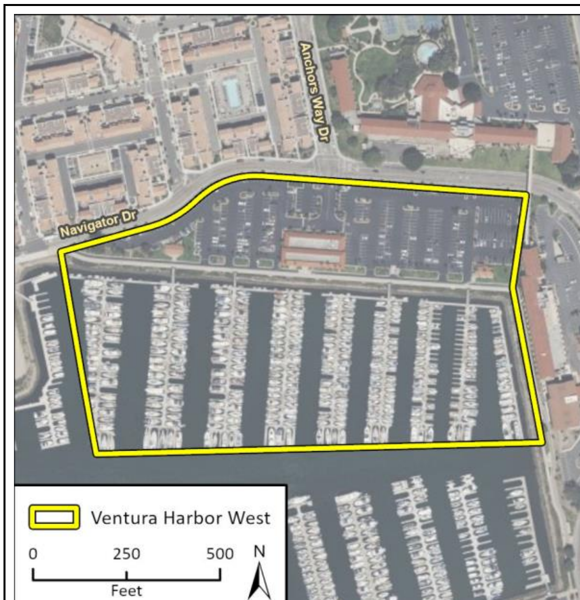
***B12. References:** *See Pages 9 and 10.*

B13. Remarks: N/A

***B14. Evaluator:** Ashley Losco, Rincon Consultants, Inc.

***Date of Evaluation:** 10/17/2024

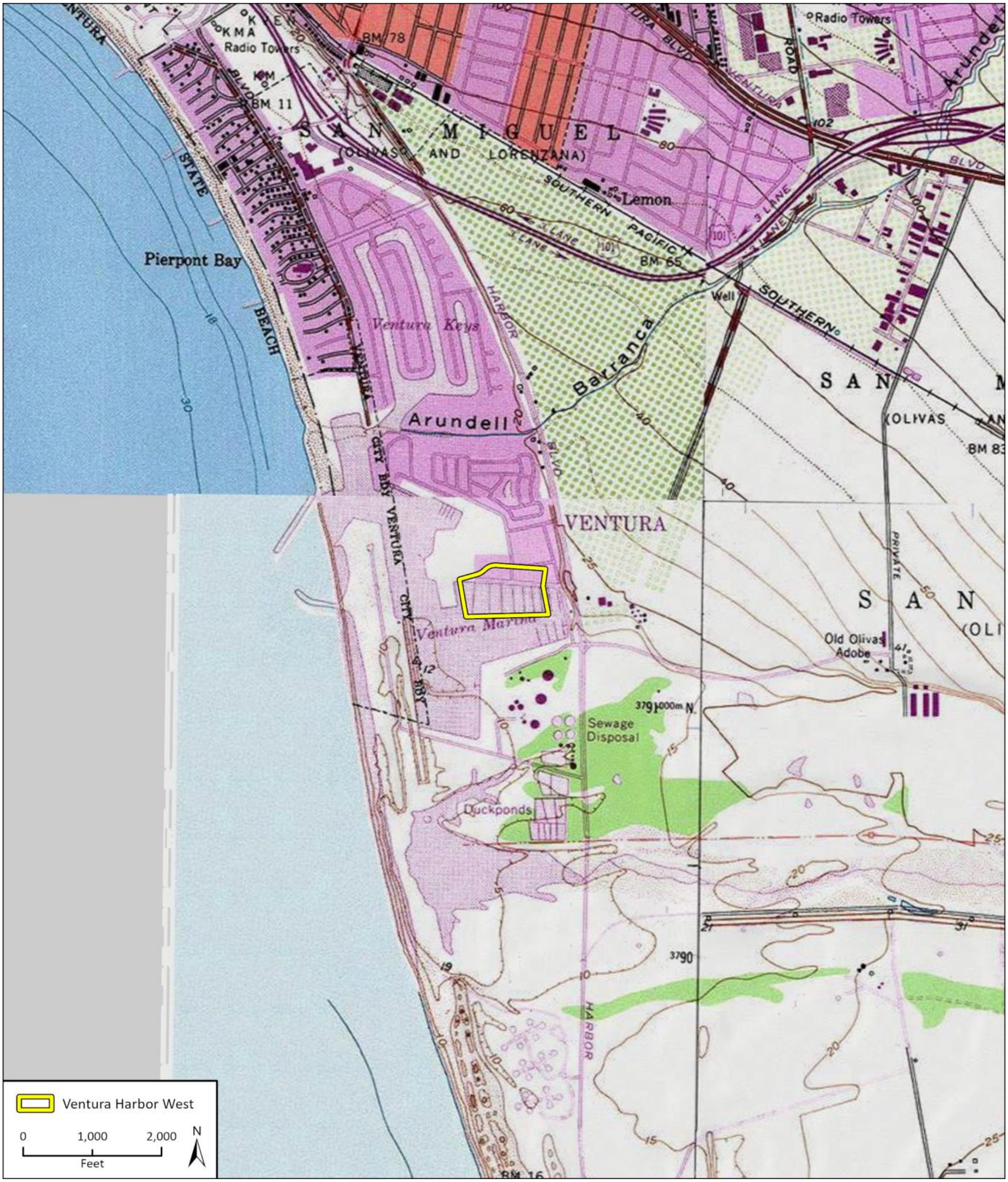
(This space reserved for official comments.)



State of California - The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
LOCATION MAP

Primary #
HRI#
Trinomial

Page 3 **of** 10 ***Resource Name or #** Ventura West Marina
***Map Name:** *Oxnard, Calif.* ***Scale:** 1:24,000 ***Date of map:** 1969



***Resource Name or #** Ventura West Marina

***Recorded by:** Ashley Losco, Rincon Consultants, Inc. ***Date:** 10/17/2024 ☒ Continuation ☐ Update

***P3a. Description (Continued from Page 1):**

Commercial Building

At the center of the parcel along the shoreline is a two-story commercial building designed in a Contemporary Spanish Revival style and constructed in 1979 (Figure 1). Sitting on a concrete foundation, the wood frame building is sheathed in rough stucco and capped with a hipped roof with wide overhanging eaves clad in red barrel tiles. The primary (south) elevation faces the harbor and expresses a two-story porch which also extends to the west and east elevations. The porch sits under the primary roofline supported by square columns and enclosed with wood banisters. The second floor is accessible by three sets of wood frame stairs, one at each of the above elevations. The windows throughout are divided lite fixed pane windows, and each commercial space has an entrance with a wood paneled door.

Along the north elevation, fronting the adjacent parking lot, is a one-story extension with a hipped roof, also clad in Spanish tiles. Along the north, east, and west elevations of the extension are lockers for customers to rent: two rows of lockers stacked on top of each other each with a wood door and metal lock (Figure 2). The commercial building is flanked on each side by small bathroom buildings.

Figure 1 Commercial Building, South and West Elevations, Facing Northeast

Figure 2 Commercial Building One-story Extension, West Elevation, Facing East

Bathroom Buildings

At the east and west ends of the property, near the shoreline, are two bathroom buildings with similar appearances: both are rectangular in plan, trending east-west with the primary elevation facing south towards the harbor. Sited on a concrete foundation, the wood frame buildings are clad in rough stucco and capped with a side-gabled roof sheathed in Spanish tiles. The primary (south) elevation has two entrances to the Women's and Men's bathrooms recessed for customer privacy. The north elevation has a small, hipped roof extension clad composition shingles, and the siding clad in rough stucco and horizontal wood siding. Adjacent to each of the buildings is a trash receptacle structure (Figure 3 and Figure 4).

Figure 3 Western End Bathroom Building, South Elevation, Facing North

Figure 4 Eastern End Bathroom Building, West and South Elevations, Facing Northeast

*Recorded by: Ashley Losco, Rincon Consultants, Inc. *Date: 10/17/2024 ☒ Continuation ☐ Update

Marina Docks

South of the paved parking lot and three buildings is the marina with nine separate piling docks, each extending north-south from east-west trending docks along the shoreline (Figure 5). Each of the nine docks connect to the east-west docks by wood frame gangways or ramps with locked gates at the entrance and have smaller docks extending out east or west creating the boat slips (Figure 6). The piling docks have concrete decking with wood framing along the sides within the individual slips, and the slips are approximately 12 feet to 20 feet wide to allow for small to big boats, and each have a plastic unit with electrical and water hookups. At the end of each dock is a concrete pier which holds the structure in place (Figure 7 and Figure 8).

Figure 5 Ventura West Marina Concrete Piling Docks, Facing South

Figure 6 Wood Frame Floating Gangway, Facing North

Figure 7 Docks and Gangways, Facing South

Figure 8 Example Slip with Concrete Pile, Facing North

***B10. Significance (Continued from Page 3):**

Following the turn of the century, Ventura greatly expanded its geographic boundaries. During this period, significant portions of recently annexed land remained in use for agricultural purposes and commercial and residential development in the downtown area persisted. The city made significant strides towards modernization and street lighting, sidewalks, and public areas such as parks and gardens developed during this period. A significant strike by Shell Oil in 1921 ushered in exponential growth in both the city and the county of Ventura and expansive residential development took place. While growth slowed during the Depression and the lead up to World War II, the postwar period ushered in tremendous growth. With greater reliance on the automobile, the city expanded east of downtown. In September 1962, U.S. Highway 101 was constructed, trending east-west along the ocean, with highways 33 and 126 constructed in the same decade. In the last several decades, development in the city has continued to expand east and densify. Ventura's population was estimated at 111,128 in 2018 (U.S. Census Bureau 2018).

Ventura Harbor

The following context draws heavily on the *City of San Buenaventura Revised Draft for Historic Preservation Committee Review Historic Context Statement* (City of Ventura Draft HCS; Historic Resources Group 2022) and is provided to support the historical evaluation presented below.

Following World War II, the United States experienced an economic and construction boom leaving many Americans with increased disposable income and leisure time. During this period, due to the commercial availability of new technologies and the accessibility of products such as plastics and plywood, boat construction became less expensive, making boats more affordable to the consumer. This led to an increase in the number of recreational small crafts and, consequently, the construction of new marinas and harbors throughout Southern California (Historic Resources Group 2022). Additionally, during this period, the construction of recreational facilities increased in support of the growing number of Americans living in the country's rapidly expanding suburbs, with facilities such as golf courses, parks, and recreational centers also constructed throughout the region (City of Los Angeles 2017).

The Ventura Port District was created in 1952 through general election for the purpose of constructing and operating a commercial and recreational boat harbor in the city of Ventura (Ventura Port District 2022). The District created initial designs for the harbor in the 1950s, and in 1962, after release of $4.75 million in bonds, groundbreaking began by Macco Construction Company of Paramount (Historic Resources Group 2022). Completed in 1963, initial development of Ventura Harbor, then known as Ventura Marina,, carved out the shoreline west of Harbor Drive and south of Highway 101 and created a harbor trending north-south approximately 1 mile long. In 1963, Ventura Harbor consisted of a paved Spinnaker Drive and two singular floating docks in what is currently the harbor's the southern portion (Ventura Port District 2022). By 1965, the number of docks had increased throughout the harbor and new buildings and a Union Oil station were constructed, including nine docks and three small buildings in the APE, referred to as Ventura West Marina. Ventura West Marina was a small portion at the southwestern end of the larger Ventura Harbor. Also, during this period, the harbor's northern inlets were partially developed with single-family tracts known as Ventura Keys in support of increased leisure lifestyle activities (UCSB 2022; Historic Resources Group 2022).

Following its initial construction, the harbor experienced several issues including sand build-up, dangerous conditions at its entrance, and flooding of the Santa Clara River delta, located to its south. In response, in 1968, Congress directed the United States Army Corps of Engineers (USACE) to take over responsibility of the harbor's dredging and further design. However, in 1969, the severe flooding of the Santa Clara River damaged the docks in the southern portion of the harbor within the project site, leaving the area unusable. In response, between 1969 and 1979, USACE replaced the damaged docks, reinforced the levy between the river delta and the harbor, and constructed an offshore breakwater (USACE 2022; NETR Online 2024).

Into the latter twentieth century, Ventura Harbor developed further and continued to support recreational and leisure activities for Ventura residents and visitors. By 1984, Ventura Keys was completed and the southern portion of the harbor, along Spinnaker Drive was developed with commercial buildings, hotels, District buildings, and additional docks. Several District buildings which had been constructed in the northern portion of the harbor in 1965, were removed and replaced by the Harbortown Point Marina Resort and Club in 1984, and throughout the 1990s and 2000s the harbor experienced additional infill development.

Property History

As stated above, Ventura West Marina was initially constructed in 1962 by Macco Construction Company of Paramount (Historic Resources Group 2022). The historic marina consisted of eight individual docks connected to the shoreline along a paved path, three small buildings, and an unpaved parking lot accessed by a central driveway leading to Navigator Drive (UCSB 1965).

Following its initial construction, Ventura West Marina was a success and utilized by residents and their boats. Despite its initial success, the harbor experienced several issues including severe flooding of the Santa Clara River delta in 1969 which destroyed the eight docks in Ventura West Marina, leaving the area unusable (Historic Resources Group 2022; UCSB 1969). In response, between 1969 and 1975, USACE removed the damaged docks, reinforced the levy between the river delta and the harbor, and constructed an offshore breakwater (USACE 2022; NETR Online 2024). Between 1978 and 1980, developers Richard Beauchamp and Paul Trautwein of Beauchamp Realty, Inc. developed the new Ventura West Marina which included the extant nine docks and three new buildings (*Ventura County Star* 1980; NETR Online 2024). Beauchamp and Trautwein also developed the Dana West Marina in Dana Point and several marinas in San Diego (*Ventura County Star* 1980). The two small buildings were constructed as bathrooms and locker rooms while the larger building was a commercial space with harbor offices, a post office, delicatessen, radio shop, and frozen food lockers (*Ventura County Star* 1979a). Right after opening in 1979, slips at the marina filled up which was initially attractive to individuals who live on their boats, called "live-aboards" (*Ventura County Star* 1979b).

Though the property is owned by the Ventura Port District, the buildings and docks have been managed by one company since 1979. The extant buildings have had several occupants over the years and have hosted boat shows, parades, club events at the Mariner Lounge. Today, TBBW Company is the master tenant of the property. Table 1 and
Table 2 summarize the construction, alteration, and ownership/occupancy history of 1198 Navigator Drive.

Table 1 1198 Navigator Drive Construction History

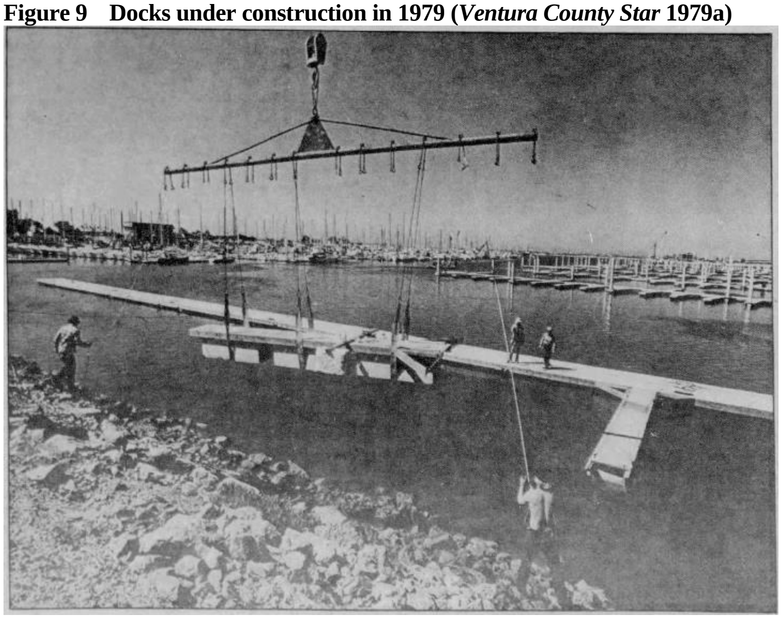
Date	Description of Work	Sources
1962	Construction of eight docks and three small buildings	Historic Resources Group 2022; UCSB 1965
1969	Eight docks destroyed by flooding	Historic Resources Group 2022; UCSB 1969
1979	Three 1962 buildings removed and Extant nine docks and three buildings constructed	*Ventura County Star* 1980; NETR Online 2024

Table 2 Ventura West Occupancy History

Date	Property Owners/Tenants	Source
1979	Ventura West Marina Yachtsmen Inc.	*Ventura County Star*
1980	Ventura West Marina Yachtsmen, Inc. Boater’s Lounge Ventura Marina Post Office The Island Hunter Bookstore Typesetting Beacon Marine Center	*Ventura County Star*
1981	Ventura West Marina Yachtsmen, Inc. Keith Smith Associates Arrow Floor Safe Co. Marine Electrical Services The Focs’le Boat Works Beacon Marine The Island Hunter Bookstore Nancy’s First Mate’s Deli Marine Power Consultants	*Ventura County Star*
1982	Ventura West Marina Mariner’s Lounge The Island Hunter Bookstore Beacon Marine The McTighe Insurance Agency Far West Yachts	*Ventura County Star*
1983	Ventura West Marina Far West Yachts Beacon Marine First Mates Deli The McTighe Insurance Agency J.D.’s Typesetting	*Ventura County Star*
1984-1986	Ventura West Marina Far West Yachts Sealink Yacht Sales Beacon Marine First Mates Deli	*Ventura County Star*

Date	Property Owners/Tenants	Source
1987-1989	Ventura West Marina Sealink Yacht Sales Waterfront Deli Ventura Boat Co. Recreation Room	*Ventura County Star*
1990	Ventura West Marina Ventura Harbor Marina West Clubhouse	*The Los Angeles Times*
1991-Present	Ventura West Marina	

Figure 9 Docks under construction in 1979 (*Ventura County Star* 1979a)



Historic Resources Evaluation

In considering the historical resources eligibility of 1198 Navigator Drive, the following evaluation considers property-specific research and the City of Ventura Draft HCS. The latter identifies 'Ventura Marina & Growth of Leisure Culture' as a sub-theme of historical significance within the context of the city's post-World War II 'Expansion and Redevelopment (1961-1979)' under the theme of 'Commercial Development.' However, as it is currently in draft form, the HCS does not identify potentially significant property types under this sub theme. The historical resources evaluation of the entirety of Ventura Harbor was outside the scope of this assessment; the current historical resources evaluation is limited to the potential historical significance of the buildings and structures within the current project site. Based on the research conducted for this assessment, 1198 Navigator Drive is recommended ineligible for listing in the NRHP, CRHR, or as a City of Ventura local landmark or point of interest under any significance criteria due to the lack of individual historical or architectural significance possessed by the buildings and structures encompassed by the property.

Constructed in 1962 and reconstructed in 1979, Ventura West is an example of one of many harbors developed throughout Southern California in the post-World War II period, including Channel Islands Harbor in 1959, Marina del Rey in 1961, and Huntington Harbor in 1962. It was not the first or most prominent of the harbors in the region constructed during this period and was reconstructed at the tail end of the post-World War II redevelopment context. As previously presented in the City of Ventura Draft HCS, Ventura West Marina was developed within the context of the city's post-World War II period of Expansion and Redevelopment, in which the development of recreational facilities, such as harbors, throughout Southern California increased due to the new affordability of pleasure crafts and the rise in popularity of the leisure lifestyle. In Ventura, development of the harbor represents a large expansion of the city's recreational facilities, and its construction served as a population draw, leading to an increase in associated development such as the Ventura Keys.

Within this larger sub-theme, the archival and background research conducted for this technical report identified no information to suggest the historic-period buildings within the subject property (commercial building and bathrooms buildings) are individually important within the history of the harbor's history or any other context relating to Ventura's commercial or tourism history. Though the entire harbor which developed in 1963 was identified as a catalyst for further development, the buildings in Ventura West Marina were not part of the original development and were not in their own right catalysts for further development. According to NPS Guidance, mere association with a significant historic trend or pattern of events is not enough for a property to be eligible for listing in the NRHP, rather the property's specific association must also be considered important in relation to the trend or pattern of event to which it is associated (NPS 1997). The buildings provided general commercial services which would typically be expected of a marina or harbor and did not contribute to the development or history of the Ventura Harbor in a significant way. The subject property is therefore recommended ineligible for listing in the NRHP and CRHR and as a local landmark under Criteria A/1/a and c.

The research conducted for this report did not indicate that the property is associated with the lives of people significant in local, state, or national history; therefore, it is recommended ineligible for listing in the NRHP and CRHR and as a local landmark under Criteria B/2/b.

The commercial building and bathrooms within the property were designed in a Contemporary Spanish Revival style in 1979 with Spanish tile roofing, rough stucco, and in the case of the commercial building, a wood framed porch and windows. However, there is little scholarly research and context available related to post-1970 commercial building styles and their respective character-defining features. The buildings are in good condition but there is no data to support that the buildings are architecturally significant. They are typical commercial buildings from 1979 and do not appear architecturally significant.

Ventura West Marina was developed by Richard Beauchamp and Paul Trautwein who developed a harbor in Dana Point and additional harbors in Ventura Harbor and San Diego. Research did not identify that their work is architecturally significant. As a partnership, they appear to have produced a small body of work that exists and this design, typical of other post-World War II marina development, does not appear to be a significant or important example of their work. Additionally, the research conducted for this report failed to identify the architect of Ventura West Marina. The property does not express high artistic value; therefore, the subject property is recommended ineligible for listing in the NRHP, CRHR, and as a local landmark under Criteria C/3/d and e.

The background research conducted for this technical report, including review of CHRIS and NAHC SLF search results, failed to indicate the subject property has the potential to yield, information important to the prehistory or history of the local area, California, or the nation. Therefore, it is recommended ineligible for listing in the NRHP and CRHR and as a local landmark under Criteria D/4/g. In addition to its lack of NRHP, CRHR, and City of Ventura Landmark ineligibility, for the reasons enumerated above, the subject property is additionally recommended ineligible for listing as a city of Ventura point of Interest under Criteria a, b, and c.

Additionally, though the property meets the age threshold requiring evaluation in accordance with CEQA - 45 years old, the NRHP excludes properties that achieved significance in the last 50 years unless they are of "exceptional importance" (NPS 1997). As outlined above, the property is not eligible for listing on the NRHP under any criteria for a lack of architectural or historical significance. There is sufficient historical perspective to evaluate the property within its context of "post-World War II 'Expansion and Redevelopment (1961-1979)'", as evidenced by its inclusion in the context provided in the City of Ventura HCS. Research for this report, however, did not uncover any information to suggest that it has "exceptional importance" within that context.

***B12. References (Continued from Page 3):**

California Mission Resource Center

2019 San Buenaventura Mission. Electronic resource. https://missionscalifornia.com/san-buenaventura-mission. Accessed April 8, 2021.

Historic Resources Group (HRG)

2022 *City of San Buenaventura Revised Draft for Historic Preservation Committee Review Historic Context Statement*. Prepared for City of San Buenaventura Community Development Department. https://static1.squarespace.com/static/61f2e9ae7ed3231cfec8cba7/t/622a983a43e5b5177e9e14b2/1646958685954/Ventura+Citywide+Historic+Context+Statement_Revised+Draft+for+HPC+Review_March+2022_compressed+for+web.pdf (Accessed September 2024).

National Park Service (NPS)

1997 *National Register Bulletin-How to Apply the National Register Criteria for Evaluation.* Accessed online at https://www.nps.gov/subjects/nationalregister/upload/NRB-15_web508.pdf (Accessed September 2024).

NETR Online
2024 Historic aerials and topographic maps of the subject property and surrounding area. https://www.historicaerials.com/viewer (Accessed September 2024).

United States Army Corps of Engineers (USACE)
2022 "Ventra Harbor, California". https://www.spl.usace.army.mil/Missions/Civil-Works/Navigation/Ventura-Harbor/ (Accessed September 2024).

University of California Santa Barbara (UCSB)
1965 Flight AXI_1965, Frame 2FF-28. June 9, 1965. American Aerial Surveys, San Antonio, Texas. Accessed through FrameFinder September 2024.
1969 Flight HB_OI, Frame1. February 25, 1969. Mark Hurd Aerial Surveys, Inc. Accessed through FrameFinder September 2024.
1980 Flight LN8_RN1_8073, Frame 46. April 16, 1980. Environmental Protection Agency. Accessed through FrameFinder September 2024.

U.S. Census Bureau
2018 QuickFacts for San Buenaventura (Ventura) city ,California. Accessed online at https://www.census.gov/quickfacts/sanbuenaventuraventuracitycalifornia. February 26, 2020.

Ventura, City of
n.d. Ventura Pier Interpretive panels. Accessed online at https://www.cityofventura.ca.gov/DocumentCenter/View/3110/Ventura-Pier-Interpretive-Panels-PDF?bidId=. October 2024.

Ventura County Star
1979a "Business before pleasure". April 8, 1979. https://www.newspapers.com/image/932651706/?terms=%22ventura%20west%20marina%22 (Accessed September 2024).
1979b "Maritime Vagabonds". June 11, 1979. https://www.newspapers.com/image/932647029/?match=1&terms=%22ventura%20west%20marina%22 (Accessed September 2024).
1980 "Harbor Famine Now Feast". March 20, 1980. https://www.newspapers.com/image/926949854/?match=1&terms=%22ventura%20west%20marina%22 (Accessed September 2024).

Ventura Port District
2022 "History." Accessed November 2022, through https://venturaharbor.com/history/.

APPENDIX D

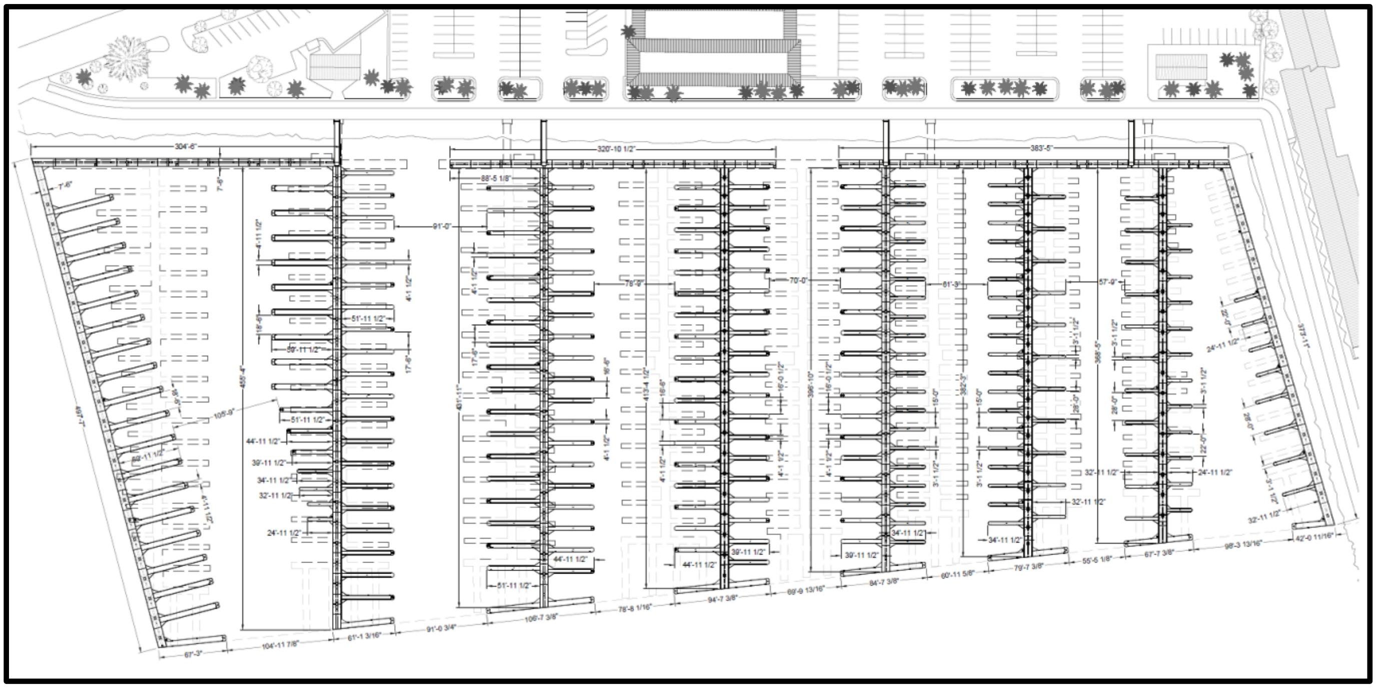
Noise Technical Report

Noise Technical Report

May 2025

Ventura Port District

Ventura West Marina Redevelopment Project



Prepared for:

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NOISE TECHNICAL REPORT

VENTURA WEST MARINA REDEVELOPMENT PROJECT

1.1 INTRODUCTION

This report presents an analysis of potential noise impacts associated with the Ventura West Marina Redevelopment Project (the "Project"). The Project is a proposed redevelopment project of the waterside portion of Lot 17 within Ventura Harbor. The Project is subject to both California Environmental Quality Act (CEQA) and National Environmental Policy Act (NEPA) compliance.

Ventura Harbor is located within the City of Ventura and is a 274-acre multiuse recreational and commercial fishing small craft harbor owned and operated by the Ventura Port District (District). The District's property holdings include approximately 122 acres of water area and 152 acres of land.

The TBBW Company, LP (TBBW) is the current master tenant, and original developer, of the 18.5-acre Ventura Harbor West Marina located on Ventura Harbor Parcel 17 (APN 080-0-240-325). Ventura Harbor Parcel 17 includes 12.5 acres of waterside amenities which contain the Ventura Harbor West Marina and an adjacent 6-acre landside element which contains coastal-related and supportive harbor commercial land uses, marina parking, landscaping, and pedestrian walkways.

TBBW is currently proposing to redevelop the waterside 12.5 acres of their Parcel 17 leasehold(s). Project need is driven largely by the age and decreasing utility of the existing improvements and infrastructure onsite. Modernization of Parcel 17 waterside structures and facilities is intended to considerably enhance the visitor experience consistent with TBBW, District and City objectives. No changes are currently proposed for the landside portion of Parcel 17 which is currently proposed for a land use planning change as part of the City of Ventura General Plan Update that is currently underway.

This report presents an overview of the existing noise conditions at the Project site, an overview of regulations applicable to the Project, and an analysis of potential noise impacts that would result from implementation of the Project. The Project would result in **less-than-significant impacts** for CEQA purposes and **no adverse impacts** for NEPA purposes.

1.2 SETTING

1.2.1 NOISE SETTING

Noise Descriptors

Sound is mechanical energy transmitted by pressure waves through a medium such as air. Noise is defined as unwanted sound. Sound pressure level has become the most common descriptor used to characterize the "loudness" of an ambient sound level. Sound pressure level is measured in decibels (dB), with zero dB corresponding roughly to the threshold of human hearing, and 120 to 140 dB corresponding to the threshold of pain. Decibels are measured using different scales, and it has been found that A- weighting of sound levels best reflects the human ear's reduced sensitivity to low frequencies, and correlates well with human perceptions of the annoying aspects of noise. The A-weighted decibel scale (dBA) is cited in most noise criteria. All references to decibels (dB) in this report will be A-weighted unless noted otherwise.

Several time-averaged scales represent noise environments and consequences of human activities. The most commonly used noise descriptors are the equivalent A–weighted sound level over a given time period (Leq)[1]; average day–night 24-hour average sound level (Ldn)[2] with a nighttime increase of 10 dB to account for sensitivity to noise during the nighttime; and community noise equivalent level (CNEL)[3], also a 24-hour average that includes both an evening and a nighttime sensitivity weighting.

Noise Attenuation

Stationary point sources of noise, including construction equipment, attenuate (lessen) at a rate of 6 to 7.5 dB per doubling of distance from the source, depending on ground absorption. Physical barriers located between a noise source and the noise receptor, such as berms or sound walls, would increase the attenuation that occurs by distance alone. Noise from large construction sites would have characteristics of both "point" and "line" sources, so attenuation would likely range between 4.5 and 7.5 dB per doubling of distance.

1.2.2 REGULATORY SETTING

City of Ventura General Plan Noise Element

The City of Ventura General Plan Healthy and Safe Community Element (Chapter 7) aims to reduce the exposure of people in Ventura to noise sources. The General Plan states that vehicle traffic is by far the greatest source of noise affecting Ventura residents (City of Ventura, 2005).

1 The Equivalent Sound Level (Leq) is a single value of a constant sound level for the same measurement period duration, which has sound energy equal to the time–varying sound energy in the measurement period.

2 Ldn is the day–night average sound level that is equal to the 24-hour A-weighted equivalent sound level with a 10-decibel penalty applied to night between 10:00 p.m. and 7:00 a.m.

3 CNEL is the average A-weighted noise level during a 24-hour day, obtained by addition of 5 decibels in the evening from 7:00 to 10:00 p.m., and an addition of a 10–decibel penalty in the night between 10:00 p.m. and 7:00 a.m.

Other sources of noise in Ventura include the Seaside Park raceway, the Grant Park shooting ranges, and railroad, commercial, and industrial activity (City of Ventura, 2005).

City of Ventura Municipal Code

The City of Ventura's Noise Control Ordinance (Chapter 10.650) controls unnecessary, excessive and annoying noise in Ventura. The following regulations are relevant to the Project:

Chapter 10.650.150(D) states that between the hours of 8:00 p.m. of one day and 7:00 a.m. of the next, no person adjacent to or within any residential zone in the city shall operate power construction equipment or tools or perform any outside construction or repair work on buildings or structures, or operate any pile driver, steam shovel, pneumatic hammer, steam or electric hoist or other construction device so as to create any noise which exceeds the noise level limits of this article. These specified construction activities are permitted between the hours of 7:00 a.m. and 8:00 p.m. The performance of emergency work is exempt from the provisions of this section.

1.2.3 PROJECT SITE

Figure 7-3 of the Ventura General Plan contains traffic noise contours to help guide land use in a way that minimizes exposure of residents to excessive noise (City of Ventura, 2005). Figure 7-3 of the Ventura General Plan indicates that the Project site and surrounding noise-sensitive receptors are outside of the East Harbor Boulevard 60 dB, CNEL traffic noise contour, meaning the existing ambient traffic noise environment at the Project site is likely below 60 dB, CNEL. However, the Project site and surrounding noise-sensitive uses are likely dominated by existing boat noise at the marina.

1.2.4 SENSITIVE RECEPTORS

Some land uses are considered more sensitive to ambient noise levels than others due to the amount of noise exposure, in terms of both duration and insulation from noise, and the types of activities typically involved. The Ventura General Plan identifies noise-sensitive receptors as homes, schools, hotels, and hospitals. Thus, this noise analysis shall consider noise-sensitive land uses as homes, schools, hotels, and hospitals. In addition, liveaboard boats could be considered noise-sensitive receptors and are considered in this analysis. The nearest noise-sensitive receptors to the Project site are as follows:

- Holiday Inn Express & Suites Ventura hotel is located directly east of the Project site (approximately 50 feet east of the water and the nearest marina dock). The Four Points by Sheraton Ventura Harbor hotel is located approximately 360 feet north of the nearest marina dock.

- Apartments north of the Project site along Navigator Drive. The nearest residence is located approximately 70 feet north of the water and the nearest marina dock.

- Liveaboard boats using the Project site during construction (approximately half of the existing boat slips are liveaboard slips). To be conservative, this analysis assumes liveaboard boats could be as close as 50 feet away from construction activities.

1.3 THRESHOLDS OF SIGNIFICANCE

The significance of potential impacts was determined based on State CEQA Guidelines, Appendix G. Using Appendix G evaluation thresholds, the Project would be considered to have significant noise impacts if it results in:

A. Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies;

   - Construction activity would be considered significant if construction would occur outside of the adopted construction hours identified in Chapter 10.650.150 (D) of the Ventura Municipal Code. The adopted hours of construction are 7:00 a.m. to 8:00 p.m.

B. Generation of excessive groundborne vibration or groundborne noise levels; or

   - If Project construction vibration exceeds Caltrans structural damage thresholds for structures on adjacent properties.

C. For a project located within the vicinity of a private airstrip or an airport land use plan, or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels.

1.4 IMPACT ANALYSIS

1.4.1 CONSISTENCY WITH APPLICABLE NOISE STANDARDS

Construction Noise Impacts

The noise levels generated by construction equipment would vary greatly depending upon factors such as the type and specific model of the equipment, the operation being performed, and the condition of the equipment. **Table NOI-1,** *Construction Equipment Noise Levels,* provides the noise levels at 50, 70, and 360 feet (the distances from the nearby noise sensitive receptors to the nearest existing dock) for expected construction equipment.

TABLE NOI-1 CONSTRUCTION EQUIPMENT NOISE LEVELS

Construction Equipment	L_{MAX} at 50 feet	L_{MAX} at 70 feet	L_{MAX} at 360 feet
Pile Driver (Impact)	101	98	84
Pile Driver (Sonic)	95	92	78

Dump Truck	76	73	59
Crane	81	78	64
Forklift	77	74	60
Gas Support Boat	75-85[1]	72-82	57-67

1. Based on noise level estimates from Lanpheer, 2000.

An attenuation rate of 6.0 per doubling distance was used to convert the FHWA noise levels at 50 feet to the noise levels at 50, 70, and 360 feet.

Source: Federal Highway Administration (FHWA) Roadway Construction Noise Model User's Guide, 2006.

As discussed above, construction could occur as close as close as approximately 50 feet away from the nearest hotel and liveaboard boats and approximately 70 feet away from the nearest residences. When heavy short-term construction (i.e., pile driving) is occurring at 50 feet away from the nearest hotel and liveaboard boats, or 70 feet away from the nearest residences to the north, a significant increase in the ambient noise levels at these noise-sensitive receptors would occur. However, this increase would be short-term and intermittent and most construction would occur at distances far greater than 50-70 feet away from noise-sensitive receptors. Thus, much of the construction period would likely not result in a noticeable increase in ambient noise at nearby noise-sensitive receptors. Furthermore, construction would be required to comply with the adopted hours of construction in Ventura (7:00 a.m. to 8:00 p.m.). Therefore, construction noise would result in a **less-than-significant impact.**

Operational Noise Impacts

Once construction is complete, the total number of boat slips would be reduced by the Project compared to the existing condition. Thus, operational noise would not be expected to increase compared to existing conditions. Therefore, operational noise would result in a **less-than-significant impact.**

1.4.2 VIBRATION IMPACTS

Construction Vibration Impacts

Construction activities have the potential to result in varying degrees of temporary ground vibration, depending on the specific construction equipment used and operations involved. At the highest levels of vibration, damage to structures is primarily architectural and rarely results in any structural damage. A peak particle velocity (PPV) threshold of 0.5 inches per second or less is sufficient to avoid structural damage (Caltrans, 2013).

Table NOI-2, *Vibration PPV Levels during Construction,* shows the estimated PPV at 70 and 130 feet for expected heavy construction equipment (the distances from the nearest off-site structures to the nearest proposed pile driving location).

TABLE NOI-2 VIBRATION PPV LEVELS DURING CONSTRUCTION

Construction Equipment	PPV at 70 feet	PPV at 130 feet
Impact Pile Driver (Upper Range)	0.32	0.128
Impact Pile Driver (Typical Range)	0.14	0.054
Vibratory Pile Drive (Upper Range)	0.16	0.062
Vibratory Pile Driver (Typical Range)	0.04	0.014
Loaded Trucks	0.02	0.006
Crane/Reach Lift[1]	0.01	0.002

1. There are no reference PPV levels for cranes or reach lifts, thus a conservative assumption of 0.0263 PPV at 25 feet was used, which is the same PPV level as a front-end loader, taken from NHDOT, *Ground Vibrations Emanating from Construction Equipment* (FHWA-NH-RD-12323W), 2012.

Source: Federal Transit Administration, 2006

As shown in **Table NOI-2,** *Vibration PPV Levels during Construction,* heavy equipment that is expected to be used for construction would generate PPV levels far below the 0.5 PPV threshold for structural damage. Therefore, the Project would result in a **less-than-significant impact**.

1.4.3 AIRCRAFT NOISE IMPACTS

The nearest airport is Oxnard Airport (located approximately 4 miles southeast of the Project site) At this distance, airport noise would not expose people residing or working at the Project site to excessive noise levels. Therefore, the Project would result in a **less-than-significant impact**.

1.5 NEPA COMPLIANCE

The Project would be required to adhere to the City's Noise Ordinance and the increase in noise levels from construction activities would be temporary. Therefore, temporary construction noise would result in **no adverse effects.** The Project would decrease the number of boat slips compared to the existing condition and operational noise would not be expected to increase compared to existing conditions. Therefore, operational noise levels would result in **no adverse effects.** Based on the distance between the Project site and the nearest offsite structures, temporary construction vibration would result in **no adverse effects.**

1.6 REFERENCES

California Department of Transportation (Caltrans). 2002. *Transportation Related Earthborne Vibrations,* February.

California Department of Transportation (Caltrans). 2013. *Transportation and Construction Vibration Guidance Manual, Environmental Engineering, Hazardous Waste, Air, Noise, Paleontology Office*. September.

California Natural Resources Agency. 2009. *Adopted Text of the CEQA Guidelines Amendments.* December 30.

City of Ventura. 2005. *City of Ventura General Plan. Available on-line,* https://www.cityofventura.ca.gov/485/General-Plan

Federal Highway Administration (FHWA), 2006. *Roadway Construction Noise Model User's Guide,* 2006.

Federal Transit Administration (FTA). 2006. *Transit Noise and Vibration Impact Assessment. (FTA-VA-90-1003-06)*.

Lanpheer, Richard, 2000. *Pleasure Motorboat Model Noise Act.*

New Hampshire Department of Transportation (NHDOT), *Ground Vibrations Emanating from Construction Equipment* (FHWA-NH-RD-12323W), 2012.

APPENDIX E

Transportation Impact Study

Transportation Impact Study

Ventura West Marina Redevelopment Project

May 1, 2025

SUMMIT ENVIRONMENTAL GROUP

Prepared by:

Intersecting Metrics

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1.0 Introduction

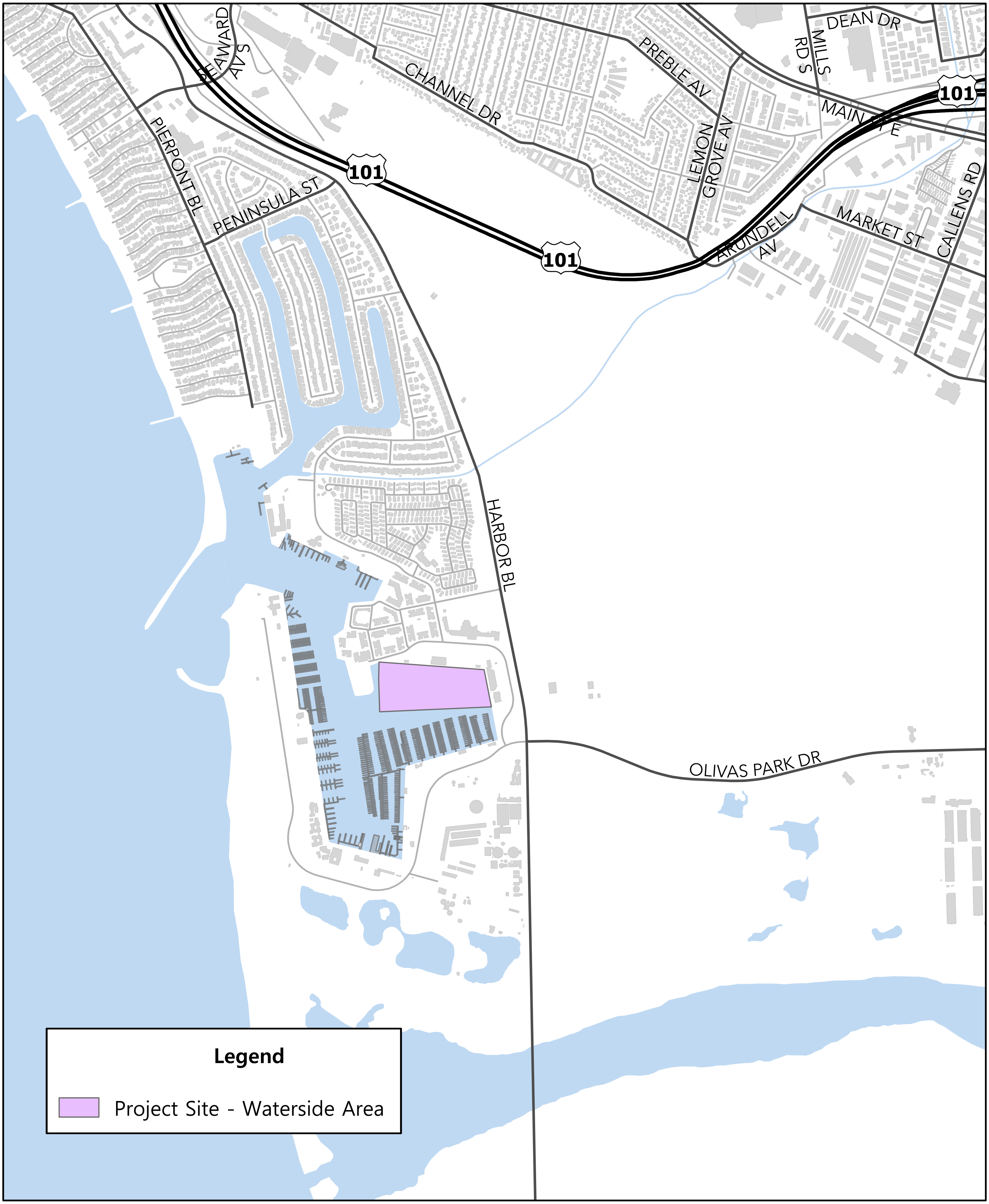
The purpose of this Transportation Impact Study (TIS) is to identify and document potential CEQA transportation impacts related to Ventura West Marina Project Waterside Area (Proposed Project) and recommend improvement/mitigations measures as appropriate.

1.1 Project Description

The Proposed Project will redevelop the waterside portion of Lot 17 within Ventura Harbor. The proposed improvement project is designed to reflect contemporary regional demographics and meet recreational boating demands for larger and wider boat slips, provide more utility infrastructure on the docks and more services and amenities to enhance and improve the experience of recreational boaters, their families, and visitors to Ventura Harbor.

The Proposed Project includes the replacement of the existing aged docks and pilings with new state-of-the- art docks and pilings. Replacing and upgrading the existing facilities, which are nearing the end of their useful life, are needed to ensure the marina's long-term continuation of operations for boaters, visitors and the general public. The Proposed Project includes a change in the total number of boat slips at the Ventura West Marina from 387 slips to approximately 379 slips. The proposed decrease of eight slips creates additional space which has been integrated into the Proposed Project to provide additional coastal public access and recreational improvements. This analysis focuses on the waterside area components, such as the boat slips, and an additional analysis will be conducted for the land uses on the land side.

Figure 1 displays the project location and Figure 2 displays the project site plan.



Ventura West Marina

Figure 1
Project Location

VENTURA WEST MARINA

Figure 2
Project Site Plan

2.0 Impact Analysis

This section presents the assessment of transportation impacts, based on Appendix G of the CEQA guidelines, relating from the Proposed Project.

2.1 Issue 1: Conflicts with Current Plans/Policies

Would the Proposed Project conflict with an adopted program, plan, ordinance, or policy addressing the transportation system, including transit, roadways, bicycle and pedestrian facilities?

As noted in the Project Description, the Proposed Project will reduce the number of existing boat slips from 387 slips to 379 slips. While the Proposed Project is planning to improve coastal public access to the waterfront for boats, vehicular access to the existing parcel will not be changed or modified as part of the Proposed Project and no frontage improvements or external improvements are anticipated. Therefore, the Proposed Project is not anticipated to make any changes to the adjacent transportation network and will not conflict with any identified program, plan, ordinance, or policy addressing the circulation system. Thus, the Proposed Project will have no impact on conflicts with current transportation related plans/policies.

2.2 Issue 2: Vehicle Miles Traveled

Would the Proposed Project conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b)?

CEQA Guidelines section 15064.3, subdivision (b)(1) - Land Use Projects. Vehicle miles traveled (VMT) 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 response to the implementation of CEQA Guidelines section 15064.3, subdivision (b), the County of Ventura established the *Ventura County CEQA Vehicle Miles Traveled Adaptive Mitigation Program* (VMT Adaptive Mitigation Program) approved on May 12, 2023 (provided in Appendix A), which outlines recommended impact screening criteria and VMT significance thresholds for lead agencies in the County to utilize to identify VMT related CEQA Impacts. The County's VMT Adaptive Mitigation Program recognizes the California Governor's Office of Planning and Research (OPR) *Technical Advisory on Evaluating Transportation Impacts in CEQA* (Technical Advisory) guidelines and includes their identified screening thresholds in the County's guidelines as recommended thresholds for lead agencies in the County.

Project Screening

As noted previously, the VMT Adaptive Program references OPR's Technical Advisory and identifies a series of screening criteria to determine if a project can be screened out from conducting a full VMT analysis based on substantial evidence to show that the projects within these criteria are presumed to have a less than significant impact. The screening criteria that is pertinent to the Proposed Project is the "Screening Thresholds for Small Projects", which specifies that projects that generate or attract fewer than 110 trips per day generally may be assumed to generate a less than significant transportation impact.

The Proposed Project includes the replacement of the existing aged docks and pilings with new state-of-the- art docks and pilings. Replacing and upgrading the existing facilities, which are nearing the end of their useful life, are needed to ensure the marina's long-term continuation of operations for boaters, visitors and the general public. The improvements of the Proposed Project would decrease the number of boat slips on the Proposed Project site from 387 slips to 379 slips. As a result, the Proposed Project's trip generation is not anticipated to materially change from existing operations. Since the implementation of the Proposed Project is decreasing the number of boat slips, which is not anticipated to substantially alter or increase the travel patterns within the area, the Proposed Project would fall under the small projects screening threshold, and is screened out from conducting a VMT analysis. As such, implementation of the Proposed Project will have a less than significant transportation related impact.

Project Construction

Construction workers VMT is not newly generated; instead, it is redistributed throughout the regional roadway network based on the different work sites in which construction workers travel to each day. Therefore, construction workers are not generating new VMT each day, only redistributing it. It is important to note that construction traffic is temporary and not expected to significantly increase VMT in the region over any length of time. This redistribution is considered to have a nominal and momentary effect on the regional and citywide daily VMT. Consequently, it is assumed that there will be no major changes in regional circulation during construction of the Proposed Project, resulting in no impact on conflicts or inconsistencies with CEQA Guidelines section 15064.3, subdivision (b).

2.3 Issue 3: Hazards Due to a Design Features

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)?

The Proposed Project will not expand the existing slip facilities and will all be contained within the existing harbor. Vehicular access to the existing site will not be changed or modified as part of the Proposed Project and no external improvements are anticipated. Since the Proposed Project will maintain the current uses on site and does not intend to make any changes to either the public or private transportation network, it will not increase hazards due to a change in geometric design features or through the creation of incompatible uses; thus, there is no impact to hazards due to design features or incompatible uses.

2.4 Issue 4: Emergency Access

Would the project result in inadequate emergency access?

The implementation of the Proposed Project is not anticipated to result in any changes to the adjacent transportation network or site access. Additionally, the Proposed Project is not anticipated to increase the number of employees or visitors that access the site on a daily basis, nor is it anticipated to change the travel patterns within the City or adjacent areas. Therefore, the implementation of the Proposed Project will not result in inadequate emergency access to the Project Site or any adjacent land uses; thus, there is no impact to emergency access.

2.5 Summary

Table 1 summarizes the results of the transportation impacts discussed in the previous section.

Table 1 Summary of Transportation Impacts

Transportation/Traffic Would the project:	Potentially Significant Impact	Less than Significant with Mitigation	Less than Significant Impact	No Impact
1. Conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?	☐	☐	☐	☒
2. Would the project conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?	☐	☐	☒	☐
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?	☐	☐	☐	☒

Appendix A
Ventura County CEQA Vehicle Miles Traveled Adaptive Mitigation Program

VENTURA COUNTY CEQA VEHICLE MILES TRAVELED ADAPTIVE MITIGATION PROGRAM

FINAL REPORT

Approved May 12, 2023

Recommendations to CEQA Lead Agencies in Ventura County to Streamline CEQA Transportation Assessment and Mitigation

April 2023

VENTURA COUNCIL OF GOVERMENTS

VENTURA COUNTY TRANSPORTATION COMMISSION

Contents

Referenced Acronyms

AMP: Adaptive Mitigation Program
CAPCOA: California Air Pollution Control Officers Association
CEQA: California Environmental Quality Act
EIR: Environmental Impact Report
GHG: Greenhouse Gas
LOS: Level of Service
MMRP: Project Mitigation and Monitoring Reporting Program
OPR: Office of Planning and Research
RHNA: Regional Housing Needs Allocation
RACM: Reasonably Available Control Measures
REAP: Regional Early Action Planning
SCAG: Southern California Association of Governments
TAZ: Traffic Analysis Zone
TDM: Travel Demand Management
TPA: Transit Priority Area
TIMF: Transportation Impact Mitigation Fee
VCTM: Ventura County Transportation Model
VMT: Vehicle Miles Traveled

1 Executive Summary

The California Environmental Quality Act (CEQA) Guidelines were updated in 2018 to change transportation impact analysis from vehicle operations level of service (LOS) to vehicle miles traveled (VMT) as required by Senate Bill (SB) 743. This changes environmental analysis from how a project affects congestion to the distance traveled by vehicle trips associated with a Project. The change supports the GHG reduction goals of the California Global Warming Solutions Act of 2006 (Assembly Bill 32), as implemented.

The most effective means of reducing VMT, is by providing convenient, safe, and accessible bicycle, pedestrian, and transit network improvements, providing a mix of land use types in close proximity, and providing a range of housing options near places of work. This program will focus on providing a CEQA VMT Adaptive Mitigation Program that includes a simplified mitigation program to reduce residual significant VMT impacts with a focus on affordable housing development.

VMT impacts may be difficult for projects to mitigate without offsite improvements. This voluntary program will provide a mechanism to apply VMT mitigation measures to reduce VMT impacts to below a level of significance.

The VMT threshold of significance is determined by each CEQA lead agency, not by this program. As this program provides a template for CEQA VMT mitigation, it may be considered for use with any project that generates VMT.

> **The "CEQA streamlining" purpose of this program is to prevent a situation where the only significant impact is VMT, directing the lead agency into additional time and expense of preparing an EIR and Statement of Overriding Considerations for only one significant impact, an added burden especially for affordable housing projects that rely on grants and subsidies with fixed budgets and timetables.**

This Program was developed with the assistance of REAP funds to assist CEQA lead agencies in Ventura County to streamline CEQA-required review of potential significant transportation impact as measured by VMT as opposed before 2020 when CEQA transportation impact analysis involved assessment of vehicle operations. Vehicle operations analysis and performance standards may still be required by non-CEQA review and entitlement requirements of jurisdictions.

While demonstrative analysis was conducted using the VCTM, other travel demand models are available to lead agencies. For example, the Cities of Oxnard and Simi Valley have their own travel demand models, which will result in slightly different VMT forecast values. VMT analysis methodology tools may differ by input assumptions and output value. However, the absolute number value of VMT is much less important than the percent difference between Existing Conditions (i.e., No-Project) and With-Project conditions as a metric for CEQA impact assessment for projects that require CEQA review. While not all land use development projects require CEQA review, a VMT analysis may still be required to document how a project meets a CEQA exemption.

1.1 Program Framework

The Program, developed by the Ventura Council of Governments (VCOG) and the Ventura County Transportation Commission (VCTC), is a multifaceted effort to provide mechanisms for clear and consistent application of VMT reduction strategies to streamline the CEQA process in Ventura County. It is intended to develop capacity and standards that provide several options for avoiding or mitigating potential CEQA significant impacts due to project VMT. This will be accomplished through:

1. **AVOID: Identification of "low VMT areas"** where development is less likely to have a VMT impact through mapping and an address look-up tool on the VCTC website.
2. **ASSESS: Support for estimation of potential significant CEQA VMT impacts and mitigation** through a recommended four-step VMT assessment process.
3. **ASSIST: Standards for VMT analysis for applicant preparation and agency review**
    a. Provides standards for VMT analysis to assist in the review of project's CEQA impact determination by the lead agency and responsible reviewing agencies.
    b. Recommended methodology for VMT assessment.
4. **ADDRESS: Recommended VMT reduction/mitigation strategies and their effectiveness** to provide options for lead agencies and project proponents through on-site and off-site VMT reduction strategies. Projects exceeding the VMT threshold of a lead agency could either:
    a. Provide an on-site or off-site VMT reduction project component or action.
    b. Pay a VMT offset fee: a fair share cost estimate of VMT reduction as determined by a dollar amount per daily VMT reduced. The fair share cost estimate could be used for a VMT reduction strategy of the lead agency or could be applied towards a multijurisdictional or regional project provided it does not supplant previously committed funding to meet CEQA mitigation additionality requirements.
5. **ADAPT:** The program is 'adaptive' in that a menu of reduction/mitigation strategies is available from which to choose so long as the CEQA-determined reduction goal is achieved for a long-term project.

1.2 Program Recommendations

The AMP recommendations are provided to participants with different roles in the CEQA process to streamline not only their CEQA transportation assessments, but also those of the other participants in the VMT analysis process.

Recommendations for VCTC and VCOG

1. Continue to **provide technical analysis available to lead agencies, project proponents and other stakeholders by maintaining the Ventura County Transportation Model (VCTM)** and

publishing its outputs on the VCTC website. The VCTM is the best source for estimating and forecasting VMT in Ventura County, therefore new sources of data to calibrate and validate the model and its interaction with other tools for VMT estimation such as California Emissions Estimator Model (CalEEMOD) should be explored.

2. **Refine the CEQA AMP as a regional standard** of CEQA transportation assessment by working with all parties to continually improve tools and processes.
3. **Pursue Regional Early Action Program (REAP) resources** to support lead agencies.
4. **Develop regional options for transportation VMT impact avoidance/mitigation**. While the AMP does not contain a direct mechanism for funding regional projects as VMT mitigation, it does provide a fair-share cost mechanism that could be used by individual lead agencies or at a regional level to fund multimodal transportation improvements to reduce VMT.

Recommendations for Lead Agencies

1. Implement 2021-2029 Housing Element policies and programs to focus and **support development in Low VMT Areas and in areas served by transit**. Based on analysis in the AMP, 71 percent of future housing identified in certified or draft 2021-2029 Housing Elements in the 11 jurisdictions is located in areas below 85 percent of current average County-wide VMT and/or served by transit.
2. **Establish Lead Agency VMT Thresholds for CEQA review** by either adopting the State CEQA Guidance threshold of 15 percent below (85 percent of) the most recent regional VMT average, or define another threshold level based on local conditions.
3. **Define a set of multimodal infrastructure projects** that can be allocated a fair-share cost participation as project VMT mitigation. The AMP provides the nexus analysis and "VMT metric" for bicycle, pedestrian and transit infrastructure and services to be quantitatively used as project VMT mitigation. [The CEQA additionality requirement that mitigation funds not supplant previously committed funding must be followed.]

Recommendations for Project Proponents/Applicants

1. **Review of project area VMT as part of due diligence** by looking up the VCTM outputs for the traffic analysis zone (TAZ) containing the project location. This will show if the TAZ/project area was modeled as above or below the lead agency's CEQA VMT threshold under existing conditions.
2. If a project is shown to be in an area with higher VMT per capita than the lead agency threshold, **develop VMT reduction strategies to incorporate as project elements/actions to avoid or reduce VMT**. These could be changing the type of project land use (more mixed-use and affordable housing) or elements to reduce vehicle use such as bicycle parking. Ensure the VMT reducing elements of the project are accounted for in the VMT assessment of the project.
3. **Include VMT reduction in early discussions with the lead agency.**

Recommendations for Other Stakeholders

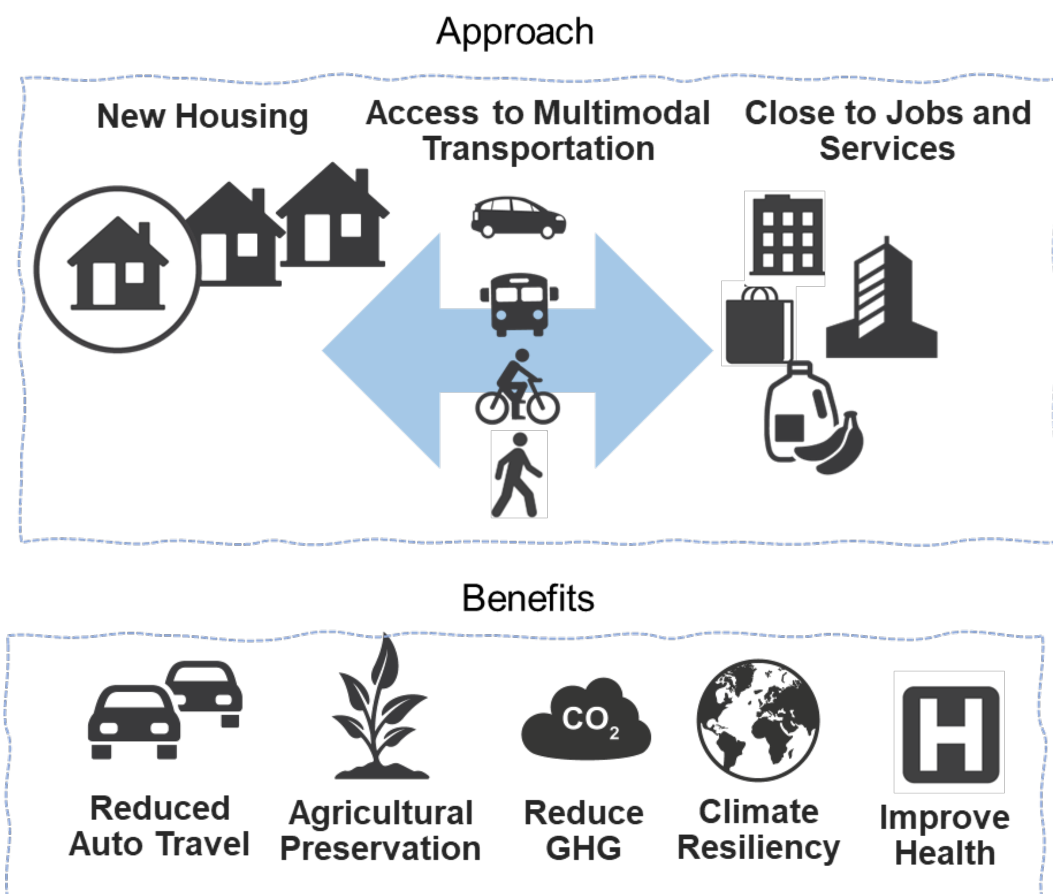
1. **Help CEQA Lead Agencies develop VMT avoidance and mitigation options** such as mechanisms for funding transit operations or development of affordable housing as a VMT reduction strategy through nexus analysis.
2. **Continue to participate in countywide and regional processes to help guide the next steps towards sustainable development.**

1. Introduction

The Ventura County CEQA VMT Adaptive Mitigation Program (AMP) is a multifaceted effort to provide mechanisms for clear and consistent application of VMT reduction **strategies to streamline the CEQA review process related to implementing 2021-2029 Housing Element programs that lead to housing development in Ventura County**. It is intended to develop capacity and standards that provide several options for avoiding or mitigating potential CEQA significant impacts due to project VMT.

While automobile travel brings many benefits, orienting land use and transportation to be automobile-dependent has many negative externalities. With the adoption of SB 743, effective in July 2020, CEQA transportation analysis was reoriented from level of service (LOS) analysis to reduction of VMT. The combined intent of SB 743 and the 2021-2029 Housing Element process is to direct new housing to multimodal transportation and closer to jobs and services in order to bring benefits of reduced auto travel, land preservation, reduction of greenhouse gases, climate resiliency and improvements to health as shown in **Figure 1-1**.

Figure 1-1: Ventura County AMP Approach and Benefits



1.2 Vehicle Miles Traveled

Vehicle Miles Traveled (VMT) is the number of vehicle trips generated by a project multiplied by the distance of each trip.

The primary determinants of a project's vehicle trips are:

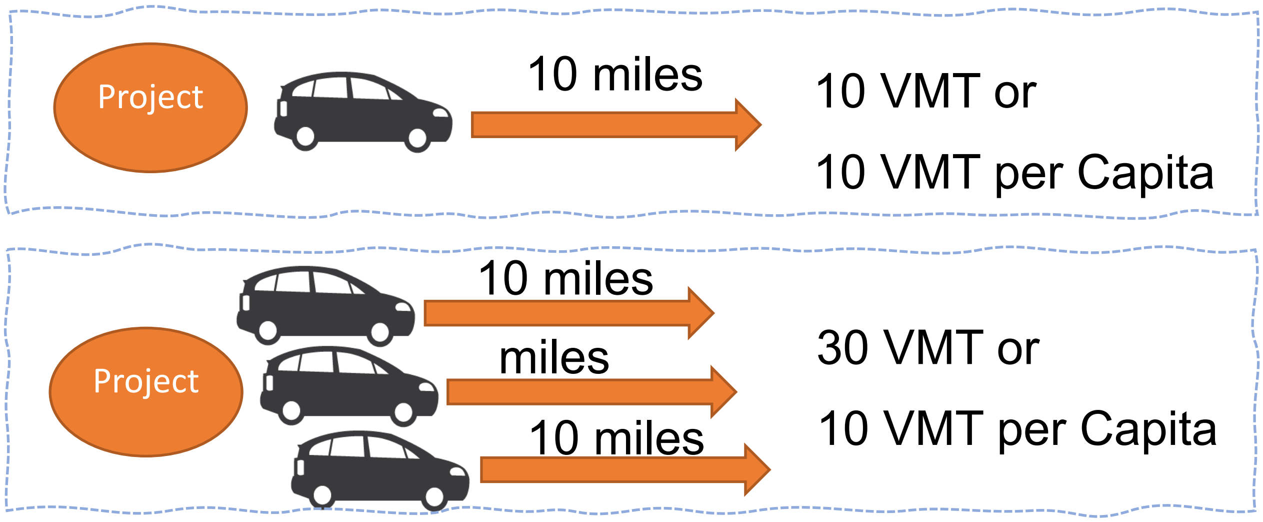
- Projects with Housing: Household Demographics—their size and composition—and their economic circumstances, particularly employment status and income level.
- Projects without Housing: On-site employment and attraction of retail customers, students, visitors, tourists, and others to goods and services.
- Regional geographic distribution of households, employment, schools, shopping, and recreational destinations that influence the distance of travel.
- Transportation system infrastructure and services providing travel options.

In general, VMT is lower in areas where there are a diversity of land uses in close proximity—shortening or avoiding trips by walking or bicycling—and where there are multimodal transportation networks and opportunities (walking, bicycling, trip-share, shuttle, transit bus, light rail, regional rail) —that all help reduce the need for automobile travel, especially single-occupant vehicle trips.

Since assessing total VMT of projects under CEQA would disadvantage larger projects—and generally discourage economic growth, an "Efficiency Metric" or index of VMT by population, employment or both was developed by the Governor's Office of Planning and Research (OPR).

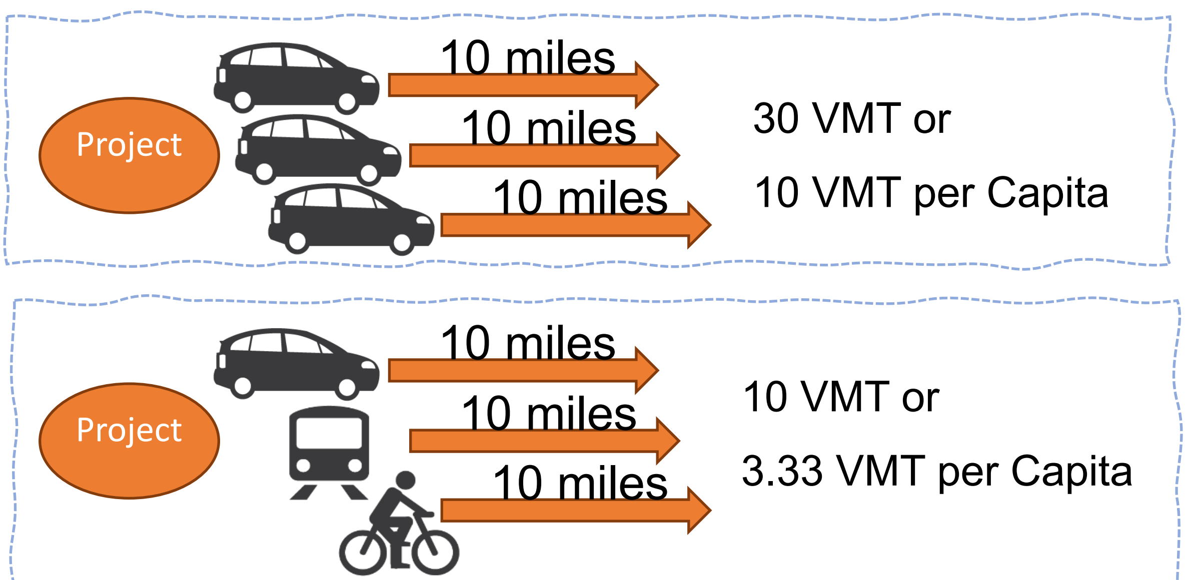
Figure 1-2 demonstrates this efficiency metric of VMT per capita: A project with one employed person traveling in one car going 10 miles each day creates 10 VMT. The same project with three employees traveling 10 miles each for a total of 30 miles creating 30 total VMT also creates 10 VMT per capita per day. By comparison, **Figure 1-3** shows the same retail project where the three employees also travel 10 miles each but one by car, one by transit, and one by bicycle results in 10 total VMT, or 3.33 VMT per capita per day.

Figure 1-2: Total VMT vs. VMT Index



A VMT index is a systemic transportation metric that accounts for other types of travel by including all people traveling in the denominator but not including the non-vehicle mileage in the numerator. Therefore, as people make an increasing share of trips by non-vehicle modes, the VMT index is reduced.

Figure 1-3: VMT Index for Auto Only vs. Multimodal Trips

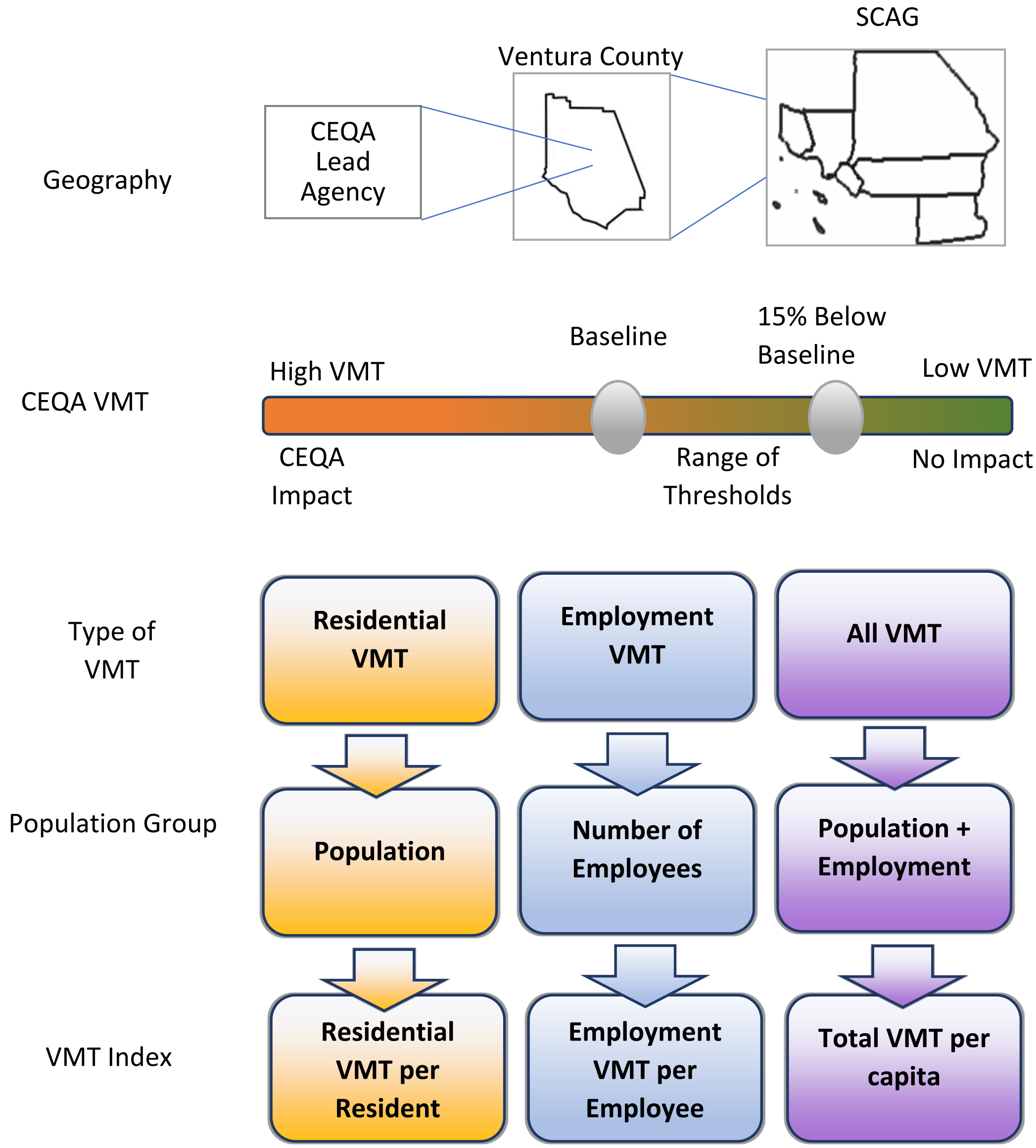


Because cars generally can travel longer distances than other modes, in order to lower VMT per capita, not only do land uses need to be developed to meet local needs, but they also need to be developed closer to transit, walking and biking options and the infrastructure supporting those types of transportation.

1.3 Project VMT Assessment

The CEQA lead agency (the government agency taking a discretionary action and responsible for CEQA VMT review, if required) defines the components of the VMT assessment. Project VMT is assessed by comparing a baseline VMT index to the Project VMT index to determine if a threshold of significance is exceeded. As shown in **Figure 1-4**, the region, as defined by California Office of Planning and Research (OPR), is a geographic unit (SCAG region, Ventura County or jurisdiction), the threshold is the difference from baseline which defines a potential significant impact, and the subset of overall VMT used for assessment is based on the project type with the corresponding population group used to index the VMT.

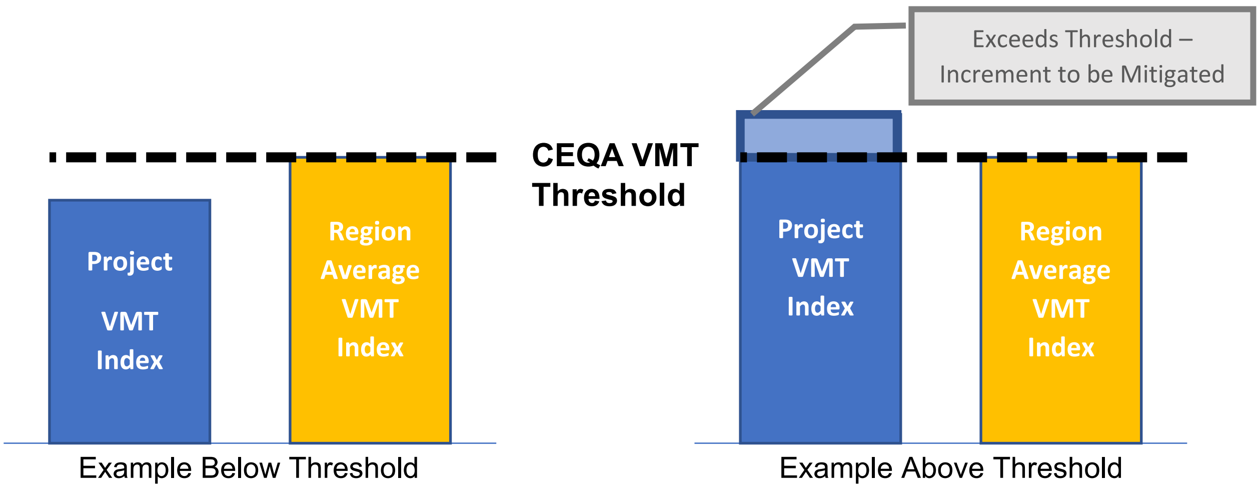
Figure 1-4: VMT Analysis Components



OPR recommends a VMT threshold of 15 percent below the regional baseline VMT index (Technical Advisory On Evaluating Transportation Impacts in CEQA, 2018 as amended).

An assessment of VMT is shown in **Figure 1-5** for projects with a VMT index below and above a lead agencies threshold of significance.

Figure 1-5: VMT Threshold Assessment Examples



1.3.1 Finding Less Than Significant VMT Impacts

The OPR Technical Advisory On Evaluating Transportation Impacts in CEQA describes CEQA Lead Agency use of screening criteria to quickly identify when a project should be expected to cause a less-than-significant impact without conducting a detailed study. As part of an initial study a project could explain the reasons for determining that potential VMT effects would not be found significant.

These screening criteria are defined by lead agencies with common ones being:

> **Screening Threshold for Small Projects** – OPR recommends projects that generate or attract fewer than 110 trips per day based on the CEQA categorical exemption for existing facilities, including additions to existing structures of up to 10,000 gross square feet.
>
> **Low VMT Area** – Projects that locate in areas with low VMT, and that incorporate similar features (i.e., density, mix of uses, transit accessibility), will tend to exhibit similarly low VMT. Maps created with VMT data can illustrate areas as of 2023 below threshold VMT. "Areas" are usually Traffic Analysis Zones (TAZ) for which VMT information is available. A TAZ is usually a Census Tract sized area of land with different amounts of housing, commercial and/or industrial uses, or a major land use such as a regional hospital or college campus.
>
> **Transit Priority Areas** – located within one half mile around major transit stops.

Affordable Housing Development – for full or partial affordable housing development, especially in and near commercially zoned areas.

Community Serving Projects – focused on services that primarily serve the community such as neighborhood retail schools, parks, community center, daycare and libraries.

1.4 Lowering Project VMT

The AMP provides for Project Applicants and lead agencies to determine if a project may have potential significant impacts based on VMT early in the project development process, so that VMT reduction elements may be integrated into project design from the beginning rather than applied as part of a mitigation program if potential significant impacts are later identified. Mitigation measures should be not only technically and financially feasible, but also appropriate for the context of the project site and expected to achieve the VMT reductions it would be credited for in pre-construction analysis.

If a project's VMT threshold is expected to be exceeded, VMT reduction measures to reduce a project's VMT efficiency below the threshold should be applied to the project, on-site or off-site, before the project description is finalized and published during CEQA review.

On-site VMT reduction may be achieved through increased density, a greater mix of compatible land uses, affordable housing, and/or improving on-site multimodal transportation infrastructure and connections. Appendix G describes VMT reduction strategies in detail.

Off-site mitigations are generally infrastructure or operational improvements to multimodal infrastructure to support non-vehicular travel. Off-site mitigation serves more than just travel to/from the project site, and therefore can reduce VMT to a higher level than on-site mitigations which only apply to the project-generated trips. The drawbacks of off-site mitigations are their relatively higher cost and difficulty to administer from a project applicant or operator and CEQA Lead Agency perspective.

To facilitate off-site mitigation, a fair share cost mechanism for project applicants was developed for use in Ventura County as detailed in Appendix C. The fair share cost mechanism determined the dollar cost of reducing one daily VMT (mile of vehicle travel, not indexed to population or employment). The fair share cost mechanism is not required to be used for determining VMT mitigation cost, but rather to provide a mechanism for lead agencies to allow applicants a means to partially fund off-site mitigations which may be too expensive to fully fund by one project or to be used for yet-to-be identified VMT reduction projects managed by the CEQA Lead Agency.

1.5 Recommended VMT Assessment Methodology

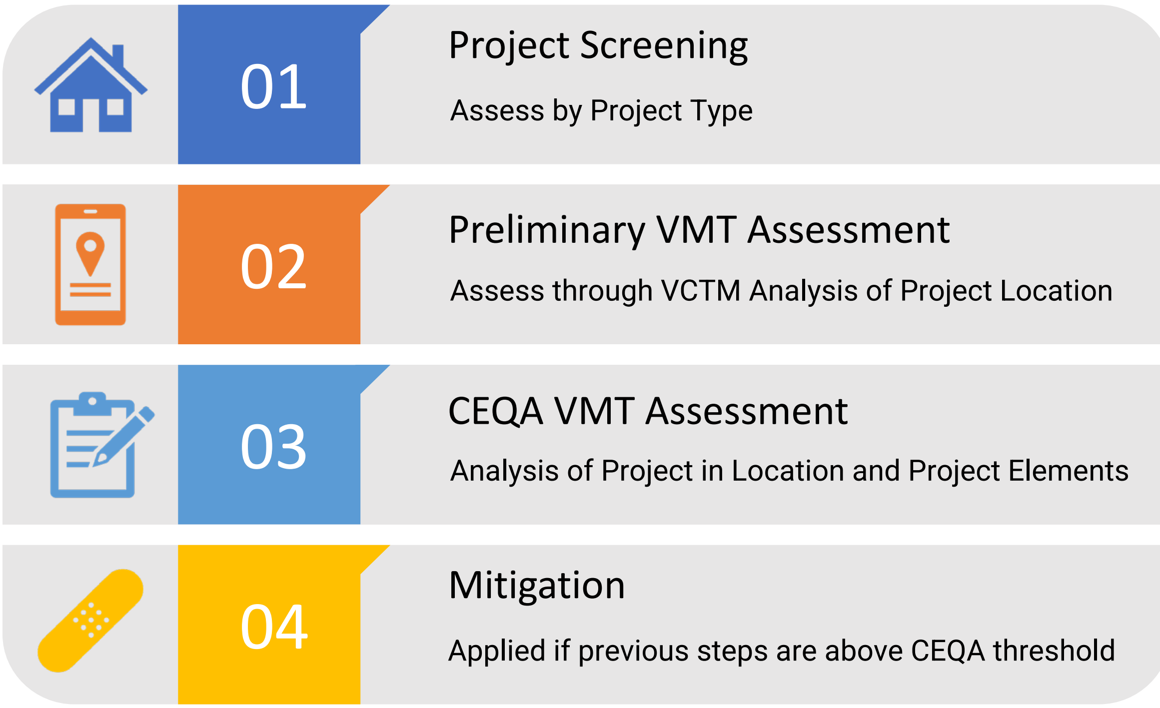
The recommended VMT assessment process provides for early identification of VMT characteristics of Proposed projects to:

1. Determine if a project qualifies for a statutory or categorical exemption when the exemption criteria has certain conditions related to VMT. The exemption statement should include the VMT analysis.
2. If the project is not exempt, estimate project-level VMT by type and compare to the CEQA Lead Agency's VMT threshold of significance to determine if a project would have a potential significant VMT impact. This may be part of an Initial Study.
3. If the VMT impact is less than significant, then the project may only require a Negative Declaration (assuming no other impacts are significant).
4. If the VMT impact is significant, then proceed with a Mitigated Negative Declaration (MND) with inclusion of effective and feasible CEQA mitigation measures to reduce VMT to a less than significant level (assuming no other impacts are significant).
5. If the VMT impact is significant and there are other significant impacts, then proceed with an Environmental Impact Report (EIR) with inclusion of effective and feasible CEQA mitigation measures to reduce VMT to a less than significant level.
6. If the VMT impact is significant and VMT mitigation measures do not fully reduce VMT impacts to a less than significant level, then the EIR will require a Statement of Overriding Considerations to justify approval of the project even with VMT (and possibly other) significant environmental impacts.

The "CEQA streamlining" purpose of this program is to prevent a situation where the only significant impact is VMT (described in #6, above), directing the CEQA Lead Agency into additional time and expense of preparing an EIR and Statement of Overriding Considerations for only one significant impact, an added burden especially for affordable housing projects that rely on grants and subsidies with fixed budgets and timetables.

The four steps of the recommended VMT assessment process are:

Figure 1-6: Recommended VMT Assessment Process



This recommended process is applicable for all types of projects whether land use development, programs and plans, and transportation projects.

Lead agencies define screening criteria (Section 1.3) for projects that could be presumed to be less than significant or that can identify VMT reduction options early for project proponents.

Preliminary VMT assessment of projects is available through VCTC's VCTM website, which provides lead agencies and project proponents the opportunity to estimate VMT characteristics for projects based on their location. This provides proactive indication of the potential for project VMT impacts. Project proponents can work with lead agencies to develop VMT reduction strategies as project elements to address potential VMT significant impacts.

Lead agencies are encouraged to develop preferred VMT reduction strategies that avoid or reduce VMT that can be applied by project applicants as needed.

1.6 Streamlining Under CEQA

CEQA, enacted in 1970, requires lead agencies to inform decision makers and the public about the potential environmental impacts of discretionary activities proposed by public agencies or private projects requiring discretionary approval, and to reduce those impacts to the extent feasible. Lead agencies are state and local agencies that have the primary responsibility for approving a project. To be a CEQA Lead Agency, the public agency must have discretionary authority over a project. Lead agencies in Ventura County are local cities, school districts, water districts, the County of Ventura, and other public agencies.

CEQA compliance is required prior to the approval or undertaking of a project that could significantly affect the environment. There are five types of CEQA documents:

- Notice of Exemption
- Negative Declaration
- Mitigated Negative Declaration
- Environmental Impact Report
- EIR/MND Addendum

Streamlining under CEQA can either be through a statutory or process streamlining or through actions to reduce the potential for a higher level of CEQA review by addressing impacts proactively, which is the purpose of the AMP. Streamlining allows applicants and lead agencies to save time and money in a legally defensible framework.

In the present context, this program is intended to avoid the preparation of an EIR (or Addendum) and Statement of Overriding Considerations for a significant VMT impact by including VMT reduction strategies in the project description and/or Mitigated Negative Declaration, including an optional payment of a per VMT mitigation cost fair share.

1.6.1 Exemptions and Tiering Under CEQA – Potential Process Streamlining

A project is exempt from CEQA review if:

- The project is exempt by statute
- The project is exempt pursuant to a categorical exemption
- The activity is covered by the "common sense exemption."

The standard of review for exemptions is the substantial evidence test where the burden is on the challenger to show that an exemption is not appropriate.

Categorial exemptions are described in Article 19 of the CEQA Guidelines. 32 classes of categorical exemptions are defined. The four most relevant to housing VMT are classes 3, 5, 26, and 32. The class 32 exemption is for in-fill development projects that are:

- Consistent with general plan and zoning
- Project site of up to five acres, substantially surrounded by urban uses
- No value as habitat for endangered, rare or threatened species.
- No significant transportation, noise, air quality, or water quality impacts
- Adequately served by all required utilities and public services

Article 18 of the CEQA Guidelines includes statutory exemptions that apply regardless of environmental impacts under most circumstances. These include ministerial projects, emergency projects, and financial assistance for low/moderate-income housing.

New legislation further supports streamlining of housing development such as:

- AB 2011: ministerial approval for 100 percent affordable and mixed income housing within commercial zones and corridors
- SB 35 streamlines approval for affordable multifamily projects
- SB 6: deems a housing project on an office, retail, or parking zone allowable. Eligible for streamlining under SB 35 if conditions are met and ordinance adoption of SB 6 language is CEQA exempt
- SB 886: Exemption for student housing

If a categorical exemption does not apply or a project is not statutorily exempt, it still may be exempt under the "common sense" exemption (CEQA Guidelines 15061(b)(3) if there is certainty that there is no possibility the activity in question may have a significant effect on the environment.

CEQA also provides for projects to tier off of a previous environmental document. Section 15168 provides for tiering if the project is covered under a program EIR such as a Housing Element. Section 15183 provides for projects consistent with a community plan or zoning that were adopted with a certified Environmental Impact Report. Section 15182 provides streamlining for certain project types consistent with a specific plan for which an Environmental Impact Report was certified and within a transit priority area. Projects may also tier off of a Sustainable Communities Strategy pursuant to SB 226 for infill projects that reduces VMT and SB 375 for mixed-use residential development within a transit priority area.

There are many streamlining and exemption options for projects that are infill, affordable and mixed-use housing developments. The process for streamlining starts by conducting a thorough preliminary review of a proposed activity to determine whether the project is exempt under CEQA.

Frequently Asked Questions

1. Is this a mandatory fee program?

   No. Rather than a prescriptive or mandatory program, this program establishes guidelines and a structure to allow for voluntary funding participation in effective VMT reduction strategies to avoid and mitigate potential CEQA VMT impacts. It is a toolbox for the CEQA lead agencies of Ventura County to streamline the CEQA process for housing projects and other types of projects. While a single countywide mitigation bank was explored (akin to a wetlands bank or the Ventura County Air Pollution Control District's Transportation Outreach Program (Rule 211), several logistical and legal issues would need to be overcome to enact a "simple" singular fee per VMT to pay for VMT-reducing projects through a countywide program.

2. Why not have a simple fee program to simplify transportation mitigation?

   The CEQA and Fee Program requirements make it complicated for a regional or countywide transportation mitigation fee program. VCOG and VCTC are not CEQA lead agencies, which limit the mechanisms they can provide for a mitigation fee program. However, if after experience in utilizing the AMP, it is desired by the CEQA lead agencies of Ventura County to create a fee program, this program provides a foundation for the implementation of such a program.

3. How is VCTC regional and VMT program methodology going to integrate with the VMT methodology implemented (or planned to be implemented) in various Ventura County cities?

   The program is intended to complement CEQA lead agencies processes (cities, Ventura County, special districts) and not to supersede any authority or methodology of an individual agency. The CEQA lead agencies have the statutory authority to analyze and make determinations on potential significant impacts, identification of mitigation measures, and mitigation monitoring.

4. What is the anticipated timing for the VMT mitigation program?

   The program is intended to be adopted by the Ventura County Transportation Commission in May 2023, and the consultant team will be available to work with lead agencies through December of 2023.

5. Will there be a list of VMT mitigation projects for review and evaluation by lead agencies?

   No, the program will identify the types of project components and features that can reduce VMT (and their expected effectiveness in doing so) and a fair share cost estimate. The CEQA Lead Agency has the statutory authority and discretion to direct mitigation funds and to monitor the mitigation implementation. A CEQA Lead Agency could choose to participate in a regional or multijurisdictional project by directing VMT mitigation fees to another Lead Agency or VCTC. This could be an opportunity to leverage local funds as match for state or federal grants.

6. Is the program only focused on residential land uses?

   This program is focused on CEQA streamlining of housing development, so the analysis and substantial evidence is based on housing development. However, in our project development team meetings with lead agencies, it was requested the VMT reduction strategies include those for all types of land uses, and the methodologies and tools can be used for all types of land uses and programs and plans. The VCTM includes information on residential and employment land uses.

7. What is the relevance, timing, and nexus associated with the VMT program and AB 1600 Mitigation Fee Act process?

   The program is a standardized VMT process with tools for lead agencies and applicants to develop projects that avoid potential significant CEQA VMT impacts if the project is subject to

CEQA review. We will be following requirements included in the CEQA Guidelines, AB 1600, and other state policies and court decisions to ensure the program would be consistent with CEQA mitigation practice and will evolve to meet future needs in the County under the direction of VCTC and partner agencies.

8. What sort of environmental review document is envisioned by VCTC to adopt the CEQA VMT Adaptive Mitigation Program?

   It is not anticipated that the program itself requires a CEQA review. The VMT reduction strategies themselves are by-and-large exempt from CEQA review (bicycle lanes, sidewalks, signage, lighting, transit facilities, etc.). However, the program will define those activities that are specifically categorically exempt from CEQA as part of the substantial evidence to further streamline project elements or mitigation measures. Since the intent of the program is to streamline CEQA for housing projects, VMT reduction strategies as project elements or mitigation measures would best be actions exempt from CEQA review.

9. How will the VMT AMP integrate with the County of Ventura's Traffic Impact Mitigation Fee (TIMF)?

   An update is currently underway to the County’s TIMF program, which is intended to ensure adequate transportation infrastructure is funded and in place to support future development. The program is a mix of improvements that support vehicle travel and improvements that support non-motorized transportation and transit. The new CEQA guidelines may require additional VMT reducing projects to offset potential VMT increases from roadway projects. This effort is not directly related to the TIMF; however, it may inform the types of improvements necessary to ensure the TIMF program has a less than significant CEQA VMT impact.

10. Can the CEQA Lead Agency change VMT mitigations after the CEQA process is completed.

   If the CEQA Lead Agency describes the CEQA mitigation as ‘adaptive,’ it may choose from the various VMT reduction projects and/or utilize the VMT fair share cost option throughout the life of the project so long as a VMT goal is expressed and may reasonably be achieved. This could be useful for a long-term project or general or specific plan where uncertainty in project implementation has the potential for uncertainty of future conditions, such as the feasibility of mitigations over time. In this case, reevaluation of mitigations and mitigation monitoring could be an explicit process within the mitigation program to allow flexibility to achieve migration goals through performance standards and monitoring.

2 AMP Development Process

The Regional Early Action Planning (REAP) Subregional Partnership Program is intended to help accelerate housing production throughout California and have a net-positive effect on housing supply by completing regional planning activities to enable cities and counties to meet their respective 2021-2029 regional housing needs assessment (RHNA) allocation.

The Ventura Council of Governments (VCOG) applied for and was awarded funds to promote development of a regional approach to VMT impact mitigation that, when adopted, would support Lead Agency CEQA streamlining. The resulting AMP is intended to support local CEQA lead agencies and developers in Ventura County by providing a reference of standards and procedures to conduct project, program, and plan-level CEQA VMT/transportation analyses and, in cases where the only significant impact is VMT, provide an adaptive mitigation program that avoids preparation of an EIR and Statement of Overriding Considerations. The project development team (PDT) consisted of VCOG and VCTC staff, staff from each of the cities in Ventura County, and Ventura County staff.

The stakeholder engagement for the development of the AMP framework consisted of eight meetings to develop the draft program framework. Three PDT meetings involved presentations of the technical components of VMT baseline mapping and analysis procedures followed by questions and discussion which were used to develop and shape the program. For each PDT meeting, one to two additional meetings were held to ensure a thorough discussion by lead agencies, as well as to address specific issues raised at the meetings.

PDT 1 – Initial Program Parameters

Presentation	Meeting	Discussion
• Overview and Components • Schedule and Stakeholder Involvement • Component Technical Examples	PDT 1– November 16, 2021	• Discussion of upcoming major projects for CEQA review • Provide analysis for new types of living accommodations • Include mitigations for all types of land uses (not just housing) • Be consistent with Agencies that have set up their own VMT analysis and mitigation
	TTAC November 17, 2021	• Consolidate Agencies CEQA VMT Policies, Housing Element Updates, and major transportation projects

PDT 2 – Scale of Program and Mitigation

Presentation	Meeting	Discussion
• Purpose and Framework • What Does it Cost to Mitigate VMT Impacts? • Estimated CEQA Transportation Impacts from Housing Projects • Mitigation and Monitoring • Schedule and Stakeholder Involvement	PDT 2– January 27, 2022	• Mitigation options - Add transit operations (maybe annuity), explore broadband and parking strategies • Don't bind agencies to using mitigation program
	TRANSCOM March 9, 2022	• How transit operations could be funded with mitigation funds • Potential support for transit-oriented development
	VCTC Staff – March 22, 2022	• Preference for developer to resolve mitigation, 2nd would be CEQA Lead Agency to address, then 3rd would be regional project • If payment to VCTC could be considered local match to grants • Cities and County are better equipped to receive and administer funds

PDT 3 – Draft Program Framework

Presentation	Meeting	Discussion
• Purpose • Program Framework - Discussion • Stakeholder Involvement • Schedule	PDT 3– March 23, 2022	• Potential for single fee or varying fee levels chosen by CEQA Lead Agency • Avoid conflict with CEQA Lead Agency programs and standards
	VMT Users Group – April 7, 2022	• Stakeholders to invite to review Project Framework
• Draft Program Framework	VMT Users Group – August 2, 2022	• Types of new data that could be used to measure VMT • Appropriate analysis of mitigation measures

• Draft Program	Public Meeting, PDT, VMT Users and other Stakeholders Invited – November 16, 2022	• Presentation covered:
		  ○ Ventura County VMT AMP
		  ○ CEQA Streamlining for Housing
		  ○ AMP Recommendations
		  ○ Proactive Identification of Potential VMT Impacts
		  ○ Looking Forward: Next Steps

VCTC Presentation on Program Framework

Presentation	Meeting	Discussion
• Background • Program Process Program Framework	VCTC - June 3, 2022	• Consider land use mitigation (fair share cost to land use, e.g. affordable housing)

3 Vehicle Miles Traveled in Ventura County

Vehicle miles traveled (VMT) in Ventura County is driven by the demand of residents to work, shop, study and recreate at locations they access by automobiles. These choices to travel, and more specifically to travel by automobile, are based on the distance and type of transportation options available to make the trip.

Investments in the infrastructure of the transportation system are made by public agencies charged with providing safe, efficient and accessible means for people to travel. This travel is an expression of economic and social activity that is central to the well-being of residents of Ventura County.

However, nearly a century of focus on investing in roads and parking for the automobile created a dependence on automobile travel for most people. While automobile travel offers many benefits, it is not without drawbacks, including congestion, safety, noise pollution and air emissions. Furthermore, lower-cost, more healthy and environmentally friendly travel modes of walking, biking and taking transit were marginalized in public infrastructure investment.

Recognizing CEQA Guidance was perpetuating the investment in automobile travel over other types of transportation, SB 743 was passed in 2013 to update CEQA Guidance to change the basis of assessing environmental impacts from vehicle congestion, which resulted in more vehicle infrastructure investment, to VMT in order to align CEQA environmental analysis with Statewide environmental goals and policies, particularly those related to reducing greenhouse gas emissions.

3.1 Demand for Vehicle Miles Traveled

Vehicle miles traveled is the product of the number of vehicle trips multiplied by the trip distance. Several factors influence both the share of all trips taken by vehicles and trip distance.

3.1.1 Transportation Options

The choice of mode of travel by a person is dependent on the availability of travel options, the amount of time, comfort, convenience, and cost of travel. In general, walking, bicycling, bus or shuttle transit, personal cars, rideshare/taxi, commuter rail, and heavy-rail/light-rail are the primary modes of travel, and each have different levels of attractiveness for users. Trips that do not use personal vehicles or rideshare/taxi services reduce vehicle miles traveled.

Investments in non-vehicular infrastructure (often referred to as multimodal infrastructure) and services can provide reduction in VMT by shifting vehicle trips to non-vehicle modes. These include both on-site and off-site strategies such as improving neighborhood connectivity of sidewalks and bike paths, transit infrastructure and services, and employer commute programs. In some cases, new connections in the roadway system could reduce VMT if it provided a shorter path to destinations. While investments in zero and reduced emissions transportation infrastructure and vehicles do not necessarily reduce VMT, they would reduce tailpipe GHG emissions and be part of overall statewide strategies to reduce the impacts of climate change.

3.1.2 Land Use

The distance traveled by persons in the transportation system is dependent on the network distance between their origin and their destination. Choice of destination is based on personal preference and need, while the distance is a spatial factor of the built environment. The more potential destinations located closer to an origin (generally residences), the less likely long-distance trips would be taken. This is especially true for everyday destinations of workplaces, grocery stores, gas stations, schools, or restaurants.

For new projects, the average VMT per capita or per employee of the site would be expected to be similar to adjacent, similar land uses. Developments that include a mix of uses on site can reduce their VMT potential through “internal capture” of trips within a site. If the project introduced a new type of land use or destination, it could reduce the VMT of visitors to the project, and thereby overall VMT. However, these effects are marginal since the vast majority of the built environment is currently in place, and the capacity of an individual development to influence local and regional traffic patterns is limited.

Reduction of VMT through land use strategies includes mixing uses within a site or a different type of land use serving a local area, increasing development density, siting developments near transit to allow walking and biking to transit services, and pricing strategies for parking and roads. While these strategies are more effective than investment in multimodal transportation at a project level, they are enacted over a long time period.

3.2 VMT Characteristics of Ventura County

Ventura County is dominated by open space and agricultural land with developable land concentrated in the ten incorporated cities and several unincorporated communities generally near the cities. Travel within the County relies on multiple modes of travel. The majority of travel in the County is made by automobile travel, however the county supports extensive pedestrian, bicycle, transit and commuter bus and rail service as well as carpooling and vanpooling. These conditions were modeled using the Ventura County Transportation Model (VCTM) base year to estimate VMT characteristics of the County in Table 3.1. The unit of geography for VCTM is the traffic analysis zone (TAZ) whose size is roughly equivalent to a US Census Tract.

Table 3-1: Population, Jobs and VMT Indices for Ventura County VCTM Base Year

Source: Ventura County Transportation Model (VCTM), 2022

	Residential Population	Households	Jobs	Residential VMT	Work-Based VMT	Jobs/ Household Balance	Residential VMT/Capita	Work VMT/ Job
	A	B	C	D	E	C/B	D/A	E/C
Total County	854,420	273,925	326,401	14,079,123	6,230,506	1.2	16.5	19.1

As shown in Table 3-2, just over half of the population lives in areas estimated to produce residential VMT per capita below the baseline average for the County, whereas less than one-third of residents live in areas estimated to produce residential VMT per capita below 85 percent of baseline average for the County. When applying each individual jurisdiction's average baseline VMT per capita, those values drop by about three percent each.

Table 3-2: Population Living in TAZs with Residential VMT per Capita Meeting Different Thresholds

Countywide Residential VMT per Capita		Jurisdiction Residential VMT per Capita	
Below Average Baseline	Below 85% of Average Baseline	Below Average Baseline	Below 85% of Average Baseline
53.5%	31.4%	52.8%	26.0%

As expected, approximately half of households in the county are above the countywide average for residential VMT per capita, with approximately 2/3 of households in TAZs with average VMT per Capita above 85% of the countywide residential VMT per capita value. A majority of existing residences in the county are single family homes in built-out neighborhoods.

3.2.1 Transit Priority Areas

Transit Priority Areas (also known as High Quality Transit Areas) are locations within one-half mile of major transit stop, which includes a fixed guideway transit stop, a location where two bus route with a headway frequency of every 15 minutes (or less) during peak commuting hours, or a stop along a high quality transit corridor that has a transit service which has a frequency of every 15 minutes (or less) during peak commuting hours. Existing areas in the County that meet these criteria are around the Metrolink rail stations in Simi Valley, Moorpark, Camarillo, Oxnard and Ventura. SCAG defines a future High Quality Transit Area in the corridor served by the existing Gold Coast Transit Routes 1 and 6 (routes as of 2023).

As of 2023, the VCTM estimate for residential VMT per capita in existing transit priority areas is 13.0 VMT per capita, 21 percent below the Countywide VMT value of 16.5 VMT per capita, as shown in 3-4.

3.2.2 Regional Housing Needs Assessment

As detailed in Appendix C, and summarized in Table 3-3, the 2021-2029 Regional Housing Needs Assessment (RHNA) allocation by the 11 county jurisdictions are predominately in low-VMT areas: 30 percent are allocated to existing transit priority areas, two-thirds are in areas below 85 percent of the County Baseline VMT per capita, and 70 percent of the RHNA allocation meet either criterion. This implies that about 70% of Ventura County's total 2021-2029 RHNA allocation are located in areas that would reduce average VMT and have no transportation impact. The remaining 30 percent would be in areas where this VMT AMP could play a mitigation role if housing projects required CEQA review.

Table 3-3: RHNA Housing Unit Allocation with Percent in Traffic Analysis Zones with a HQTA or Below 15 percent of the Countywide Daily Vehicle Miles Traveled Per Capita

	Very Low or Low Income Units	Moderate and Above Moderate Income Units	Total RHNA Units for 10 cities and the County	Units in Transit Priority Area	Units in Areas Below County 85% VMT	Units in HQTA or Below 85% County VMT
Total for Ventura County	9,584	14,868	24,452	29%	67%	71%

3.3 VMT in Disadvantaged Communities

As shown in Table 3-4 and detailed in Appendix D, disadvantaged communities of both the 75th and 60th percentile of burdened Census Tracts in the state as calculated by the California Office of Environmental Health Hazard Assessment have residential VMT per capita that are marginally lower than Census Tracts that are not defined as disadvantaged communities. These results demonstrate investment in disadvantaged communities is generally investment in lowering VMT.

Table 3-4: VMT Characteristics of Disadvantaged Communities in Ventura County

	Residential VMT per Capita	
	Per Capita	Difference from Total
Total - CalEnviroScreen 75% above (State Definition of Disadvantaged Communities)	15.3	(1.1)
Total - CalEnviroScreen Above 60% Disadvantaged Communities	15.6	(0.8)
Total - Not Disadvantaged Communities	16.9	0.4
Total - County Average	16.5	-

4 CEQA Lead Agency Resources

4.1 Ventura County Transportation Model

The Ventura County Transportation Model (VCTM) is a countywide weekday model that helps us to better understand and project traffic and transportation features in relationship to land use. The model can be used for VMT impact assessments and VMT analysis for environmental review and air quality greenhouse gas (GHG) emissions applications.

VCTC maintains a base-year (2016) and baseline forecast (2040) scenario built upon land-use data from the local jurisdictions, planned transportation projects from the Regional Transportation Plan, and research-based assumptions of current and future travel. The VCTM can be used to test how alternative land use development and transportation projects will impact travel in Ventura County by comparison to the base-year and forecast scenarios.

The VCTM is consistent with the regional transportation model used by the Southern California Association of Governments (SCAG), including the base year and forecast year land-use projections and transportation networks. VCTM was developed using the SCAG Sub-Regional Model Development Tool, which allows subregions of SCAG to build a local version of the SCAG model. VCTC built VCTM through the sub-regional modeling program to provide travel demand modeling capabilities to the County and reduce the upfront cost for jurisdictions to build local transportation models. The VCTM is periodically updated using the latest socioeconomic data and transportation network conditions and forecasts.

In 2020 – 2021, VCTM was updated to produce an automated spreadsheet tool to assist local jurisdictions with Vehicle Miles Traveled (VMT) analysis in accordance with Senate Bill (SB)743. The spreadsheet tool generates recommended VMT metrics from the Office of Planning Research guidance for SB 743 for each incorporated city within Ventura County and the unincorporated County.

4.2 Technical Advisories

The Governor's Office of Planning and Research (OPR) provides technical advisories as a service to professional planners, land use officials, and CEQA practitioners. OPR creates and updates technical advisories as needed on current issues in environmental law and land use planning that broadly affect the practice of CEQA and land use planning in California. While the technical advisories should not be construed as legal advice, they provide guidance and substantial evidence for CEQA determination by lead agencies.

The Technical Advisory on Evaluating Transportation Impacts in CEQA contains technical recommendations regarding assessment of VMT, thresholds of significance, and mitigation measures, many of which were incorporated into the CEQA Guidelines.

CEQA Review of Sustainable Transportation Projects provides an overview of the existing CEQA provisions that can streamline the construction of sustainable transportation projects. These categories of projects are good candidates for mitigation of VMT transportation impacts.

CEQA Review of Housing Projects provides information on the statutes (not specific to affordable housing, supportive housing, transitional housing, or temporary shelters)

CEQA Review of Affordable, Transitional and Supportive Housing provides a list of statutes and regulations related to the CEQA review of affordable housing, supportive housing, transitional housing, and temporary shelters.

4.3 Screening Criteria to Presume Less Than Significant Transportation Impacts

The OPR Technical Advisory On Evaluating Transportation Impacts in CEQA describes CEQA Lead Agency use of screening criteria to quickly identify when a project should be expected to cause a less-than-significant impact without conducting a detailed study. As part of an initial study of a project, the CEQA Lead Agency could explain the reasons for determining that potentially significant VMT effects would not be significant.

These screening criteria are defined by lead agencies with common ones being:

4.3.1 Screening Threshold for Small Projects

OPR recommends, absent substantial evidence indicating that a project would generate a potentially significant level of VMT, or inconsistency with a Sustainable Communities Strategy (SCS) or general plan, projects that generate or attract fewer than 110 trips per day based on the CEQA categorical exemption for existing facilities, including additions to existing structures of up to 10,000 square feet.

OPR bases its 110-trip screening threshold recommendation based on typical project types for which trip generation increases relatively linearly with building footprint (i.e., general office building, single tenant office building, office park, and business park) generate or attract an additional 110-124 trips per 10,000 square feet.

When applying the Institute of Transportation Engineers' Trip Generation Manual - 10th Edition average daily trip generation for single family households (Land Use Code 210) and multifamily (high-rise) the range of housing units that would generate 110 trips per day would be 11 single-family to 27 multifamily housing units.

4.3.2 Map-Based Screening (Low VMT Area)

Projects that locate in areas with low VMT, and that incorporate similar features (i.e., density, mix of uses, transit accessibility), will tend to exhibit similarly low VMT. Maps created with VMT data, for example from a travel survey or a travel demand model, can illustrate areas that are currently below threshold VMT. Because new development in such locations would likely result in a similar level of VMT, such maps can be used to screen out projects from needing to prepare a detailed VMT analysis. **Figure 2-1** shows VMT characteristic of land parcels in Ventura County outside of the Cities of Oxnard and Simi Valley which maintain their own traffic and VMT models (as of 2023). These include parcels that are 15 percent below the average VMT per capita in each jurisdiction (green) as well as those that are above this threshold (orange). Protected land not suitable for development is shown in gray. The figure also shows areas of high employment (more than 500 jobs in the traffic analysis zone) and low housing development (less than 50 residential VMT) where new housing development could improve the jobs/housing balance of the area.

4.3.3 Near Transit Stations

Transit-oriented development is where transit systems and higher density, compact communities allow people to live, work and play with ready access to a multitude of safe and convenient transportation alternatives, thus lowering VMT. Focusing regional growth in areas with planned or existing transit stops is key to achieving equity, economic, and environmental goals. Infill within transit-oriented development can reinforce the assets of existing communities, efficiently leveraging existing infrastructure and potentially lessening impacts on natural and working lands. Growth within these areas supports preserving natural lands and farmlands and alleviates development pressure in sensitive resource areas by promoting compact, focused infill development in established communities with access to high-quality transportation.

There are multiple definitions of areas that support transit-oriented development with the two most common being Transit Priority Areas (TPAs) and High-Quality Transit Areas (HQTAs).

Transit Priority Areas (TPAs) are defined in SB 743 as within a one-half mile of an existing or planned major transit stop (as defined in Public Resources Code Section 21064.3) or an existing stop along a high-quality transit corridor. A major transit stop is defined as a site containing an existing or planned rail or bus rapid transit station, a ferry terminal served by either a bus or rail transit service, or the intersection of two or more major bus routes with a frequency of service interval of 15 minutes or less during the morning and afternoon peak commute periods. TPAs also meet the definition of the areas around stops in a **high-quality transit corridor (HQTC)** as defied in the Public Resources Code Section 21155: A corridor with fixed route bus service with service intervals no longer than 15 minutes during peak commute hours.

High Quality Transit Areas (HQTAs) are defined by SCAG as within one-half mile of an existing or planned fixed guideway transit stop or a bus transit corridor where buses pick up passengers at a frequency of every 15 minutes (or less) during peak commuting hours.

The difference between TPAs, HQTC stops and HQTAs is slight. For a bus stop to be included in a TPA, it must be served by two or more major bus routes with a frequency of service interval of 15 minutes or less. Whereas for a bus stop to be included in a HQTC or HQTA it would only need one bus route with a frequency of service interval of 15 minutes or less. **Figure 4-1** shows existing TPAs/HQTC stops/HQTAs in Ventura County.

CEQA Guidelines Section 15064.3. Determining the Significance of Transportation Impacts states "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." For the purposes of CEQA streamlining, project meeting the transit service frequency definitions are reasonable as screening criteria for a less than significant finding as long as the project is supported by transit use.

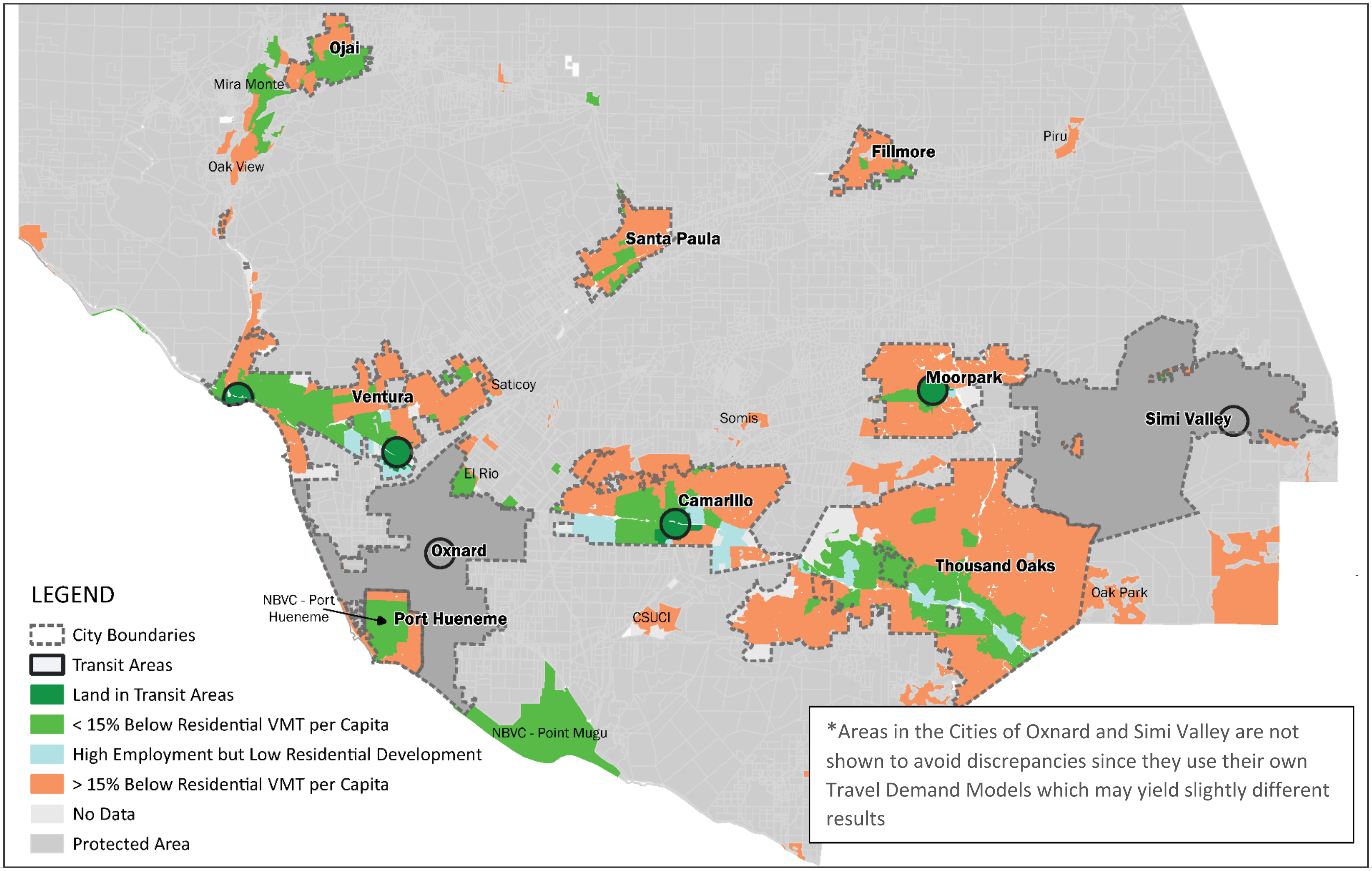
The OPR Technical Advisory on Evaluating Transportation Impacts in CEQA describes cases where the presumption of less than significant may not be appropriate if the project

- Has a Floor Area Ratio (FAR) of less than 0.75
- Includes more parking for use by residents, customers, or employees of the project than required by the jurisdiction (if the jurisdiction requires the project to supply parking)
- Is inconsistent with the applicable Sustainable Communities Strategy (as determined by the CEQA Lead Agency, with input from the Metropolitan Planning Organization)
- Replaces affordable residential units with a smaller number of moderate- or high-income residential units

Transit Priority Projects (TPP) are a specific type of project for CEQA exemptions established by SB 375. Public Resources Code Section 21155 defines a transit priority project shall (1) contain at least 50 percent residential use, based on total building square footage and, if the project contains between 26 percent and 50 percent nonresidential uses, a floor area ratio of not less than 0.75; (2) provide a minimum net density of at least 20 dwelling units per acre; and (3) be within one-half mile of a major transit stop or high-quality transit corridor included in a regional transportation plan.

The TPP definition also includes a delineation of how to define a parcel within one-half mile of a major transit stop as it states: A project shall be considered to be within one-half mile of a major transit stop or high-quality transit corridor if all parcels within the project have no more than 25 percent of their area farther than one-half mile from the stop or corridor and if not more than 10 percent of the residential units or 100 units, whichever is less, in the project are farther than one-half mile from the stop or corridor.

Figure 4-1: Low VMT Areas and Transit Areas in Ventura County



4.3.4 Affordable Residential Development

OPR states adding affordable housing to infill locations generally improves jobs-housing match, in turn shortening commutes and reducing VMT.[1] Therefore, a project consisting of a high percentage of affordable housing may be a basis for the CEQA Lead Agency to find a less-than-significant impact on VMT. OPR evidence supports a presumption of less than significant impact for a 100 percent affordable residential development (or the residential component of a mixed-use development) in infill locations. Lead agencies may develop their own presumption of less than significant impact for residential projects (or residential portions of mixed-use projects) containing a particular amount of affordable housing, based on local circumstances and evidence. Furthermore, a project which includes any affordable residential units may factor the effect of the affordability on VMT into the assessment of VMT generated by those units.

The Affordable Housing and High Road Jobs Act (AB 2011, 2022) allows housing development in areas that are currently zoned for parking, retail, or office buildings. AB 2011 exempts housing projects in these commercial areas from local approval processes and CEQA review provided that the project meets affordability, labor, and other standards specified in the law. Projects that qualify for by-right approval can be 100 percent affordable housing or mixed-income housing. Mixed-income housing developments are limited to commercial corridors (typically the locations of strip malls and parking lots) that are wide enough to accommodate increased density and transit, while 100 percent affordable housing can be developed in a wider range of commercial zones. All development must occur within infill areas, which will reduce sprawl, limit greenhouse gas emissions, and ensure that residents are connected to existing transit and infrastructure.

Figure 2-2 shows commercial sites that are likely eligible for affordable housing development streamlining under AB 2011.

4.3.5 Community Serving Projects

While not explicitly discussed as a presumption of less than significance for VMT based impacts in the OPR Technical Advisory Technical Advisory on Evaluating Transportation Impacts in CEQA, projects that provide services primarily for the local community such as neighborhood retail, schools, parks, community center, daycare and libraries could be presumed to be less than significant by a CEQA Lead Agency.

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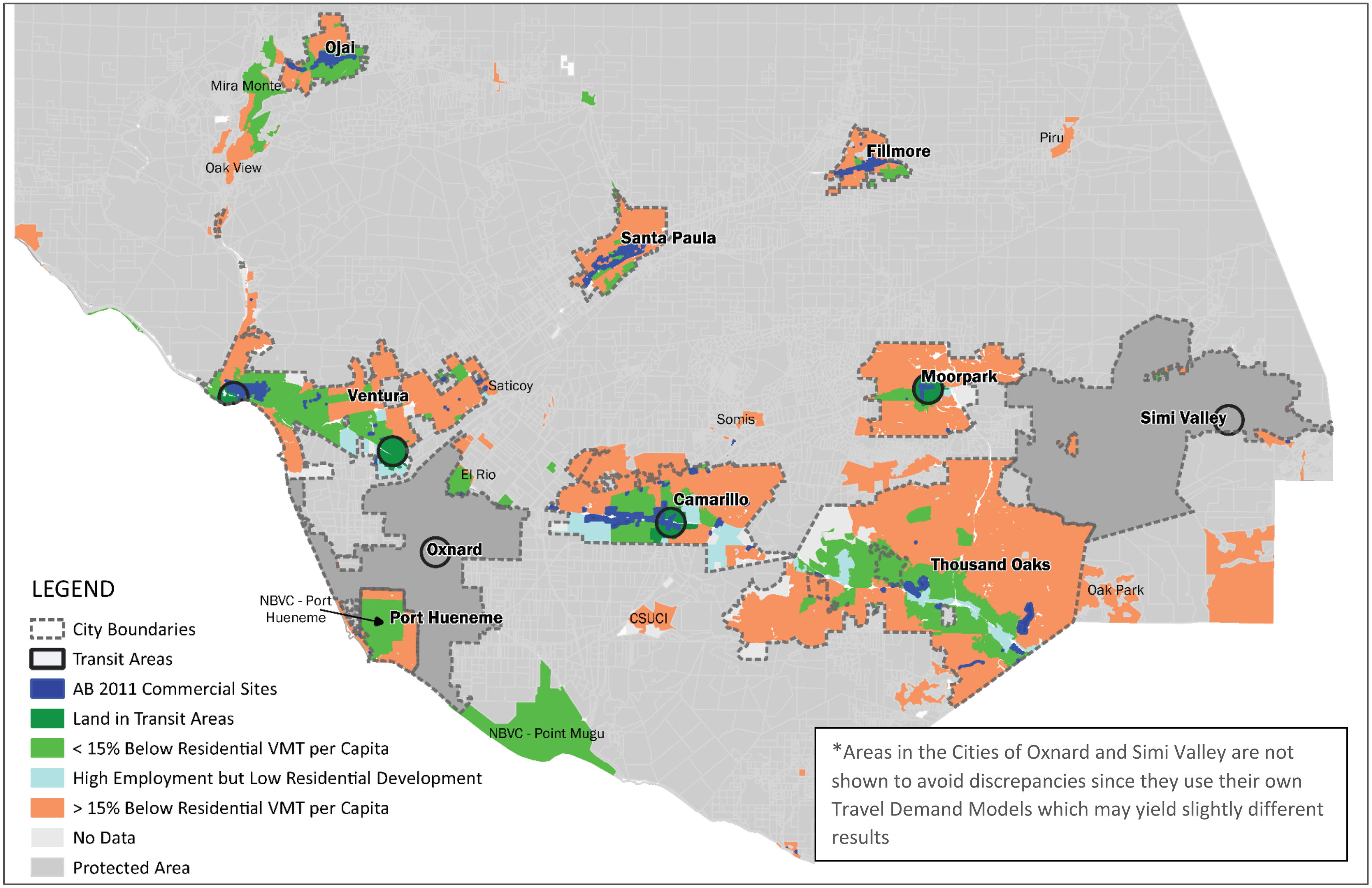
[1] Karner and Benner (2015) Low-wage jobs-housing fit: identifying locations of affordable housing shortages

Figure 4-2: Commercial Areas Likely Eligible for Affordable Housing Development Streamlining Under AB 2011



5 Recommended CEQA VMT Analysis for Land Use Projects in Ventura County

The following procedures are intended for use by Ventura County Project Applicants and California Environmental Quality Act (CEQA) lead agencies to assess if a Project would exceed a threshold of significance of vehicle miles traveled (VMT).

Section 21099 of the Public Resources Code states that the criteria for determining the significance of transportation impacts must promote: (1) reduction of greenhouse gas emissions; (2) development of multimodal transportation networks; and (3) a diversity of land uses. The Governor's Office of Planning and Research determined VMT was a metric which would measure transportation impacts based on those three conditions. By analyzing the amount of automobile travel made during regular weekday travel, projects could assess their contribution to greenhouse gas emissions, how much they utilized multimodal (non-automobile) transportation networks and how well it aligned with the diversity of land uses in its vicinity through shorter and non-vehicle trips.

By comparing a project's expected VMT per person to the baseline VMT per person of the area, it could be assessed for reducing (less than significant) VMT or increasing VMT on a per person basis by virtue of its location to other land uses and transportation networks. Developments that provide new types of services or locate housing near employment (or vice versa) would provide shorter trips and if the development is within walking, biking or transit distance from the trips to/from the site, it would raise the possibility of non-vehicle and/or carpooled trips.

Vehicle Miles Traveled Terminology

Total VMT – Total distance driven by all vehicles
Project VMT – VMT associated with the project site
Regional VMT – VMT associated with a City, County or Region
VMT Efficiency – VMT per capita or per employee (dividing total VMT by a population
VMT Time Scale – Daily or Annual.
VMT Threshold – Percent Difference of Project VMT vs. Regional VMT efficiency

Note: Practitioners often use the term "VMT" interchangeable when describing total VMT and VMT

5.1 Measuring VMT

VMT can be directly measured by surveys of written trip diaries or mobile phone GPS or probe data. However, VMT is usually estimated through use of a computerized travel demand model. The Ventura County Transportation Model (VCTM) was developed by the Ventura County Transportation Commission (VCTC) to analyze the existing and future transportation system of the county.

The model is composed of a transportation network and uses population and employment socio-economic data in a traffic analysis zone (TAZ) geography to represent land use to simulate the travel between land uses on the transportation system. TAZs are approximately the size of US Census Tracts and are the unit of geography used to represent the estimated VMT from a single site. This estimation is the proportion of the individual site to the TAZ. For example, if there are 100 households in a TAZ, and a site is 10 households, the home-based VMT of the site is estimated as 10 percent of the TAZ total home-based VMT.

The model is based on the Southern California Association of Governments (SCAG) travel demand model which is used for regional air quality conformity and transportation analysis. The SCAG parent model is updated every four years.

5.2 VMT Metrics

There are multiple types of VMT metrics used for CEQA purposes. VMT generally reported on a daily time scale however annual VMT is also a metric used to show area traffic growth over time and is used for estimating.

Overall total VMT is the total distance of all vehicles traveling on roadways. While total areawide VMT is useful for understanding overall vehicle usage, CEQA requires the analysis of the impact of a Proposed Project in isolation.

When modeling VMT in a travel demand model, the number of vehicles traveling on a roadway is multiplied by the length of the road to obtain total VMT. For project site VMT, the proportion of the project in the unit of geography in the model, a traffic analysis zone (TAZ), is used. A TAZ is generally the size of a US Census Tract.

Project level VMT is divided by the number of persons associated with the project (residents for per capita analysis of housing development and employees for employment land uses). The value of VMT per capita or per employee describes the average amount a driving distance per person per day and is the metric used for CEQA transportation analysis. The VMT per capita or employee differs from trip length, since in one day, people can make multiple trips.

Nearly every project that houses, employs, educates or serves people increases total VMT, the CEQA transportation analysis is therefore based on how efficiently a new project is utilizing the transportation system or providing a new type of service which may shorten trips. It should be noted that only the VMT associated with residential trips (home-based) are used for VMT per capita and only the VMT associated with commute trips (work-based) are used for VMT per employee.

The VMT efficiency metrics related to the specific project site is used to determine a project's potential significant impact as a comparison to "regional" VMT. "Regional" VMT is defined by the CEQA Lead Agency and may be the city, County, or regional VMT metrics.

The CEQA Lead Agency defines a threshold for a difference between the regional VMT metrics and project VMT metrics to determine potential significant impacts. Thresholds for VMT are expressed in a percent difference from the total or efficiency VMT value, therefore it is important that the models/methodology used for the estimate of the baseline VMT, project VMT, and any mitigation VMT reduction is the same. Lead agencies may define overall thresholds in their own CEQA Guidance documents or on a project-by-project basis.

5.3 Process for Estimating Project VMT

The following recommended process for estimating project VMT for CEQA purposes involves up to four steps:

1) Screening process to determine if a Project could potentially screen out as presumed less than significant based on the project's characteristics such as project size, transit priority area, or affordable housing status
2) Preliminary VMT assessment to estimate if a project could potentially exceed the CEQA Lead Agency's threshold of significance for VMT based on project location by looking up the VMT characteristics of the project's area from the VCTM lookup tool
3) CEQA VMT Assessment based on the project location and conditions by modeling the project through VCTM or other models and applying project element VMT reduction strategies
4) Identify and incorporate mitigation measures to reduce a project to less than significant under an adaptive mitigation plan, if needed

5.3.1 Using VCTM or Other Travel Demand Models to Estimate VMT for CEQA Purposes

For most projects, the use of the VCTM Base Year model is appropriate for estimating project-level VMT as an individual project would not substantially alter the travel patterns of the traffic analysis zone in which it is located. Since VMT is largely based on the geographic conditions found in a traffic analysis zone such as surrounding land uses and transportation system, projects which are similar to other development in the surrounding area are expected to display similar VMT metrics to existing development. If a project is more similar to land uses found in adjacent TAZs, there is an option of using the VMT information of the adjacent TAZs as proxies for the project. If a project is of a large size or a new type of land use, an independent travel demand model scenario can be created for the Project.

The recommended methodology is for use by Project Applicants and CEQA lead agencies to perform CEQA-level VMT analysis. However, the variability of Project types and conditions and the statutory authority given to lead agencies give them the discretion to require other methods or processes to determine a potential significant transportation impact under CEQA. Project applicants should coordinate with its CEQA Lead Agency to determine the most appropriate analysis for the assessment of their Project.

Use of VMT metrics for CEQA analysis began in 2020 and is therefore a new and evolving type of analysis for the environmental impacts of transportation. The following guidance is based on the current best information available and utilizes conservative assumptions. As new methodologies and tools are developed for VMT analysis, this guidance will be updated as a resource for the Project Applicants and CEQA lead agencies of Ventura County.

5.3.2 Use of Other Models for VMT Estimation

Some lead agencies have their own travel demand models or utilize the SCAG model which is also appropriate for CEQA VMT analysis. However, whichever model is used must be used for all aspects of the analysis and data cannot be used interchangeably between models. This is because there can be minor variations in the output values of the models.

The VMT analysis is a comparison of the proportionality of difference between baseline and with project conditions which should be consistent between different models, however if one mixes the absolute model outputs between two different models, this proportionality may be distorted. For example, when using VCTM the project VMT per capita may be 10 while the regional value for comparison may be 11 which would show the project having a lower VMT than the regional VMT. If one were to use the VCTM project VMT per capita value of 10 and compare it to a different model's regional value of 9, it would show the project having a higher VMT than the regional VMT. Just the relative effect of the proposed project on baseline conditions should be used to make a CEQA determination, not the variations in model inputs and outputs.

5.3.3 Non-Model VMT Estimation

It is also possible to uses non-model methods of VMT estimation. Tools that use derivative VMT outputs from travel demand models, for example CalEEMOD or other air quality analysis tools may be appropriate, however it is recommended the values from any derivative model tool is backchecked against VCTM values to ensure reasonableness of the values.

Sometimes projects have such specific travel patterns, they may be estimated directly from travel patterns of site related activity.

5.4 VMT Reduction Measures

The VMT characteristics of a project site are estimated using the VCTM data based on its location in the County. This can be considered the basic VMT characteristics of a project site because the model is an abstraction of the more complicated reality which site design, local transportation services, connections to paths and transit stops play a role in the overall transportation activity of people.

For project analysis, it is recommended that applicants review the specifics of their project site and its amenities to take credit for other factors which may reduce VMT from the estimated model output value such as provision of bicycle racks or connections to the local sidewalk network. This provides an incentive for site planning that integrates into the local multimodal networks and encourages non-vehicle trips.

By identifying those potential impacts early in the project development process, they can be integrated into project design from the beginning rather than applied as part of a mitigation program if potential significant impacts are identified.

Mitigation measures should be not only technically and financially feasible, but also appropriate for the context of the project site and expected to achieve the VMT reductions it would be credited for in pre-construction analysis.

5.4.1 VMT Reduction Measure Effectiveness

In order to calculate the effectiveness of VMT reduction measure, the total VMT generated from the project must be calculated by the VMT per capita or per employment efficiency metric by multiplying the efficiency metric by the number of persons associated with the project. The number of residents or employees is generally calculated by average occupancy of units or employees per square foot estimates as most developments do not characterize themselves in number of people but rather housing units or square footage of buildings.

Feasible reduction measures are selected based on options available to project applicants that are financially, technically and institutionally feasible. Generally, for land use development projects these would be on-site or off-site improvements to non-automobile transportation infrastructure. The effectiveness in reduction project VMT is generally expressed in a percent reduction from the VMT of the Project without the measure.

5.4.2 Applying Multiple VMT Reduction Measures

The use of multiple VMT reduction measures is not directly cumulative (one cannot expect to keep adding reduction measures to the point where no automobile travel occurs to/from the project development. Therefore, when taking VMT reduction estimates, it is recommended to cap total reductions at 25 percent and to use dampening where each successive reduction measure is taken as a percentage of the remaining VMT. The 25 percent cap on VMT reductions is based on the 25 percent reduction in statewide VMT during the second quarter of 2020 in which the stay-at home conditions of the COVID-19 pandemic limited travel to essential travel.[2]

Dampening each successive strategy acknowledges strategies would generally affect the same market segment of residents or employees. Within each trip type (home-based work trips, for example), if two strategies are applied (A=5% and B=2%), then the effectiveness would not be A+B (7%), but rather 1-(1-A)*(1-B) which would be: 1-(95%)*(98%)=6.9%. If the CEQA Lead Agency wants a more conservative analysis, each successive VMT reduction could be reduced by a factor. If a factor of 50% is used the overall VMT reduction in the example would be: 1-(95%)*(99%)=5.95%.

[2] Caltrans quarterly mobility performance reporting of a drop of VMT from 9.45 billion in the second quarter of 2019 to 7.23 billion in the second quarter of 2020. VMT returned to within five percent of 2019 levels in 2022 with 8.94 billion VMT in the second quarter of 2022 https://dot.ca.gov/programs/traffic-operations/mpr/quarterly

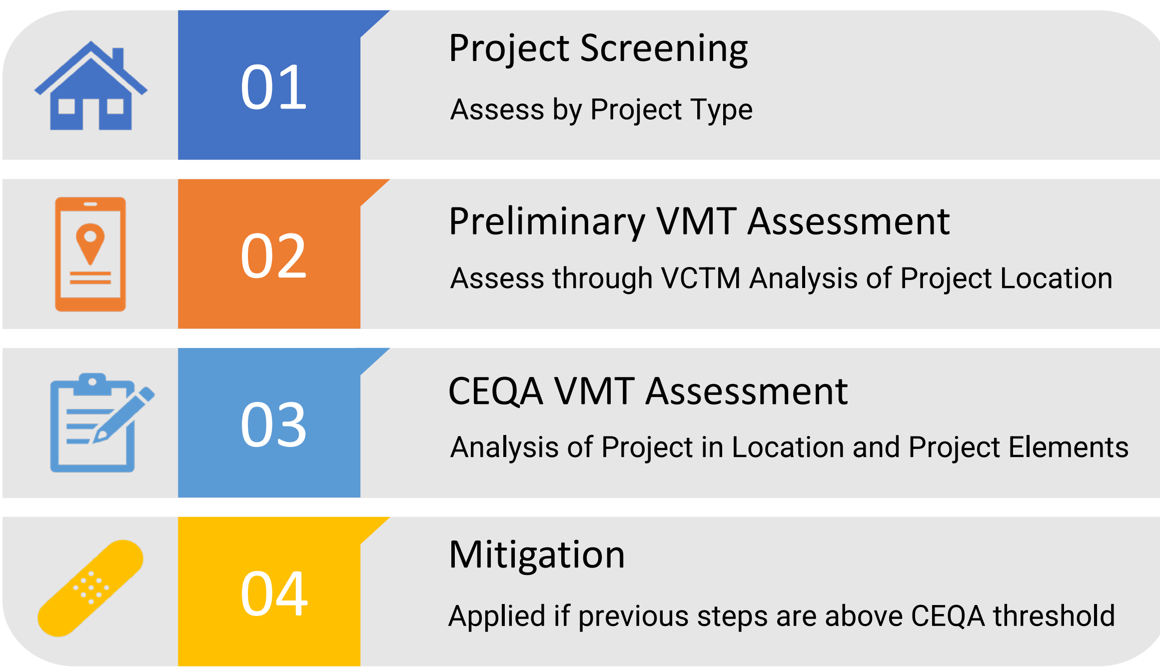
6 VMT Analysis Steps

The recommended VMT assessment process provides for early identification of VMT characteristics of Proposed projects to:

1. Determine if a Project could use streamlined CEQA process of a Notice of Exemption or Negative Declaration or would need additional transportation analysis under a Mitigated Negative Declaration or Environmental Impact Report.
2. Estimate Project-level VMT compared to the CEQA Lead Agency threshold to understand if a project could have a potential significant impact
3. Development of effective and feasible Project elements or mitigation measures to reduce VMT to a less than significant level.

The four steps of the recommended process are:

Figure 6-1: Recommended VMT Assessment Process



This recommended process is applicable for all types of projects whether land use development, administrative actions (such as land use plans) and transportation projects.

Step 1: Project Screening

Project Screening analysis can be used in the planning, due diligence or CEQA initial Study analysis of Project Applicants and can be a basis for determining the best next steps in partnership with the CEQA Lead Agency

CEQA Lead Agencies define screening criteria (Section 1.3) for projects that could be presumed to be less than significant which can identify streamlining options early for project proponents.

Low VMT Area Screening

1. Determine if the Project has housing or employment – the VMT analysis can be for residential or employment based-VMT. For other types of projects see below (Other Issues)
2. Location of Project (address or parcel identification number)
3. Consult VCTM Map or lookup feature to receive the VMT metrics of the Project area.
4. Determine if zone is above or below the CEQA Lead Agency's threshold

CEQA Lead Agency Screening Criteria

Determine if the Project meets a CEQA Lead Agency's screening criteria for presuming a project has a less than significant impact based on small project size, transit-oriented, affordable housing, or community serving development.

The VMT screening analysis will indicate if a Project is likely to be below or exceed the CEQA Lead Agency's threshold for planning and due diligence purposes. Based on the Project VMT screening information a Project Applicant and the CEQA Lead Agency can determine the next steps of CEQA analysis:

- Initial Study Negative Declaration
- Initial Study Mitigated Negative Declaration
- Environmental Impact Report

Step 2: Preliminary VMT Assessment

Preliminary VMT assessment of projects is available through VCTC's VCTM website which provides lead agencies and project proponents the opportunity to estimate VMT characteristics of projects based on their location. View the project's area VMT conditions by:

1. Determine if the Project has housing or employment – the VMT analysis can be for residential or employment based-VMT. For other types of projects see below (Other Issues)
2. Location of Project (address or parcel identification number)
3. Consult VCTC Map or lookup feature to receive the VMT metrics of the Project area.
4. Determine if zone is above or below the CEQA Lead Agency's threshold

This provides proactive indication of the potential for VMT impacts from a project. If the VMT metrics of the Project's TAZ are below the CEQA Lead Agency's threshold, the project could be presumed to have a less than significant CEQA transportation impact on VMT. If the VMT metrics of the Project's TAZ are above the CEQA Lead Agency's threshold, the Project Applicant could include "VMT Reduction Strategies" as project elements or as project mitigation working with the CEQA Lead Agency.

Step 3: CEQA VMT Assessment

Initial Study Negative Declaration or Mitigated Negative Declaration VMT analysis is similar to the Project Screening methodology, however if a Project exceeds the CEQA Lead Agency's threshold of significance, VMT reduction project elements or mitigation measures must be quantified.

Projects that require to perform an Environmental Impact Report are recommended to perform Project scenario analysis in a travel demand model, both due to the Project being of a potential scale to affect travel patterns and the use of travel demand model outputs for other resource areas of air quality, greenhouse gas and noise analyses.

It is recommended Project Applicants use the Ventura County Transportation Model (VCTM) for analysis. However, applicants could use other VMT estimating tools such as a city travel demand model, the Southern California Association of Governments travel demand model, VMT calculator tools or CalEEMod. Regardless of the VMT modeling tool used, it should not be blended with other VMT modeling tools in the analysis. All analysis must utilize the same VMT modeling tool.

Step 4: Mitigation

If after the assessment and application of VMT reduction strategies a project still exceeds the VMT threshold, feasible mitigations should be applied to reduce the project to less than significant.

To calculate the amount of VMT reduction needed, the difference in daily VMT per capita or employee metrics from the threshold level of the CEQA Lead Agency must be determined. Feasible VMT reduction strategies can be used as mitigation to bring the project VMT below the threshold. This may be analyzed proactively, prior to the environmental documentation phase of a project, to determine if VMT reduction measures can be used as project elements to avoid a potential significant impact.

Lead agencies are encouraged to develop preferred VMT reduction strategies for use as project elements or mitigation as well as to identify a roster of active transportation and/or transit projects which could have a fair share cost mitigation applied by project applicants as needed.

Mitigation plan should be developed to ensure significant impacts are reduced to less than significant. For relatively short-term development of housing, civic or government, or commercial projects where VMT with mitigations is reduced to or below the CEQA Lead Agency VMT threshold of significance, adaptation of the mitigation plan is probably not necessary.

For large projects and adopted long-term programs and plans such as a General Plan or build out of a new or amended specific plan, VMT mitigation plans should be "adaptive" in its Project Mitigation and Monitoring Reporting Program (MMRP) with a goal statement "…to achieve or exceed the VMT threshold of significance utilizing alternative and/or new VMT reduction strategies and/or fair share cost participation in VMT reduction updated and/or become available during project development and operation."

6.1 Other Issues

6.1.1 Projects that are not Housing or Employment

Please consult with the CEQA Lead Agency for guidance, the method of VMT analysis may be different for other types of Projects. For example, generally retail projects over 50,000 gross square feet the recommendation is to calculate a net change in VMT which would require a new travel demand model scenario.

6.1.2 For Projects that are a New Type of Land Use in its TAZ

For projects which introduce a new type of land use which could alter the VMT metrics of the TAZ by shortening or lengthening trips or changing trip types, analysis using adjacent TAZs which include similar land uses or a new travel demand model scenario with the project are recommended.

6.1.3 Using Adjacent TAZs if the TAZ the Project TAZ Does Not Represent the VMT Metrics of the Project

At the borders of TAZs, projects may be expected to have VMT metrics with more similarity to an adjacent TAZ than the one it is contained within due to the mix of land use types or location within the transportation system. The use of the adjacent TAZ may be used in those cases if justified by the Project Applicant.

6.1.4 Projects at Edge or That Overlap One or More TAZs

Projects on the edge or overlap multiple TAZs should select the most appropriate TAZ for analysis purposes based on the project location, access to the transportation system and similarity to other types of land use in a particular TAZ. The decision process of selecting an appropriate TAZ for project analysis should be described in a VMT assessment.

7 VMT Reduction Strategies

VMT reduction strategies can be used to avoid, reduce or mitigate VMT of a Project. The following is a reference of strategies and standardized and generalized emission reduction quantification methods and procedures. Also included in this assessment are best practices for strategy implementation and discussion of factors which may significantly impact measure outcomes such as project location and scope.

7.1 Actions that Reduce VMT from Land Use and Transportation Projects

7.1.1 Using VMT Reduction Strategies as Project Elements

To the degree possible, proactive application of on-site VMT reduction strategies is recommended for proposed projects. The use of avoidance and minimization measures or environmental commitments to avoid potential significant impacts is beneficial both to the applicant and CEQA Lead Agency by lowering CEQA analysis costs and mitigation administration and monitoring.

7.1.2 Using VMT Reduction Strategies as Mitigation

If a project is determined to have a potential significant impact and project elements are not sufficient to reduce a project's impact to less than significant, it will need to be mitigated through further VMT reduction measures. These may be on-site or off-site mitigations. Off-site mitigations are generally infrastructure or operational improvement to multimodal infrastructure to support non-vehicular travel.

Off-site mitigation serves more than just travel to/from the project site, and therefore can reduce VMT to a higher level than on-site mitigations which only apply to the project site trips. The drawback of off-site mitigations is their relatively higher cost and difficulty to administer from an applicant and CEQA Lead Agency perspective.

To facilitate off-site mitigation, a fair share cost-per-VMT-reduced mechanism for project applicants was developed for use in Ventura County.

7.1.3 Fair Share Cost for VMT Mitigation Measures

The fair share cost mechanism determined the dollar cost of reducing one daily VMT. The fair share cost mechanism is not required to be used for determining VMT mitigation cost, but rather to provide a mechanism for lead agencies to allow applicants a means to partially fund off-site mitigations which may be too expensive to fully fund by one project or to pay a CEQA Lead Agency a mitigation to be used for yet-to-be identified VMT reduction projects. For more information see **Appendix B: Fair Share VMT Cost Estimate for Multimodal Mitigations**.

Fair share cost participation is calculated by converting the amount of daily VMT to be reduced into the total VMT from the efficiency metric. To reduce a 100-person development's VMT per capita metric from 11 VMT per capita to 10 VMT per capita, one VMT per capita needs to be reduced which would be 100 total VMT. The fair share cost would be 100 total VMT x the fair share cost per VMT. The fair share cost would likely be paid to the permitting agency when the building permit is issued, similar to the Ventura County Air Pollution Control District's "Off-Site Transportation Demand Management Fund," incorporated in the 2003 Ventura County Air Quality Assessment Guidelines, Section 7.5.3 [http://www.vcapcd.org/pubs/Planning/VCAQGuidelines.pdf].

7.1.4 Regional VMT Reduction Bank

VCTC is exploring the potential of a VMT Reduction Bank that can be used for larger, regional projects. However, this account is not necessary as a CEQA Lead Agency could directly collect fair share VMT reduction funds as mitigation from project applicants and hold those funds for use as a local share of a regional project.

7.2 Summary of VMT Reduction Strategies

The following are a synthesis of previous reports on VMT and GHG reduction measures published by various California agencies which provide information on methodologies for quantifying their effectiveness. Literature on GHG reduction measures is relevant to this task as many transportation related GHG reduction measures reduce emissions by way of reducing VMT. In general, VMT reduction strategies reduce single-occupancy vehicle travel by encouraging transit and alternative transportation and/or reduce the number of vehicle trips or vehicle trip miles through land use planning. The primary reports referenced for this project are:

- California Air Pollution Control Officers Association. (2021). Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity.
- San Diego Association of Governments. (2019). Mobility Management VMT Reduction Calculator Tool – Design Document.
- California Air Pollution Control Officers Association. (2010). Quantifying Greenhouse Gas Mitigation Measures.

In particular, the CAPCOA 2021 Handbook and SANDAG 2019 VMT Reduction Calculator Tool were both written with consideration toward SB 743-related CEQA compliance.

This synthesis of reduction methods is only meant to serve as a reference and should not be used to quantify actual project related VMT reductions. Project-specific considerations, such as location and quality of strategy implementation, need to take into account when estimating reductions. This report takes into account the most up-to-date regional-, state-, and national-level data and may not be appropriate for all projects.

VMT reduction strategies are organized into six categories (consistent with the CAPCOA 2021 Handbook):

1. Land Use
2. Trip Reduction Programs
3. Parking or Road Pricing/Management
4. Neighborhood Design
5. Transit
6. Clean Vehicles and Fuels.

Implementing multiple strategies within a category is likely to have diminishing returns on VMT reduction, whereas implementing multiple strategies across categories may have more additive effects. There is limited research on quantifying reductions across multiple strategies. Literature comparing VMT in suburban to urban neighborhoods suggests that implementing a full array of high-quality reduction strategies across multiple categories may reduce VMT at most 70 percent.

7.2.1 Location

A reduction strategy can either be applied to the project site or at the neighborhood/community-level. For example, constructing a bus stop at the development to the would be an example of a reduction strategy applied to the project site whereas increasing bus transit frequency for a bus route servicing the development would be an example of a reduction strategy applied to the neighborhood/community. A developer can include project site reduction strategies in their project design. A developer would work with local or regional jurisdictions or transit agencies to coordinate on a neighborhood/community-level strategy.

7.2.2 Type

Reduction strategies are further classified as either built environment or transportation demand management (TDM) strategies. Built environment strategies relate to physical transportation facilities and other land use features including land use intensity and type. Demand management strategies aim to maximize traveler choices. TDM increases opportunities for transit, non-motorized, and/or carpool travel.

7.2.3 Targeted Trip Reduction

VMT reduction strategies can address a variety of trip types such as commute, shopping, or school trips. An employer sponsored vanpool program, for example, is a strategy which addresses reducing commute trip VMT. This analysis also identifies the targeted trip reduction type for each measure.

The complete list of mitigation measures and their corresponding category, type, and maximum effectiveness for project site strategies in **Table 7-1** and off-site strategies in **Table 7.2**. A full description of the VMT reduction strategies is included in **Appendix G**.

Table 7-1: On-Site VMT Reduction Strategies

Category	Type	Strategy	Maximum	Affected Group
Land Use	Land Use	Increase Density (Residential or Job)	31%	Site
Land Use	Land Use	Increase Residential Density	30%	Site
Land Use	Land Use	Increase Job Density	30%	Site
Land Use	Land Use	Provide Mixed Use Development	30%	Site
Land Use	Land Use	Provide Transit-Oriented Development	27%	Site
Land Use	Land Use	Integrate Affordable and Below Market Rate Housing	1.2%	Site
Land Use	Location	Increase Destination Accessibility	24.6%	Site
Land Use	Location	Locate Project near Bike Path/Bike Lane	0.63%	Site
Land Use	Location	Orient Project Toward Non-Auto Corridor	0.5%	Site
Neighborhood Design	Infrastructure	Provide Bike Parking in Non-Residential Projects	0.63%	Site
Neighborhood Design	Infrastructure	Provide Bike Parking in Multi-Unit Residential Projects	0.5%	Site
Neighborhood Design	TDM	Implement Preferential Rideshare Parking Program	1%	Commuters
Parking Management	Infrastructure	Unbundle Residential Parking Costs from Property Cost	15.7%	Community
Parking Management	Infrastructure	Limit Residential Parking Supply	13.7%	Site
Parking Management	Infrastructure	Provide Electric Vehicle Charging Infrastructure	11.9%	Site
Trip Reduction Programs	Infrastructure	Provide End of Trip Facilities	4.4%	Site commutes
Trip Reduction Programs	TDM	Telework and Alternative Work Schedules	100%	Site teleworker commutes
Trip Reduction Programs	TDM	Implement Commute Trip Reduction Program (Mandatory Implementation and Monitoring)	26%	Site commutes
Trip Reduction Programs	TDM	Provide Employer-Sponsored Vanpool	20.4%	Site commutes
Trip Reduction Programs	TDM	Price Workplace Parking	20%	Site commutes
Trip Reduction Programs	TDM	Implement Employee Parking Cash-Out	12%	Site commutes
Trip Reduction Programs	TDM	Provide Ridesharing Program	8%	Site commutes
Trip Reduction Programs	TDM	Implement Subsidized or Discounted Transit Program	5.5%	Site
Trip Reduction Programs	TDM	Implement Commute Trip Reduction Program	4%	Site commutes
Trip Reduction Programs	TDM	Implement Commute Trip Reduction Marketing	4%	Site commutes

Table 7-2: Off-Site VMT Reduction Strategies

Category	Type	Strategy	Maximum	Affected Group
Land Use	Location	Improve Street Connectivity	30%	Community
Neighborhood Design	Infrastructure	Provide Pedestrian Network Improvement	6.4%	Community
Neighborhood Design	Infrastructure	Construct or Improve Bike Boulevard	0.2%	Corridor
Neighborhood Design	TDM	Implement Conventional Carshare Program	0.15%	Community
Neighborhood Design	TDM	Implement Pedal (Non-Electric) Bikeshare Program	0.03%	Community
All Categories	Infrastructure	Require Contributions to Infrastructure Projects	varies	Community
Cleaner Vehicles and Fuels	TDM	Use Cleaner-Fuel Vehicles	100%	Vehicle replacement
Neighborhood Design	Infrastructure	Provide Traffic Calming Measures	1%	Corridor
Neighborhood Design	Infrastructure	Construct or Improve Bike Facility	0.8%	Corridor
Neighborhood Design	Infrastructure	Dedicated Land for Bike Trails	0.8%	Corridor
Neighborhood Design	Infrastructure	Expand Bikeway Network	0.5%	Community
Neighborhood Design	Infrastructure	Create Urban Non-Motorized Zones	0.2%	Community
Neighborhood Design	TDM	Implement Electric Carshare Program	0.18%	Community
Neighborhood Design	TDM	Implement Electric Bikeshare Program	0.03%	Community
Neighborhood Design	TDM	Implement Scooter-share Program	0.03%	Community
Parking Management	Infrastructure	Implement Market Price Public Parking (On-Street)	30%	Community
Road Pricing	Infrastructure	Implement Area or Cordon Pricing	22%	Community
Parking Management	Infrastructure	Install Park-and-Ride Lots	0.5%	Community
Parking Management	Infrastructure	Require Residential Area Parking Permits	0.36%	Community
Transit	Infrastructure	Increase Transit Service Frequency/Speed	11.30%	Corridor
Transit	Infrastructure	Extend Transit Network Coverage or Hours	4.6%	Corridor
Transit	Infrastructure	Provide Local Shuttles	2.5%	Community
Transit	Infrastructure	Implement Transit-Supportive Roadway Treatments	0.6%	Corridor
Transit	Infrastructure	Provide Bike Parking Near Transit	0.09%	Community
Transit	TDM	Microtransit NEV (neighborhood electric vehicles)	12.7%	Corridor
Transit	TDM	Reduce Transit Fares	1.2%	Community
Trip Reduction Programs	Infrastructure	Implement School Bus Program	63%	Students
Trip Reduction Programs	TDM	Implement School Pool Program	15.8%	Students
Trip Reduction Programs	TDM	Provide Community-Based Travel Planning	2.3%	Community

7.3 Ventura County Air Pollution Control District RACM Analysis

Reduction strategies included in this analysis were cross referenced with those included in Ventura County Air Pollution Control District's reasonably available control measures (RACM) analysis for Transportation Control Measures (TCMs) for the 2022 Air Quality Management Plan (AWMP). In the RACM analysis, potential air quality improvement measures were analyzed to determine their feasibility and current use within Ventura County. The analysis also identified potential implementing agencies for each measure.

Air quality improvement measures that result in VMT-reduction were also analyzed for this report. Results from the RACM analysis are summarized in this report for further information.

7.4 Quantification of Transportation VMT Reduction Strategies

Quantification of the reduction of VMT from reduction strategies should be clearly documented by the source of the reduction factor and the clear demonstration of the calculation of the reduction. The most common method for calculating VMT reduction is a percent reduction applied to a base VMT. However, some VMT reduction strategies may be directly calculated from the total project VMT. For example, a bikeshare program may estimate number of users and vehicle miles redirected to bicycle travel. In that case, total project VMT (VMT per capita x number of persons) would need to be calculated, the reduction in absolute VMT applied and then divided by population to perform the VMT assessment.

Appendix A: VCTM Data Outputs

The Ventura County Transportation Commission's (VCTC) Ventura County Transportation Model (VCTM) is maintained to provide regional travel estimation and forecasting. It, along with travel demand models maintained by some cities, is the highest standard of vehicle miles traveled information. VCTC publishes the latest outputs of the travel demand model for use by lead agencies and project applicants to assess vehicle miles traveled and existing and forecasted future travel conditions.

The VCTC website has a page devoted to VMT outputs from the VCTM: https://www.goventura.org/work-with-vctc/traffic-model/

The following information is provided

Residential VMT Outputs for assessment of residential projects.

- Parcel Home-Based VMT per Capita ***(HB_VMT)***
- City Average Home Based VMT per Capita ***(Avg_HB_VMT)***
- Home Based VMT below City Average (Yes/No) ***(HB_Bel_Avg)***
- Home Based VMT below 85% of City Average (Yes/No) ***(HB_Bel_85)***

Employment VMT Outputs for assessment of commercial and industrial projects.

- Parcel Work-Based VMT per Employee ***(WB_VMT)***
- City Average Work Based VMT per Employee ***(Avg_WB_VMT)***
- Work Based VMT below City Average (Yes/No) ***(WB_Bel_Avg)***
- Work Based VMT below 85% of City Average (Yes/No) ***(WB_Bel_85)***

Other VMT Characteristics that can be used to determine applicable screening criteria for a project.

- In Transit Area (Yes/No) ***(HQTA)***
- In Area With High Employment/Low Housing (Yes/No) ***(Emp_Area)***
- In Area With High Housing/Low Employment (Yes/No) ***(Res_Area)***
- In Disadvantaged Community* (Yes/No) ***(DAC2022)***
- Within 1/4 mile of Transit Stop ***(NearTrans)***

Appendix B: Fair Share VMT Cost Estimate for Multimodal Mitigations

Multimodal Transportation Improvement Cost Analysis was conducted by reviewing capital improvement plans of lead agencies for the cost and VMT reduction potential of multimodal transportation improvement projects. This analysis is intended to demonstrate a process of how a CEQA Lead Agency could identify cost of transportation impact mitigation. Overall, 50 capital projects with a total cost estimate of $66 million and $353 million in transit operating support over a ten-year period were identified for the analysis.

The capital projects were organized by category. Each category was determined to have a VMT reduction potential based on information from the Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity: Designed for Local Governments, Communities, and Project Developers, Sacramento Metropolitan Air Quality Management District, Public Draft August 2021. The handbook is an update to the 2010 CAPCOA Quantifying Greenhouse Gas Mitigation Measures Handbook in coordination with the update to the California Emissions Estimator Model (CalEEMod). The update incorporates new GHG mitigation strategies and refreshes quantification methods and underlying data. The VMT reduction calculation was expressed in a percent reduced per scale of the project (e.g. miles of sidewalk or bike lane) or as a percent reduction of the vehicle travel in the traffic analysis zones within ¼ mile of the project site.

The transit operations support analysis was calculated differently than the capital projects. The VMT reduction from transit operations was directly calculated from passenger miles carried by the transit operators of Ventura County with the assumption new transit riders would have the same level of VMT reduction as existing riders. Since CEQA mitigation is most effective in a single assessment as a condition of approval for housing development as opposed to an ongoing payment due to the likely change in ownership of housing units from developer to individua homeowner. Therefore, the funding commitment for transit operations was assumed to be a single lump sum for a ten-year period of operations support—a timeframe comparable to a lifecycle of a capital project.

The estimates for VMT reduction summarizing the costs of the sampling of types is shown in Table B-1.

Table B-1: VMT Reduction Cost by Type of Project

Type	VMT Reduction Estimate	# of Projects	VMT Reduced	Cost	Cost/VMT Red
Bike Lane	0.5% per mile	8	5,701	$11,874,777	$2,083
Bike Path	1% per mile	10	5,495	8,698,382	$1,583
Bus Stop	0.4% in 1/4 mile area	6	1,782	1,325,919	$744
Park and Ride	0.5% in 1/4 mile area	2	1,235	$880,687	$713
Sidewalk	2% per mile	14	17,671	20,355,931	$1,152
Sidewalk and Bike Lane	2% per mile	7	9,410	12,813,332	$1,362
Traffic Calming	0.25% in 1/4 mile area	2	926	$7,640,000	$8,255
Transit Operations (non-commuter service)	Passenger Miles – 10 Years		101,679	282,116,336	$2,775
Transit Passes	200 passes per operator - 1 trip per weekday		13,317	3,966,838	$298
Transit-Commuter Bus Operations	Passenger Miles – 10 years		39,255	66,922,148	$1,705
Transit Station	0.8% in 1/4 mile area	1	573	$2,862,000	$4,995

Transit operations cost per VMT reduced were based on 2019 National Transit Database data which include the operating expenses and operations (trips and trip distance data). Annual operating expense was divided by passenger miles carried for each transit agency to determine a dollar cost per VMT reduced. To determine the VMT reduction cost for transit operations shown in Table B-2, a Federal Transit Administration life cycle of transit buses of 500,000 miles (approximately 10 years of service) was used to calculate a dollar value as assigned to a reduction of one daily VMT, analogous to a capital project VMT reduction calculation.

Table B-2: VMT Reduction Cost for Transit Operations

Transit Provider	Annual Operating Expense	Annual Trips	Annual Passenger Miles	Cost per one day one VMT Reduced	Lifecycle Cost per Daily VMT Reduced*
Gold Coast Transit	$21,052,979	2,163,227	14,821,422	$1.42	$3,205
Simi Valley Transit	$3,983,229	266,718	1,821,580	$1.83	$4,433
Camarillo Area Transit	$277,569	77,029	526,078	$0.64	$1,559
Ojai Trolley	$911,834	74,056	505,774	$1.53	$3,608
Thousand Oaks Transit	$3,360,127	145,176	991,495	$2.14	$5,362
Moorpark Transit	$819,532	49,608	338,803	$1.82	$4,526
VCTC	$9,109,441	704,266	13,119,121	$0.69	$1,624
Total	$48,624,152	4,184,346	45,243,394	$1.05	$2,775

*Lifecycle calculated per 500,000 vehicle miles per bus—approximately ten years

In order to calculate the VMT reduction value of transit passes, the VMT reduction potential of 200 passes per year allocated to each transit service. It was assumed this would result in a round trip every other weekday for each user of the pass. The cost of the passes to the transit provider was calculated by dividing the farebox revenue per trip as shown in Table B-3. It was assumed transit passes would be provided for 10 years as part of a VMT reduction measure.

Table B-3: VMT Reduction Cost for Transit Passes

Transit Service	Annual Cost**	VMT Per Day Reduction***
Gold Coast Transit	$68,836	1,370
Simi Valley Transit	$54,433	1,366
Camarillo Area Transit	$12,616	1,366
Ojai Trolley	$61,208	1,366
Thousand Oaks Transit	$48,763	1,366
Moorpark Transit	$39,532	1,366
VCTC Commuter Bus	$72,683	3,931
VCTC Non-Commuter Bus	$38,614	1,186
Total	$396,684	13,317

*200 transit passes per year per transit provider
**Farebox revenue/trip
*** Assumes one-round trip every other weekday per pass

The VMT reduction actions were further categorized as Transit, Bike, and Pedestrian Infrastructure as show in Table B-4.

Table B-4: Cost per VMT Reduced by Multimodal Project Category

Type	# of Projects	VMT Reduced	Cost	Cost/VMT Red
Transit	9	4,449	5,068,606	$1,139
Bike	22	15,901	26,979,825	$1,697
Pedestrian	19	23,302	34,402,597	$1,476
Transit Operations	-	154,250	353,005,322	$2,289
Total	50	197,902	419,456,350	$2,120

Since the sampling of projects involves a disproportionate mix of project types a generalized cost per VMT reduced was estimated across the types of transportation mitigation is shown in Table B-5.

Table B-5: Generalized Cost per VMT Reduced

Type	Cost/VMT Red
Transit	$1,100
Bike	$1,700
Pedestrian	$1,500
Transit Operations	$2,300
Average Across Types (normalized)	$1,650

As Table B-5 shows, the average cost per vehicle miles traveled reduced is approximately $1,650 for transportation mitigation. This would mean a project that is estimated to generate 100 total daily vehicle miles traveled over a lead agencies threshold would be expected to spend $1,650 x 100 VMT = $165,000 on mitigation if doing so through off-site mulitimodal improvements. It should be noted that this value is similar to a $1,400 per VMT reduced estimated by the City of San Diego.[3]

Using this methodology, a CEQA Lead Agency could identify one or multiple projects or types of projects and calculate a fair share cost of mitigation. This can be useful when a project impact would not necessitate the full funding of an off-site transportation improvement. For example, a project which would need to reduce its average VMT per capita by a small percent equal to 10 daily VMT and a CEQA Lead Agency determined a pedestrian project in the city that cost $2 million would have a VMT reduction effectiveness equivalent to $1,500 per daily VMT reduced, mitigation could be accomplished through a $15,000 fair share cost participation by the project.

There is a potential for the use of funding for affordable housing programs to be used as CEQA transportation impact mitigation. Denser, more affordable housing is strong driver of reduced overall VMT. It is the demand side of the supply and demand for travel (the transportation system is the

[3] Active Transportation In Lieu Fee Nexus Study, City of San Diego, April 2020

supply). However, a quantification reduction and a nexus to transportation impact needs to be reviewed further to establish the substantial evidence for CEQA mitigation.

An high-level assessment of affordable housing investment through review of the Housing Trust Fund of Ventura County 2022 Report which stated $26 million in funded or committed loans resulted in 1,120 affordable units committed, funded and produced in the County. This is an average funding participation of $23,214 per housing unit. The VMT/housing unit (assuming 3 persons per housing unit) for RHNA 6th Cycle Very Low- and Low-Income housing was calculated using VCTM as 28.5 VMT/housing unit which is 8.1 daily VMT/housing unit lower than the 36.6 average VMT/housing unit for Medium and Above Medium Income housing. If the $23,214 funding per housing unit is divided by the 8.1 daily VMT/housing unit it would indicate $2,850 is the fair share portion of a daily VMT reduction from funding affordable housing. While this is not a comprehensive nexus analysis, it does suggest fair share participation in funding affordable housing is in similar proportion to fair participation funding of transportation improvements.

Appendix C: Countywide RHNA CEQA Mitigation Analysis

The assesses the potential scale of VMT reduction strategies to reduce the CEQA VMT impact of the Regional Housing Needs Assessment (RHNA) housing development allocation in Ventura County. Since RHNA must be consistent with the growth pattern from the region's long-range plan for transportation, housing, the economy and the environment, the Southern California Association of Governments Regional Transportation Plan/Sustainable Communities Strategy transportation investment in coordination of housing development and the associated CEQA streamlining of potential significant VMT impacts is a key activity for CEQA lead agencies. The RHNA five statutory objectives integrate housing affordability, equity, resource protection, greenhouse gas reduction and transportation goals:

- Increase housing supply and mix of housing types, with the goal of improving housing affordability and equity in all cities and counties within the region.
- Promote infill development and socioeconomic equity; protect environmental and agricultural resources; encourage efficient development patterns; and achieve greenhouse gas reduction targets.
- Improve intra-regional jobs-to-housing relationship, including the balance between low-wage jobs and affordable housing units for low-wage workers in each jurisdiction.
- Balance disproportionate household income distributions (more high-income allocation to lower-income areas, and vice-versa)
- Affirmatively further fair housing

The assessment of the potential VMT impacts based on the location of RHNA housing development proposed by county lead agencies and is organized in three parts:

1. **Multimodal Transportation Improvement Cost Analysis (Appendix B):** Review of planned multimodal improvement projects, their costs, and potential for vehicle miles travel reduction in order to obtain cost value for dollars per vehicle mile traveled reduced.
2. **Scale of Housing Projects Subject to CEQA Analysis**: Determines those developments which could be screened from CEQA analysis either due to affordable housing units, proximity to major transit stops or in a low VMT area.
3. **Potential Cost of CEQA VMT Mitigation for Housing Development**: Combines parts one and two for a conservative estimate of costs to address potential significant VMT impacts from housing development in the County.

7.5 Scale of Housing Projects Subject to CEQA VMT Analysis

This section describes the analysis that took the County's 6th Cycle RHNA allocation and distributed it in the traffic analysis zones of the Ventura County Transportation Model (VCTM) to determine those developments which would likely be screened from CEQA analysis either due to affordable housing units, proximity to major transit stops or by being located in a low VMT area.

The County's 6th Cycle RHNA allocation is approximately 24,500 total housing units with approximately 10,000 of those very low or low income as show in Table C-1.

Table C-1: Ventura County 6th Cycle RHNA Allocation

Jurisdiction (CEQA Lead Agency)	Very Low Income	Low Income	Moderate Income	Above Moderate Income	Total
Total for Ventura County	5,774	3,810	4,525	10,343	24,452

Each CEQA Lead Agency's most recent housing elements were collected and reviewed to determine the location of the housing allocation by type of housing. Most housing elements or their background reports organized their housing allocation by parcel number while others indicated areas but without specific parcel identification. For those without parcel number identification, manual selection of either the parcel identified in a housing element map or a representative parcel in the center of a traffic analysis zone if specific locations were unclear.

However, on balance these traffic analysis zone boarder issues were minimal and the adjacent characteristics of the traffic analysis zones in terms of their relative location within the county and transportation infrastructure were similar.

Two other characteristics were assigned to traffic analysis zones:

1. Existing Major Transit Stop/Stop Along and Existing High Quality Transit Corridor (High Quality Transit Areas – within one half-mile of a well-serviced transit stop or a transit corridor with 15-minute or less service frequency during peak commute hours. Existing areas are around the County's Metrolink and Amtrak train stations. Per SCAG, there is a future High Quality Transit Corridor of Gold Coast Transit service from Ventura to Port Hueneme.

2. Traffic Analysis Zones that currently have 15 percent below the county's average daily VMT per capita. These are zones that would likely result in less than significant CEQA transportation findings for a housing development.

These two characteristics are highly correlated as it nearly all of the HQTAs (85 percent) have a traffic analysis zone average daily VMT per capita below 15 percent of the countywide average.

Table C-2 shows the consolidated amount of Very Low- and Low-Income housing units and Moderate and Above Moderate housing units, their overall total and the percent of units within traffic analysis zones that were in transit areas, had a daily VMT per capita that was 15 percent below the countywide average or met either screening criteria.

Table C-2: RHNA Housing Unit Allocation with Percent in Traffic Analysis Zones in a Transit Area or Below 15 percent of the Countywide Daily Vehicle Miles Traveled Per Capita

	Very Low or Low Income	Moderate and Above Moderate Income	Total	Transit Area	Below 15%	Either Screening Criteria
Total for County	9,584	14,868	24,452	29%	67%	71%

Overall, 71 percent of the RHNA allocation by lead agencies would be in locations that are near transit (28 percent of allocation) or in a low daily VMT per capita area (67 percent of allocation).

7.6 Potential Cost of CEQA VMT Mitigation for Housing Development

Part three of the analysis combines the two previous parts to estimate the costs to address potential significant VMT impacts from housing development in the County. As Very Low- and Low-income housing is assumed to meet the screening threshold of affordable housing, those units were removed from those that could have a potential significant CEQA VMT impact. The remaining approximately 15,000 moderate and above moderate housing units were analyzed for their location in a traffic analysis zone that was either screened as an HQTA or a low daily VMT per capita zone. Table C-8 shows that an estimated 3,959 moderate and above moderate housing units are estimated to not meet either screening criteria which represent 16 percent of the total RHNA housing allocation of 24,452 units.

These housing units were multiplied by the average daily VMT per capita in their traffic analysis zone to estimate a total housing project VMT per capita. This value as compared to a threshold value of 15 percent below per capita VMT and converted to a total daily value of potential daily VMT to be mitigated to achieve the 15 percent below per capita VMT at a project level. The daily VMT over the 15 percent threshold was multiplied by $1,650 per daily vehicle mile traveled mitigation cost for off-site multimodal improvements estimated in part one of the analysis. As shown in **Table C-3**, if RHNA 6th Cycle housing projects expected to have significant CEQA VMT impacts mitigate those impacts with off-site multimodal improvements, the total would be approximately $48 million.

Table C-3: Estimated Housing Units Subject to CEQA and their Potential Mitigation

	Moderate and Above Moderate Income	Either Screening	Units with Potential Sig Impact	Daily VMT over 15% Threshold	Mitigation Cost
Total for County	14,868	71%	3,959	29,219	48,211,055

The average size of moderate and above moderate housing developments was 12 units. Therefore the 3,959 units that would have a potentially significant CEQA VMT impact would be in approximately 345 projects with an average mitigation cost of $146,000.

Important caveats of the analysis are:

- It uses the current calculated VMT per capita by traffic analysis zone—each new development would alter the VMT profile of a traffic analysis zone and additional modeling of an existing plus RHNA allocation scenario to isolate the effect of the building of the housing units on countywide VMT. Given the location of the allocation, it is assumed it would have reduction as compared to existing conditions.
- The generic 15 percent below County VMT per capita was used, whereas jurisdictions can set their own thresholds of significance. This was a conservative value used to make a countywide estimate.
- No assumed on-site or off-site mitigation are included, therefore the analysis is of an upper limit of the total multimodal transportation investment
- Individual projects would vary in size, scope and mixture of affordable and market rate housing.

Appendix D: Disadvantaged Communities Analysis

Disadvantaged communities are areas burdened by both socioeconomic and environmental factors. The VMT characteristics of disadvantaged communities was analyzed by using the Ventura County Transportation Model (VCTM) outputs and CalEnviroScreen 4.0 information.

CalEnviroScreen

The Office of Environmental Health Hazard Assessment (OEHHA) developed the California Communities Environmental Health Screening Tool: CalEnviroScreen. CalEnviroScreen is a screening methodology that can be used to help identify California communities that are disproportionately burdened by multiple sources of pollution. Several state entities have used CalEnviroScreen in the implementation of different programs. Many of these programs are funded from the Greenhouse Gas Reduction Fund (GGRF) and include benefits to disadvantaged communities identified using CalEnviroScreen. CalEnviroScreen 4.0 was last updated in October 2021.

Disadvantaged communities in California are specifically targeted for investment of proceeds from the State's cap-and-trade program. The California Environmental Protection Agency (CalEPA) designated the top 25 percent of Census Tracts in CalEnviroScreen 4.0 as disadvantaged communities in May 2022, among other categories, for the purpose of investing cap-and-trade proceeds. Furthermore, fifty percent of statewide Affordable Housing and Sustainable Communities (AHSC) Program funding is designated for disadvantaged communities.

CalEnviroScreen 4.0 uses indicators to measure either environmental conditions, in the case of pollution burden indicators, or health and vulnerability factors for population characteristic indicators. CalEnviroScreen indicators fall into four broad groups—exposures, environmental effects, sensitive populations, and socioeconomic factors.

Exposure indicators are based on measurements of different types of pollution that people may come into contact with.

- Environmental effects indicators are based on the locations of toxic chemicals in or near communities.
- Sensitive population indicators measure the number of people in a community who may be more severely affected by pollution because of their age or health.
- Socioeconomic factor indicators are conditions that may increase people's stress or make healthy living difficult and cause them to be more sensitive to pollution's effects.

The CalEnviroScreen Census Tract data was compared to the VCTM model data to produce VMT analysis of disadvantaged communities. Analysis using both the CalEPA disadvantaged communities threshold of the 75th percentile of environmental burden and a 60th percentile level which better captures the disadvantaged communities of Ventura County (see **Figure D-1**).

Figure D-1: CalEnviroScreen Defined Disadvantaged Communities

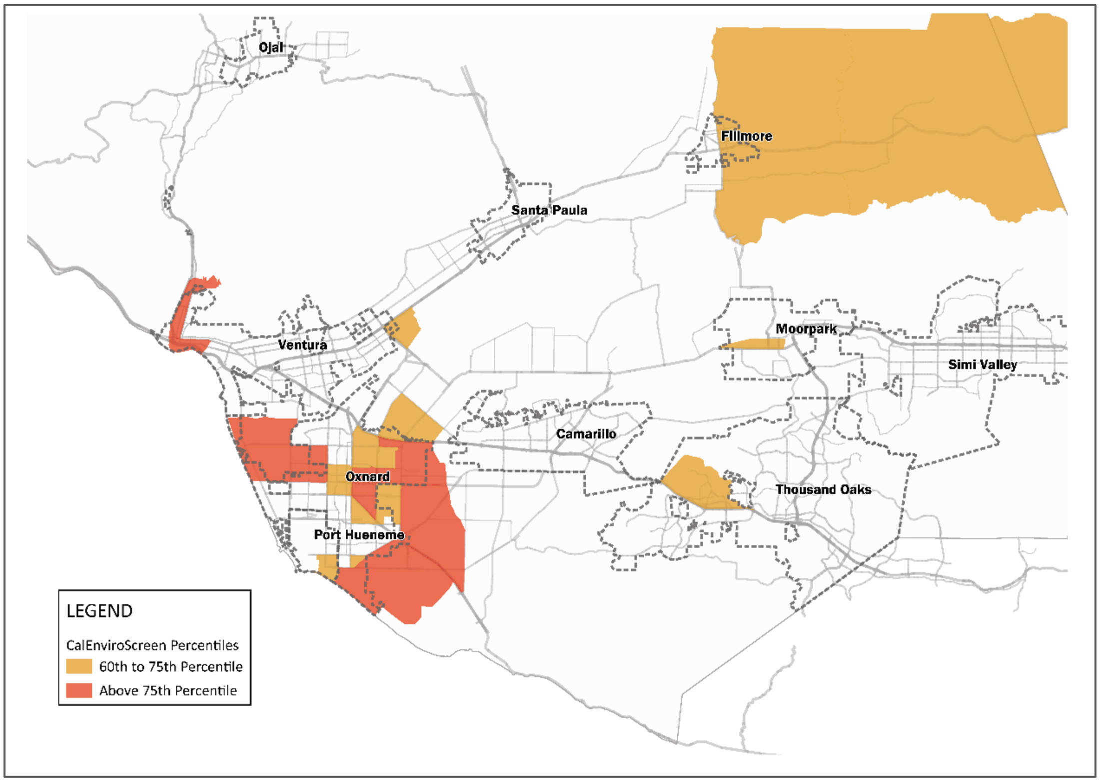


Table D-1: VMT Characteristics of Disadvantaged Communities in Ventura County

	Residential VMT per Capita		Employment VMT per Capita	
	Per Capita	Difference from Total	Per Employee	Difference from Total
Total - CalEnviroScreen 75% above (State Definition of Disadvantaged Communities)	15.3	(1.1)	17.9	(1.1)
Total - CalEnviroScreen Above 60% Disadvantaged Communities	15.6	(0.8)	17.9	(1.2)
Total - Not Disadvantaged Communities	16.9	0.4	19.8	0.7
Total - County Average	16.5	-	19.1	-

Source: VCTM

As shown in Table D-1, disadvantaged communities of both the 75th and 60th percentile and above burden have residential VMT per capita and employment VMT per employee that are approximately one VMT lower than Census Tracts that are not defined as disadvantaged communities. These results demonstrate investment in disadvantaged communities is investment in lowering VMT.

Appendix E: CEQA References

The goal of the CEQA VMT Adaptive Mitigation Program and supporting analyses is to be incorporated by VCOG's member agencies into the environmental documents related to their housing elements and programs. The CEQA VMT Adaptive Mitigation Program provides options for streamlining residential development by standardizing transportation mitigation measures to address and respond to statewide housing planning efforts. The legislature has adopted findings that "the lack of housing, including emergency shelters, is a critical problem that threatens the economic, environmental, and social quality of life in California… Among the consequences of those actions are...reduced mobility, urban sprawl, excessive commuting, and air quality deterioration" (Government Code Section 65589.5[a]). The legislature also recently adopted findings that "California has a housing supply and affordability crisis of historic proportions. The consequences of failing to effectively and aggressively confront this crisis are hurting millions of Californians, robbing future generations of the chance to call California home, stifling economic opportunities for workers and businesses, worsening poverty and homelessness, and undermining the state's environmental and climate objectives" (Government Code Section 65589.5[a][2][A]). The AMP streamlines the CEQA process by providing tools to help applicants and lead agencies avoid having to prepare an Environmental Impact Report (EIR) only to later adopt a Statement of Overriding Considerations for a VMT impact above a VMT threshold previously determined by each jurisdiction or other CEQA Lead Agency. Therefore, the AMP will help streamline housing projects to address the California and regional housing crisis.

E.1 California Environmental Quality Act

CEQA, enacted in 1970, requires lead agencies to inform decision makers and the public about the potential environmental impacts of discretionary activities proposed by public agencies or private projects requiring discretionary approval, and to reduce those impacts to the extent feasible. Lead agencies are state and local agencies that have the primary responsibility for approving a project. To be a CEQA Lead Agency, the public agency must have discretionary authority over a project. Lead agencies in Ventura County are local cities, school districts, water districts, the County of Ventura, and other public agencies.

CEQA compliance is required prior to the approval or undertaking of a project that could significantly affect the environment. There are five types of CEQA documents:

- Notice of Exemption
- (Mitigated) Negative Declaration
- Mitigated Negative Declaration
- Environmental Impact Report
- EIR/MND Addendum

The statute is codified in Public Resources Code Section 21000 et seq, and implemented by the California Natural Resources Agency. The California Office of Planning and Research (OPR) develops the CEQA Guidelines to interpret CEQA statute and published court decisions. The version of the CEQA Guidelines adopted on December 28, 2018 includes updates related to analyzing transportation impacts pursuant to SB 743.

7.6.1 E.1.1 Exemptions and Tiering Under CEQA – Potential Process Streamlining

A project is exempt from CEQA if:

- The project is exempt by statute
- The project is exempt pursuant to a categorical exemption
- The activity is covered by the "common sense exemption" that CEQA applies only to projects which have the potential for causing a significant effect on the environment

The standard of review for exemptions is the substantial evidence test where the burden is on the challenger to show that an exemption is not appropriate.

E.2 Senate Bill 743

SB 743 directed a change in the way public agencies evaluate the transportation impacts of projects under CEQA, recognizing that roadway congestion, while an inconvenience to drivers, is not itself an environmental impact (see Public Resource Code, Section 21099, subd. (b)(2)). SB 743 provides opportunities to streamline CEQA for qualifying urban infill development near major transit stops in metropolitan regions statewide. A transit-oriented infill project can be exempt from CEQA if consistent with a specific plan for which an EIR was prepared, and also consistent with the use, intensity, and policies of a Sustainable Community Strategy or Alternative Planning Strategy that is certified by the California Air Resources Board as meeting its greenhouse gas reduction targets. Furthermore, under the bill, parking impacts are no longer considered significant impacts on the environment for select development projects within infill areas with nearby frequent transit service

The primary change to CEQA guidelines due to SB 743 is the prohibition of traditional traffic operations analysis metrics of roadway delay or capacity as described by "Levels of Service (LOS)." OPR identified VMT as the most appropriate metric to determine the significance of transportation impacts in a manner that promotes the reduction of greenhouse gas emissions, the development of multimodal transportation networks, and a diversity of land uses (OPR 2018). This transitions the environmental analysis of a Project's effect on the transportation system from how it affects congestion on facilities, such as intersection or roadway lanes, to the average distance traveled by vehicles. The change to VMT is tied to Greenhouse Gas (GHG) emissions and supports the GHG reduction goals of the California Global Warming Solutions Act of 2006 (Assembly Bill 32).

For the purposes of CEQA Transportation Impact Analysis the lead agencies can utilize measures of VMT per capita, per employee, and per service population (residents plus employees). Many cities and counties continue to use LOS traffic analysis to assess project impacts and actions for applicants to meet local LOS standards outside of CEQA analysis, generally as a separate traffic study. As a result of this, traffic operations analysis requirements for improvements as directed by lead agencies' general plans are not CEQA mitigation measures and would be enforced by cities and counties as conditions of approval.

E.3.1 CEQA Guidelines Transportation Analysis Update

Beginning July 1, 2020 California Environmental Quality Act (CEQA) analysis for determining potential significant transportation impacts will transition from an automobile delay or capacity measure to a VMT metric in evaluating a project's environmental impacts under CEQA as required by Senate Bill (SB) 743. As recommended by the OPR and adopted as California Natural Resources Agency guidance, the following relevant changes to CEQA guidance were adopted in 2018:

- Implementing SB 743, new Guidelines section 15064.3 establishes VMT as the most appropriate measure of transportation impacts, shifting away from the level of service analysis that evaluated a project's impacts on traffic conditions on nearby roadways and intersections.
- Section XVII of Appendix G (Environmental Checklist) previously titled "Transportation/Traffic" now renamed "Transportation," and is significantly revised to reflect the state's new focus on reducing VMT and the near elimination of concern with degrading level of service as it pertains to vehicle operations.

This shift in CEQA transportation metric promotes outcomes that reduce reliance on automobile travel which align with State goals for reducing emissions, investing in multimodal transportation networks and encouraging higher density in-fill development.

E.3.2 History

On September 27, 2013, Governor Jerry Brown signed into law SB 743 which tasked the OPR with developing alternative methods of measuring transportation impacts pursuant to CEQA other than the current practice of using traffic congestion-based measures which tend to promote increased vehicle use. On December 30, 2013, OPR released a technical memorandum which identified objectives for developing alternative criteria in support of the State's goals for greenhouse gas reduction by encouraging higher density, mixed-use development in urban areas served by public transit and more diverse travel options.

In August 2014, OPR proposed to replace roadway capacity and vehicle delay measures as often displayed as levels of service with measures of VMT which estimates the total distance people drive by vehicle. This shift in CEQA transportation metric promotes outcomes that reduce reliance on automobile travel which align with State goals for reducing emissions, investing in multimodal transportation networks and encouraging higher density in-fill development.

In December 2018, after over five years of stakeholder-driven development through nearly 200 stakeholder meetings, public convening, and other outreach events, the California Natural Resources Agency certified and adopted the CEQA Guidelines update package including the Guidelines section implementing SB 743. The final text, final statement of reasons, and related materials are posted at https://resources.ca.gov/ceqa. The changes have been approved by the Office of the Administrative Law and are now in effect.

The CEQA Guidelines (Section 15064.3, Determining the Significance of Transportation Impacts) requires that all cities and counties update their transportation impact analysis metrics to VMT exceeding an applicable threshold by July 1, 2020. The CEQA Guidelines give lead agencies discretion to choose the most appropriate methodology to evaluate a project's VMT impacts, however the methodology must be based on substantial evidence. Importantly, SB 743 "does not preclude the application of local general plan policies, zoning codes, conditions of approval, thresholds, or any other planning requirements pursuant to the police power or any other authority." (Pub. Resources Code Section 21099(b)(4).). Thus, it does not preclude the on-going use of congestion measures as a project performance metric for operational analysis for conformance with planning for new development consistent with community values. However, the congestion or operations analysis would not be applicable to determining significance under CEQA.

The Natural Resource Agency's Statement of Regulatory Impact Assessment for the CEQA Guidelines identified numerous potential direct and indirect benefits of reducing VMT. Realization of those benefits will depend on the degree to which, pursuant to this CEQA Guidelines update, lead agencies use the streamlined approaches for analysis of low-VMT projects, mitigate high VMT projects, or choose lower VMT project alternatives. Lead agencies determine whether any particular mitigation measure is feasible in the context of the project under review. Further, CEQA allows a Lead Agency to approve a project that has significant environmental impacts so long as it finds that the benefits of the project outweigh those impacts.

Section 15064.3 contains several subdivisions, which are described below. In brief, these Guidelines provide that transportation impacts of projects are, in general, best measured by evaluating the project's VMT. Methodologies for evaluating such impacts for most land use projects, transit and active transportation projects focus on the project's ability to reduce VMT. Methods for evaluating VMT for highway capacity projects are evolving, particularly under Caltrans' transportation analysis framework and the Guidelines recognize a CEQA Lead Agency's discretion to analyze such projects, provided such analysis is consistent with CEQA and applicable planning requirements.

Subdivision (a): Purpose Subdivision (a) sets forth the purpose of Section 15064.3.

First, the subdivision clarifies that the primary consideration, in an environmental analysis, regarding transportation is the amount and distance that a project might cause people to drive. This captures two measures of transportation impacts: auto trips generated and VMT. These factors were identified by the legislature in SB 743. The last sentence clarifies that automobile delay is not a significant effect on the environment.

Subdivision (b): Criteria for Analyzing Transportation Impacts

While subdivision (a) sets forth general principles related to transportation analysis, subdivision (b) focuses on specific criteria 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.

Subdivision (b)(1): Land Use Projects

SB 743 did not authorize the Agency to set thresholds, but it did direct OPR and the CEQA Lead Agency to develop Guidelines "for determining the significance of transportation impacts of projects[.]" (Pub. Resources Code § 21099(b)(2).) Therefore, to provide guidance on determining the significance of impacts, subdivision (b)(1) describes factors that might indicate whether the amount of a project's VMT may be significant, or not.

Subdivision (b)(2): Transportation Projects

While subdivision (b)(1) addresses VMT associated with land use projects, subdivision (b)(2) focuses on impacts that result from certain transportation projects. Subdivision (b)(2) clarifies that lead agencies should presume that projects that reduce VMT, such as pedestrian, bicycle and transit projects, will have a less than significant impact. This subdivision further provides that lead agencies have discretion in which measure to use to evaluate highway capacity projects, provided that any such analysis is consistent with the requirements of CEQA and any other applicable requirements (e.g., local planning rules). Importantly, this provision does not prohibit capacity expansion. It also does not relieve agencies of the requirement to analyze any other potential impacts of such projects, including, but not limited to, greenhouse gas emissions and other air pollutants. Finally, recognizing that highway capacity projects may be analyzed at a programmatic level, subdivision (b)(2) states that lead agencies may be able to tier from a programmatic analysis that adequately addresses the effects of such capacity projects.

Subdivision (b)(4): Methodology

Lead agencies have the discretion to choose the most appropriate methodology to analyze a project's VMT. Depending on the project, VMT may be best measured on a per person, per household or other similar unit of measurement. Subdivision (b)(4) also recognizes the role for both models and professional judgment in estimating VMT.

E.4 OPR Technical Advisory

OPR developed series of Technical Advisories to evaluate transportation impacts in CEQA implementing SB 743. The most current advisory was published in December, 2018 and provided guidance for implementing Section 15064.3. It is not an administrative regulation but provides an overall guiding documentation for lead agencies when developing their CEQA transportation methodology. All jurisdictions have or are in the process of implementing SB 743 following the broad approach outlined in the Technical Advisory with differences for local conditions. The OPR Technical Advisory framework covers the following four areas of SB 743 implementation:

1. **Screening Criteria** – Opportunities to streamline CEQA Transportation analysis under certain project conditions that would reduce VMT by supporting infill development and support multimodal transportation networks

2. **VMT Calculation Methodology** – How and what types of VMT should be analyzed and how to analyze land use plans, development projects and transportation projects
3. **Thresholds of Significance** – Lead agencies have discretion to develop thresholds supported by substantial evidence
4. **Mitigation Measures** – Options available to mitigate potential significant impacts

E.5 CEQA Guidelines

The following are excerpts from the CEQA Guidelines and additional supporting materials which provide background to support the substantial evidence findings of the Ventura County VMT CEQA AMP. Passages particularly relevant to the AMP are **bolded** for emphasis.

The CEQA Guidelines (Title 14, Division 6, Chapter 3 of the California Code of Regulations) are administrative regulations governing implementation of the CEQA. The CEQA Guidelines reflect the requirements set forth in the Public Resources Code, as well as court decisions interpreting the statute and practical planning considerations. Among other things, the CEQA Guidelines explain how to determine whether an activity is subject to environmental review, what steps are involved in the environmental review process, and the required content of environmental documents. The CEQA Guidelines apply to public agencies throughout the state, including local governments, special districts, and State agencies.

Public Resources Code section 21083 requires the Office of Planning and Research (OPR) and the Natural Resources Agency (Agency) to periodically update the CEQA Guidelines. The most recently updated Guidelines became effective on December 28, 2018. The following are relevant excerpts from the Statement of Reasons for the Revisions to the CEQA Guidelines in 2018, which contains background information regarding the purpose and application of CEQA transportation analysis as well as the CEQA Guidelines references themselves.

E.5.1 Statement of Reasons for the Revisions to the CEQA Guidelines in 2018

As directed in Senate Bill 743, the 2018 Guidelines revisions includes a new section addressing the evaluation of transportation impacts. The previous emphasis on traffic congestion in transportation analyses tends to promote increased vehicle use. The new guidance instead focuses on a project's effect on VMT, which should promote project designs that reduce reliance on automobile travel.

Regarding the change related to transportation impacts, the Agency's Statement of Regulatory Impact Assessment identified numerous potential direct and indirect benefits of reducing VMT. Realization of those benefits will depend on the degree to which, pursuant to this CEQA Guidelines update, **lead agencies use the streamlined approaches for analysis of low-VMT projects, mitigate high VMT**

projects, or choose lower VMT project alternatives.[4] Some of the benefits, among many others, that may result from reducing VMT are described qualitatively below:

- Better health and avoided health care costs. Higher VMT is associated with more auto collisions, more air pollution, more greenhouse gas emissions, less active transportation, and less transit use. If California achieves its goals of doubling walking and tripling biking (Caltrans Strategic Management Plan), 2,095 annual deaths will be avoided. Increasing active transit modes would help reduce air pollution and greenhouse gas emissions. Estimates of the annual monetized value of prevented deaths and disabilities in California resulting from achieving those targets ranges from $1 billion to $15.5 billion.[5]
- Reduction in transportation, building energy, and water costs. Less vehicle travel reduces vehicle fuel (or electricity), maintenance, parking, and in some cases vehicle ownership costs. Transportation costs are typically the second greatest category of household expenditure after housing itself (Bureau of Labor Statistics, Consumer Expenditures). Compact development, which is associated with lower VMT, tends to consume less building energy and irrigation water, leading to savings to residents and businesses. Busch et al., 2015 estimated that if 85 percent of new housing and jobs added in the state until 2030 were located within existing urban boundaries, it would reduce per capita vehicle miles traveled by about 12 percent below 2014 levels.[6] That combination of reduced VMTand more compact development would, in turn, result in an estimated $250 billion in household cost savings cumulative to 2030 (with an average annual savings per household in 2030 of $2,000). Household costs analyzed in the Busch, et al. study included auto fuel, ownership and maintenance costs, as well as residential energy and water costs.
- Reduction in travel times to destinations. Reducing VMTreduces congestion regionally, decreasing travel times, and may also encourage more investment in multi-modal infrastructure. Even if there is localized congestion, due to increased density of development, travel times decrease because of better proximity (Mondschein, 2015).[7]
- Cleaner water. Motor vehicle travel can cause deposition of pollutants onto roadways, which can then be carried by stormwater runoff into waterways. Fuel, oil, and other liquids used in motor vehicles can leak from vehicles onto the ground (Delucchi, 2000). Brake dust and tire

[4] Lead agencies determine whether any particular mitigation measure is feasible in the context of the project under review. (See, e.g., CEQA Guidelines § 15091.) Further, CEQA allows a Lead Agency to approve a project that has significant environmental impacts so long as it finds that the benefits of the project outweigh those impacts. (Id. at § 15093.)

[5] Maizlish N. Increasing Walking, Cycling, and Transit: Improving Californians' Health, Saving Costs, and Reducing Greenhouse Gases. Final Report. California Department of Public Health (CDPH), 2016.

[6] Busch C., et al., Moving California Forward, How Smart Growth Can Help California Reach Its 2030 Climate Target While Creating Economic and Environmental Co-Benefits, Nov. 2015, at p. 26.

[7] Mondschein A. Congested Development: A Study of Traffic Delays, Access, and Economic Activity in Metropolitan Los Angeles, Institute of Transportation Studies, UCLA Luskin School of Public Affairs, Sept. 2105.

wear can further cause particles to be deposited onto the ground (Thorpe and Harrison, 2008). Brake pads and tire compounds are made out of compounds that include metal. Further, motor vehicles require roadways for travel. Paved roadways are impervious surfaces which prevent infiltration of storm water in the ground. Impervious surfaces can increase the rate, volume, and speed, and temperature of stormwater runoff (US Environmental Protection Agency, 2003). Wearing down of roadways can further cause particles to be deposited onto the ground (Thorpe and Harrison, 2008). The Victoria Transportation Policy Institute (2015) estimates that in total that motor vehicle contributions to water pollution cost approximately 42 billion dollars per year or 1.4 cents per mile.

The Agency expects more sustainable development decisions to result from the clarified sections addressing water supply, energy, wildfire, greenhouse gas emissions, as well as the clarified exemptions for transit-oriented developments and upgrades to existing facilities. Other benefits of the remainder of the CEQA Guidelines update are expected to include greater certainty for both public agencies and private applicants, as well as time and cost savings due to clearer rules.

E.5.2 Subdivision (a): Purpose

Subdivision (a) sets forth the purpose of the entire new section 15064.3. First, the subdivision clarifies that the primary consideration, in an environmental analysis, regarding transportation is the amount and distance that a project might cause people to drive. This captures two measures of transportation impacts: auto trips generated and vehicle miles traveled. These factors were identified by the legislature in SB 743. The last sentence clarifies that automobile delay is not a significant effect on the environment.

E.5.3 Subdivision (b): Criteria for Analyzing Transportation Impacts

While subdivision (a) sets forth general principles related to transportation analysis, subdivision (b) focuses on specific criteria 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.

Subdivision (b)(1): Land Use Projects

SB 743 did not authorize the Agency to set thresholds, but it did direct OPR and the Agency to develop Guidelines "for determining the significance of transportation impacts of projects[.]" (Pub. Resources Code § 21099(b)(2).) Therefore, to provide guidance on determining the significance of impacts, subdivision (b)(1) describes factors that might indicate whether the amount of a project's vehicle miles traveled may be significant, or not.

Subdivision (b)(2): Transportation Projects

While subdivision (b)(1) addresses vehicle miles traveled associated with land use projects, subdivision (b)(2) focuses on impacts that result from certain transportation projects. Subdivision (b)(2) clarifies that lead agencies should presume that projects that reduce vehicle miles traveled, such as pedestrian, bicycle and transit projects, will have a less than significant impact. This subdivision further provides that lead agencies have discretion in which measure to use to evaluate highway capacity projects, provided that any such analysis is consistent with the requirements of CEQA and any other applicable requirements (e.g., local planning rules). Importantly, this provision does not prohibit capacity expansion. It also does not relieve agencies of the requirement to analyze any other potential impacts of such projects, including, but not limited to, greenhouse gas emissions and other air pollutants. Finally, recognizing that highway capacity projects may be analyzed at a programmatic level, subdivision (b)(2) states that lead agencies may be able to tier from a programmatic analysis that adequately addresses the effects of such capacity projects.

Subdivision (b)(4): Methodology

Lead agencies have the discretion to choose the most appropriate methodology to analyze a project's vehicle miles traveled. Depending on the project, vehicle miles traveled may be best measured on a per person, per household or other similar unit of measurement. Subdivision (b)(4) also recognizes the role for both models and professional judgment in estimating vehicle miles traveled.

Necessity

The proposed addition of CEQA Guidelines section 15064.3 is reasonably necessary to implement the direction in Public Resources Code 21099 that the CEQA Guidelines provide for a new methodology for analyzing transportation impacts of projects. The language of this section of the CEQA Guidelines follows the direction of the Legislature and ensures that that the CEQA Guidelines best serve their function of providing a comprehensive, easily understood guide for the use of public agencies, project proponents, and other persons directly affected by CEQA.

Appendix G

Appendix G in the CEQA Guidelines contains a sample initial study format. The purpose of an initial study is to assist lead agencies in determining whether a project may cause a significant impact on the environment. (CEQA Guidelines, Section 15063.) To help guide that determination, Appendix G asks a series of questions regarding a range of environmental resources and potential impacts. Appendix G's questions are not an exhaustive list of all potential impacts. For that reason, Appendix G advises that "[s]ubstantial evidence of potential impacts that are not listed on this form must also be considered." Appendix G further advises that its environmental checklist is only a sample form that can be tailored to address local conditions and project characteristics. [*However, most local agencies utilize Appendix G to frame the CEQA analysis topics for transportation.]*

Transportation: The Agency made several changes to the questions related to transportation in Appendix G. First, the Agency revised the questions related to "measures of effectiveness" so that the focus is more on the circulation element and other plans governing transportation. Second, the Agency deleted the second question related to LOS, and instead inserted a reference to new Guideline section 16054.3, subdivisions (b), to focus on VMT where appropriate. Third, the Agency clarified the question related to design features.

E.5.4 2018 CEQA Guidelines Section 15064.3. Determining the Significance of Transportation Impacts.

The text of Section 15064.3 is:

> *(a) Purpose. This section describes specific considerations for evaluating a project's transportation impacts. Generally, vehicle miles traveled is the most appropriate measure of transportation impacts. For the 12 purposes of this section, "vehicle miles traveled" refers to the amount and distance of automobile travel attributable to a project. Other relevant considerations may include the effects of the project on transit and non-motorized travel. Except as provided in subdivision (b)(2) below (regarding roadway capacity), a project's effect on automobile delay shall not constitute a significant environmental impact. (b) Criteria for Analyzing Transportation Impacts.*
>
> *(1) Land Use Projects. Vehicle miles 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.*
>
> *(2) Transportation Projects. Transportation projects that reduce, or have no impact on, vehicle miles traveled should be presumed to cause a less than significant transportation impact. For roadway capacity projects, agencies have discretion to determine the appropriate measure of transportation impact consistent with CEQA and other applicable requirements. To the extent that such impacts have already been adequately addressed at a programmatic level, such as in a regional transportation plan EIR, a Lead Agency may tier from that analysis as provided in Section 15152.*
>
> *(3) Qualitative Analysis. 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.*
>
> *(4) Methodology. A Lead Agency has 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. The standard of adequacy in Section 15151 shall apply to the analysis described in this section.*

(c) Applicability.

The provisions of this section shall apply prospectively as described in section 15007. A Lead Agency may elect to be governed by the provisions of this section immediately. Beginning on July 1, 2020, the provisions of this section shall apply statewide.

Note: Authority cited: Sections 21083 and 21099, Public Resources Code. Reference: Sections 21099 and 21100, Public Resources Code; Cleveland National Forest Foundation v. San Diego Association of Governments (2017) 17 Cal.App.5th 413; Ukiah Citizens for Safety First v. City of Ukiah (2016) 248 Cal.App.4th 256; California Clean Energy Committee v. City of Woodland (2014) 225 Cal. App. 4th 173.

E.5.5 Thresholds of Significance

CEQA Guidelines Pages 14-15 discuss thresholds of significance for VMT analysis.

Section 15064.7. Thresholds of Significance.

(a) ***A threshold of significance is an identifiable quantitative, qualitative or performance level of a particular environmental effect, noncompliance with which means the effect will normally be determined to be significant by the agency and compliance with which means the effect normally will be determined to be less than significant****.*

(b) Each public agency is encouraged to develop and publish thresholds of significance that the agency uses in the determination of the significance of environmental effects. ***Thresholds of significance to be adopted for general use as part of the Lead Agency's environmental review process must be adopted by ordinance, resolution, rule, or regulation, and developed through a public review process and be supported by substantial evidence. Lead agencies may also use thresholds on a case-by-case basis*** *as provided in Section 15064(b)(2).*

*(c) When adopting or using 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****.*

(d) Using environmental standards as thresholds of significance promotes consistency in significance determinations and integrates environmental review with other environmental program planning and regulation. Any public agency may adopt or use an environmental standard as a threshold of significance., to a level that is less than significant, and why the environmental standard is relevant to the analysis of the Project. In adopting or using an environmental standard as a threshold of significance, a public agency shall explain how the particular requirements of that environmental standard reduce project impacts, including cumulative impacts of project under consideration. For the purposes of this subdivision, an "environmental standard" is a rule of general application that is adopted by a public agency through a public review process and that is all of the following:

(1) a quantitative, qualitative or performance requirement found in an ordinance, resolution, rule, regulation, order, plan or other environmental requirement;

(2) adopted for the purpose of environmental protection;

(3) addresses the environmental effect caused by the project; and,

(4) applies to the project under review.

AUTHORITY: Note: Authority cited: Section 21083, Public Resources Code. Reference: Sections 21000, 21082 and 21083, Public Resources Code; Communities for a Better Environment v. California Resources Agency (2002) 103 Cal.App.4th 98; Protect the Historic Amador Waterways v. Amador Water Agency (2004) 116 Cal. App. 4th 1099.

E.6 Presumption of Less than Significance Through Screening Criteria

The OPR Technical Advisory and the 2018 CEQA Amendments Final Statement of Reasons include options for screening projects as being presumed to have a less than significant impact on VMT metrics.

Transit Priority Areas[8]

Evidence Demonstrates that Projects Located Near Transit Are Likely to Reduce Vehicle Miles Traveled; Therefore, Agencies Should Presume that the Transportation Impact of Such Projects Is Less Than Significant.

A significant body of research indicates that projects located close to existing transit will enable lower vehicle use because of the availability of transit.[9] The California Air Pollution Control Officers

[8] "Transit priority area" means "an area within one-half mile of a major transit stop that is existing or planned, if the planned stop is scheduled to be completed within the planning horizon included in a Transportation Improvement Program adopted pursuant to Section 450.216 or 450.322 of Title 23 of the Code of Federal Regulations." (Pub. Resources Code § 21099(a)(7).) A "Major transit stop" means "a site containing an existing rail transit station, a ferry terminal served by either a bus or rail transit service, or the intersection of two or more major bus routes with a frequency of service interval of 15 minutes or less during the morning and afternoon peak commute periods." (Id. at § 21064.3.)

[9] See, e.g., Cervero, R. (2002). Built Environments and Mode Choice: Toward a Normative Framework. Elsevier Science Ltd.; Cervero, R. & Duncan, M. (2006). Which Reduces Vehicle Travel More: Jobs-Housing Balance or Retail-Housing Mixing? Journal of the American Planning Association; Cervero, R. (2006). Transit Oriented Development's Ridership Bonus: A Product of Self-Selection and Public Policies. University of California Transportation Center; Ewing, R. & Cervero, R. (2001). Travel and the Built Environment: A Synthesis. Transportation Research Record 1780 – Paper No. 01-3515; Ewing, R. & Cervero, R. (2010). Travel and the Built Environment: A Meta-Analysis. Journal of the American Planning Association; Handy, S., Cao, X. & Mokhtarian, P. (2005). Correlation or causality between the built environment and travel behavior? Evidence from Northern California. Elsevier Ltd.; Kolko, J., Meija, M., Reed, D., & Schiff, E. (2011). Make the Most of Transit: Density, Employment Growth, and Ridership around New Stations. Public Policy Institute of California; Lund, H., Cervero, R., & Willson, R. (2004). Travel

Association's report "Quantifying Greenhouse Gas Mitigation Measures" also cites several studies that quantify VMT reductions resulting from transit proximity. (Lee, Barbara, et al. "Quantifying Greenhouse Gas Mitigation Measures." California Air Pollution Control Officers Association, Aug. 2010, pp. 171-174.) This reduction in vehicle miles traveled is most pronounced within one-half mile of transit. Notably, because many other programs and other statutory provisions focus on one-half mile surrounding transit, using that distance in the presumption promotes consistency with other policies.[10]

That body of evidence, together with the statement in the Guidelines, also gives lead agencies a basis to fill out the initial study checklist and at least initially determine that a project's transportation impacts are less than significant.

Affordable Housing

The shift to VMT in CEQA analysis will benefit low-income earners in at least three ways. First, it streamlines transit and active transit modes, which a disproportionate number of low income residents rely upon for transportation. Providing greater transportation choices, such as transit and active transit modes, can save low-income residents money.[11]

Second, because low-income earners generate less household VMT, affordable housing is more likely to be found to have a less than significant transportation impact with VMT analysis. (See, e.g., Lee, Barbara, et al. "Quantifying Greenhouse Gas Mitigation Measures." California Air Pollution Control Officers Association, Aug. 2010, pp. 160-161, 176 ["Income has a statistically significant effect on the probability that a commuter will take transit or walk to work. [Below market rate] housing provides greater opportunity for lower income families to live closer to jobs centers and achieve jobs/housing match near transit. . . Lower income families tend to have lower levels of auto ownership, allowing buildings to be designed with less parking . . . ."], 178 ["[R]egardless of distance from BART, lower income households generate at least 50% higher BART use for school trips than higher income

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Characteristics of Transit-Oriented Development in California. Funded by Caltrans Transportation Grant – "Statewide Planning Studies" – FTA Section 5313 (b); Ewing, R., K. Bartholomew, S. Winkelman, J. Walters, and D. Chen, Growing Cooler: The Evidence on Urban Development and Climate Change, Washington, D.C.: Urban Land Institute, 2008 [see section 7.3.4, citing and discussing ample evidence of transit proximity reducing vehicle travel].)

[10] See, e.g., Public Resources Code § 21155(b) (defining projects that may benefit from CEQA streamlining as those projects within one-half mile of transit); see also Strategic Growth Council, Affordable Housing and Sustainable Communities Program Guidelines.)

[11] (See Fang, K. and Volker, J. "Cutting Greenhouse Gas Emissions Is Only the Beginning: A Literature Review of the Co-Benefits of Reducing Vehicle Miles Traveled," National Center for Sustainable Transportation, March 2017, pp. 12-13; see also California Department of Housing and Community Development, "California's Housing Future: Challenges and Opportunities," Feb. 2018, p. 3 ["In California's rural areas, high transportation costs often negate the relatively more affordable housing prices."], 50 ["The proximity of jobs and services, density, and the availability of public transportation are among the factors that can affect the need for automobile travel and thus transportation costs."; "When households move further from job- and transit-rich areas to find more affordable homes, they encounter consequences in the form of higher transportation costs and commute times."].)

households."].) This is particularly noteworthy because opponents to affordable housing often cite increased traffic congestion as a reason to oppose such projects.

Third, the shift to VMT analysis would lead to more infill and transit-oriented development, and such development often allows lower living costs when transportation and housing costs are both taken into account.[12]

Relatedly, encouraging infill development is strongly correlated to economic mobility and thus infill would benefit low-income communities in urban areas.[13]

Affordable Housing in Commercial Areas

AB 2011: Affordable Housing and High Road Jobs Act (2022) allows housing development in areas that are currently zoned for parking, retail, or office buildings. AB 2011 created a ministerial, CEQA-exempt, time-limited approval process for multifamily housing developments on commercially zoned property. Eligibility is further limited by several site and project criteria. Projects must pay prevailing wages to construction workers and meet specified Below Market Rate (BMR) affordable housing targets. The legislation provides two distinct options: one for 100 percent BMR projects and a second for mixed-income (typically 15 percent BMR) projects. Mixed-income housing developments are limited to commercial corridors (typically the locations of strip malls and parking lots) that are wide enough to accommodate increased density and transit, while 100 percent affordable housing can be developed in a wider range of commercial zones. All development must occur within infill areas, which will reduce sprawl, limit greenhouse gas emissions, and ensure that residents are connected to existing transit and infrastructure.

Standard of Adequacy

Section 15151 describes the standards of adequacy for CEQA analysis and is specifically referenced in terms of assumptions used to estimate vehicle miles traveled and any revisions to model outputs. The Methodology for VMT analysis should be documented and explained in the environmental document prepared for a project.

> *Section 15151. Standards for Adequacy of an EIR*
>
> *An EIR should be prepared with a sufficient degree of analysis to provide decisionmakers with information which enables them to make a decision which intelligently takes account of environmental consequences. An evaluation of the environmental effects of a proposed project need not be exhaustive, but the sufficiency of an EIR is to be reviewed in the light of what is reasonably*

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[12] See Center for Neighborhood Technology, Losing Ground (2012) [available at https://www.cnt.org/sites/default/files/publications/CNT_LosingGround.pdf); Center for Neighborhood Technology, Penny Wise, Pound Fuelish (2010) [available at https://www.cnt.org/sites/default/files/publications/CNT_pwpf.pdf].)

[13] See Fang, et al., supra, pp. 12-13 [discussing the direct financial impacts on households in reducing vehicle miles traveled]; see also Center for Neighborhood Technology, "Penny Wise, Pound Fuelish," March 2010, pp. 7-8 [concluding that location efficiency reduces transportation costs].)

> *feasible. Disagreement among experts does not make an EIR inadequate, but the EIR should summarize the main points of disagreement among the experts. The courts have looked not for perfection but for adequacy, completeness, and a good faith effort at full disclosure.*
>
> *(1. Change without regulatory effect amending Note filed 10-6-2005 pursuant to section 100, title 1, California Code of Regulations (Register 2005, No. 40).)*
>
> *Note: Authority cited: Section 21083, Public Resources Code. Reference: Sections 21061 and 21100, Public Resources Code; San Francisco Ecology Center v. City and County of San Francisco, 48 Cal. App. 3d 584 (1975).*

Mitigation Measures

The CEQA requires public lead agencies to impose feasible mitigation measures as part of the approval of a "project" in order to substantially lessen or avoid the significant adverse effects of the project on the physical environment.

When a CEQA Lead Agency identifies a potentially significant environmental impact, it must propose feasible mitigation measures in the environmental document for a project. (Pub. Resources Code, §§ 21002 (duty to mitigate), 21080(c)(2) (mitigated negative declaration), 21100(b)(3) (EIR must include mitigation measures).) The formulation of mitigation measures cannot be deferred until after project approval. (Communities for a Better Environment v. City of Richmond (2010) 184 Cal.App.4th 70, 92 ("reliance on tentative plans for future mitigation after completion of the CEQA process significantly undermines CEQA's goals of full disclosure and informed decision-making; and consequently, these mitigation plans have been overturned on judicial review as constituting improper deferral of environmental assessment").)

When imposing mitigation, lead agencies must ensure there is a "nexus" and "rough proportionality" between the measure and the significant impacts of the project. (CEQA Guidelines § 15126.4, subd. (a)(4)(A)–(B), citing Nollan v. Ca. Coastal Commission (1987) 483 U.S. 825, Dolan v. City of Tigard (1994) 512 U.S. 374.) All mitigation must be feasible and fully enforceable, and all feasible mitigation must be imposed by lead agencies. (CEQA Guidelines, § 15041.) But, if any suggested mitigation is found to be infeasible the CEQA Lead Agency must explain why and support that determination with substantial evidence, presented in their findings and a statement of overriding considerations. (CEQA Guidelines, §§ 15091 and 15093.) Mitigation measures may either be integrated into proposed projects or imposed as mitigation for identified significant environmental impacts.

E.7 Mitigation of Vehicle Miles Traveled

The Natural Resources Agency determined mitigation to reduce VMT is feasible.[14] CEQA requires mitigation of significant environmental impacts. Independent of the CEQA Guidelines, courts have found that this requirement includes consideration of measures to reduce the driving required by a project. (See, e.g., Cleveland National Forest Foundation v. San Diego Association of Governments (2017) 17 Cal.App.5th 413; Ukiah Citizens for Safety First v. City of Ukiah (2016) 248 Cal.App.4th 256; California Clean Energy Committee v. City of Woodland (2014) 225 Cal. App. 4th 173.)

The OPR Technical Advisory on Evaluating Transportation Impacts in CEQA is one in a series of advisories provided by OPR as a service to professional planners, land use officials, and CEQA practitioners. OPR issues technical assistance on issues that broadly affect the practice of land use planning and the CEQA (Pub. Resources Code, § 21000 et seq.). (Gov. Code, § 65040, subds. (g), (l), (m).) The purpose of the technical advisory is to provide advice and recommendations, which agencies and other entities may use at their discretion. The document does not alter CEQA Lead Agency discretion in preparing environmental documents subject to CEQA, and while it should not be construed as legal advice it is the best resource for state recommendations to local lead agencies in implementing sound CEQA documents. **The determination of whether any particular measure is feasible in connection with a specific project is to be made by the CEQA Lead Agency.**

OPR's Technical Advisory lists several types of potential mitigation measures for VMT and explains VMT impacts are largely regional in nature, therefore mitigation may also be regional in scope. Thus, regional mitigation programs to reduce VMT may be an effective way to reduce such impacts.

E.7.1 Definition of Mitigation

Mitigation is defined in Section 15370:

> *Section 15370. Mitigation*
>
> *"Mitigation" includes:*
>
> *(a) Avoiding the impact altogether by not taking a certain action or parts of an action.*
>
> *(b) Minimizing impacts by limiting the degree or magnitude of the action and its implementation.*
>
> *(c) Rectifying the impact by repairing, rehabilitating, or restoring the impacted environment.*
>
> *(d) Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action.*

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[14] https://resources.ca.gov/CNRALegacyFiles/ceqa/docs/2018_CEQA_Final_Statement_of%20Reasons_111218.pdf

(e) Compensating for the impact by replacing or providing substitute resources or environments, including through permanent protection of such resources in the form of conservation easements.

(1. Change without regulatory effect amending Note filed 10-6-2005 pursuant to section 100, title 1, California Code of Regulations (Register 2005, No. 40). 2. Amendment of subsection (e) and amendment of Note filed 12-28-2018; operative 12-28-2018 pursuant to Government Code section 11343.4(b)(3) (Register 2018, No. 52).)

Note: Authority cited: Section 21083, Public Resources Code. Reference: Sections 21002, 21002.1, 21081 and 21100(c), Public Resources Code; and Masonite Corporation v. County of Mendocino (2013) 218 Cal.App.4th 230.

Prior to the implementation of SB 743 through the updated CEQA Guidelines, the need to provide measures to avoid, minimize, rectify, reduce, and/or compensate for transportation impacts was generally accomplished through fair share payment or VMT impact fee programs funding capital infrastructure projects based on a nexus to maintaining an operational level of service on transportation facilities.

Additionality

This analysis did not address the issue of additionality for potential project that could be include in a Ventura County Mitigation Bank program as its purpose was to obtain the cost estimate of reducing VMT by investment in off-site multimodal transportation improvements. However, only projects that are additional would be eligible for CEQA mitigation or funding under a mitigation bank, generally meaning “they would not have occurred without funding from the VMT mitigation bank.”[15]

The principle of additionality is that a CEQA mitigation must not have occurred without the actions or funding of the mitigation measure by the project applicant. CARB defines additional practices as those that are “beyond any reduction required through regulation or action that would have otherwise occurred in a conservative business-as-usual scenario”[16] California regulation defines the businesses-usual scenario as the “set of conditions reasonably expected to occur within the offset project boundary in the absence of the financial incentives provided by offset credits, taking into account all current laws and regulations, as well as current economic and technological trends.”[17]

For the mitigation of VMT-related impacts, additional mitigation may come in the form of on-site or localized actions or off-site actions. The additionality of on-site or localized measure would be determined between the CEQA Lead Agency and the project application. The additionality of an off-site improvement should have a clear definition on a countywide scale to ensure consistency across lead agencies.

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[15] Vehicle Miles Traveled-Focused Transportation Impact Study Guide, Caltrans, May 20, 2020

[16] CARB, “California Air Resources Board’s Process for the Review and Approval of Compliance Offset Protocols in Support of the Cap-and-Trade Regulation.”

[17] Title 17, California Code of Regulations, section 95802(a).

The proposed additionality test specific to this program is used to draw a clear line for the determination of additionality for off-site multimodal transportation improvements is a project or portion of a project that is not funded by an identified funding source in a lead agencies' capital improvement program nor the SCAG Transportation Improvement Program through a grant or funding source controlled by an agency. These projects are considered to have committed funding under a near-term fiscal constrain and any mitigation funds used on these projects would not be additional. Projects that would be considered additional would include those identified by a CEQA Lead Agency, but without a funded commitment such as identified by a local roadway safety plan, active transportation plan, or other document.

E.7.2 Project Avoidance and Minimization Measures

Some project proponents incorporate "avoidance and minimization measures" or "environmental commitments" into the project design as part of the project description, and the CEQA Guidelines also reference these features in Section 15064(f)(2) and 15126.4(a)(1)(A). Examples of project design features that may address environmental impacts include construction traffic management plans, use of energy efficient lighting, solar panels, construction lighting that will be shielded and directed away from neighboring properties, and building standards in excess of the requirements of Title 24 Building Code. These are not considered mitigation measures because they are part of the project that is undergoing environmental review. Nonetheless, in order to address an environmental impact, project design features that include impact avoidance and/or minimization measures must be described, and their effectiveness in reducing or avoiding potential impacts

While not "mitigation", a good practice is to include those project design features that address environmental impacts in the mitigation monitoring and reporting program.

E.7.3 Documentation of Mitigation

The level of analysis and discussion of mitigation measures in CEQA documentation are discussed in section 15126.4:

> *§ 15126.4. Consideration and Discussion of Mitigation Measures Proposed to Minimize Significant Effects.*
>
> *(a) Mitigation Measures in General.*
>
> *(1) An EIR shall describe feasible measures which could minimize significant adverse impacts, including where relevant, inefficient and unnecessary consumption of energy.*
>
> *(A) The discussion of mitigation measures shall distinguish between the measures which are proposed by project proponents to be included in the project and other measures proposed by the lead, responsible or trustee agency or other persons which are not included but the Lead Agency determines could reasonably be expected to reduce adverse impacts if required as conditions of approving the project. This discussion shall identify mitigation measures for each significant environmental effect identified in the EIR.*

(B) Where several measures are available to mitigate an impact, each should be discussed and the basis for selecting a particular measure should be identified. Formulation of mitigation measures shall not be deferred until some future time. The specific details of a mitigation measure, however, may be developed after project approval when it is impractical or infeasible to include those details during the project's environmental review provided that the agency (1) commits itself to the mitigation, (2) adopts specific performance standards the mitigation will achieve, and (3) identifies the type(s) of potential action(s) that can feasibly achieve that performance standard and that will considered, analyzed, and potentially incorporated in the mitigation measure. Compliance with a regulatory permit or other similar process may be identified as mitigation if compliance would result in implementation of measures that would be reasonably expected, based on substantial evidence in the record, to reduce the significant impact to the specified performance standards.

(2) Mitigation measures must be fully enforceable through permit conditions, agreements, or other legally-binding instruments. In the case of the adoption of a plan, policy, regulation, or other public project, mitigation measures can be incorporated into the plan, policy, regulation, or project design.

(4) Mitigation measures must be consistent with all applicable constitutional requirements, including the following:

(A) There must be an essential nexus (i.e. connection) between the mitigation measure and a legitimate governmental interest. Nollan v. California Coastal Commission, 483 U.S. 825 (1987); and

(B) The mitigation measure must be "roughly proportional" to the impacts of the project. Dolan v. City of Tigard, 512 U.S. 374 (1994). Where the mitigation measure is an ad hoc exaction, it must be "roughly proportional" to the impacts of the project. Ehrlich v. City of Culver City (1996) 12 Cal.4th 854.

E.7.4 Mitigation Plans

Section 15370 of the California Code of Regulations - Mitigation ()

Practical considerations sometimes preclude development of detailed mitigation plans at the time of project consideration. In such cases, courts have permitted lead agencies to defer some of the details of mitigation measures provided that the agency commits itself to mitigation and analyzes the different mitigation alternatives that might ultimately be incorporated into the project. (See, e.g., Sacramento Old City Assn. v. City Council (1991) 229 Cal.App.3d 1011, 1028–1030.)

Section 15126.4, subdivision (a)(1)(B), states the Lead Agency "shall" not defer identification of mitigation measures. This binding requirement is clearly stated in a number of cases. (See, e.g., Preserve

Wild Santee, supra, 210 Cal.App.4th 260; Rialto Citizens for Responsible Growth, supra, 208 Cal.App.4th 899; City of Maywood, supra, 208 Cal.App.4th 362; CBE, supra, 184 Cal.App.4th 70; Gray v. County of Madera, supra, 167 Cal.App.4th 1099; San Joaquin Raptor Rescue Center, supra, 149 Cal.App.4th 645; Endangered Habitats League, supra, 131 Cal.App.4th 777; Defend the Bay, supra, 119 Cal.App.4th 1261.)

The 2018 CEQA amendments describe situations when deferral of the specific details of mitigation may be allowable under CEQA, including which commitments the agency should make in the environmental document. Specifically, the amendments explain that deferral may be permissible when it is impractical or infeasible to fully formulate the details of a mitigation measure at the time of project approval and the agency commits to mitigation. (See, e.g., Oakland Heritage Alliance v. City of Oakland (2011) 195 Cal.App.4th 884 (deferral of mitigation was proper where practical considerations prohibited devising mitigation measures early in the planning process, and the agency committed to performance criteria); Defend the Bay, supra, 119 Cal.App.4th 1261 (deferral of specifics of mitigation measures was permissible where practical considerations prohibited devising such measures for a general plan amendment and zoning change); and Preserve Wild Santee, supra, 210 Cal.App.4th 260 (deferral of mitigation details was improper where performance standards were not specified and CEQA Lead Agency did not provide an explanation for why such standards were impractical or infeasible to provide at the time of certification of the EIR).)

Further, these changes clarify that **when deferring the specifics of mitigation, the CEQA Lead Agency should adopt specific performance standards and provide a list of the types of possible mitigation measures that would achieve the standard.** This approach is summarized in Defend the Bay v. City of Irvine, supra. In that case, the court stated that deferral may be appropriate where the CEQA Lead Agency “lists the alternatives to be considered, analyzed and possibly incorporated into the mitigation plan.” (Defend the Bay, supra, at p. 1275; see also Laurel Heights Improvement Association v. Regents of the University of California (1988) 47 Cal.3d 376; Rialto Citizens for Responsible Growth, supra, 208 Cal.App.4th 899; Gray v. County of Madera, supra, 167 Cal.App.4th 1099; San Joaquin Raptor Rescue Center, supra, 149 Cal.App.4th 645; Endangered Habitats League, supra, 131 Cal.App.4th 777.)

Adoption of performance standards in the environmental document is described by the court in Rialto Citizens for Responsible Growth v. City of Rialto, supra. There, the court ruled that where mitigation measures incorporated specific performance criteria and were not so open-ended that they allowed potential impacts to remain significant, deferral was proper. (Rialto Citizens for Responsible Growth, supra, 208 Cal.App.4th 899; see also Laurel Heights, supra, 47 Cal.3d 376; Preserve Wild Santee, supra, 210 Cal.App.4th 260; City of Maywood, supra, 208 Cal.App.4th 362; CBE, supra, 184 Cal.App.4th 70; Gray v. County of Madera, supra, 167 Cal.App.4th 1099; San Joaquin Raptor Rescue Center, supra, 149 Cal.App.4th 645; Endangered Habitats League, supra, 131 Cal.App.4th 777.)

Finally, **the amendments explain that such deferral may be appropriate “where another regulatory agency will issue a permit for the project and is expected to impose mitigation requirements independent of the CEQA process so long as the EIR included performance criteria and the CEQA Lead Agency committed itself to mitigation.”** (Clover Valley Foundation v. City of Rocklin (2011) 197

Cal.App.4th 200, 237; see also Oakland Heritage Alliance, supra, 195 Cal.App.4th 884; Defend the Bay, supra, 119 Cal.App.4th 1261.)

Section 15126.4 Consideration and Discussion of Mitigation Measures Proposed to Minimize Significant Effects describes options for mitigating reductions to greenhouse gases, which would include VMT reduction strategies intended to reduce greenhouse gas emissions.

> *(c) Mitigation Measures Related to Greenhouse Gas Emissions. Consistent with section 15126.4(a), lead agencies shall consider feasible means, supported by substantial evidence and subject to monitoring or reporting, of mitigating the significant effects of greenhouse gas emissions. Measures to mitigate the significant effects of greenhouse gas emissions may include, among others:*
>
> *(1) Measures in an existing plan or mitigation program for the reduction of emissions that are required as part of the Lead Agency's decision;*
>
> *(2) Reductions in emissions resulting from a project through implementation of project features, project design, or other measures, such as those described in Appendix F;*
>
> *(3) Off-site measures, including offsets that are not otherwise required, to mitigate a project's emissions;*
>
> *(4) Measures that sequester greenhouse gases;*
>
> *(5) In the case of the adoption of a plan, such as a general plan, long range development plan, or plans for the reduction of greenhouse gas emissions, mitigation may include the identification of specific measures that may be implemented on a project-by-project basis. Mitigation may also include the incorporation of specific measures or policies found in an adopted ordinance or regulation that reduces the cumulative effect of emissions. Note: Authority cited: Sections 21083 and 21083.05, Public Resources Code. Reference: Sections 5020.5, 21002, 21003, 21083.05, 21084.1 and 21100, Public Resources Code; Citizens of Goleta Valley v. Board of Supervisors, (1990) 52 Cal.3d 553; Laurel Heights Improvement Association v. Regents of the University of California, (1988) 47 Cal.3d 376; Gentry v. City of Murrieta (1995) 36 Cal.App.4th 1359; Laurel Heights Improvement Association v. Regents of the University of California (1993) 6 Cal.4th 1112; Sacramento Old City Assn. v. City Council of Sacramento (1991) 229 Cal.App.3d 1011; San Franciscans Upholding the Downtown Plan v. City & Co. of San Francisco (2002) 102 Cal.App.4th 656; Ass'n of Irritated Residents v. County of Madera (2003) 107 Cal.App.4th 1383; and Environmental Council of Sacramento v. City of Sacramento (2006) 142 Cal.App.4th 1018; Clover Valley Foundation v. City of Rocklin (2011) 197 Cal.App.4th 200; Preserve Wild Santee v. City of Santee (2012) 210 Cal.App.4th 260; and Rialto Citizens for Responsible Growth v. City of Rialto (2012) 208 Cal.App.4th 899.*

E.7.5 AMP Performance Criteria

This program sets performance criteria for VMT reduction, whereas a CEQA Lead Agency may commit mitigation to a significant impact by obtaining a fair share cost payment towards VMT reduction measures to be determined at a later date if it is impractical or infeasible to fully formulate a mitigation measure at the time of the Project environmental documentation.

E.7.6 Mitigation Monitoring

In order to ensure that the mitigation measures and project revisions identified in the EIR or negative declaration are implemented, the public agency shall adopt a program for monitoring or reporting on the revisions which it has required in the project and the measures it has imposed to mitigate or avoid significant environmental effects. A public agency may delegate reporting or monitoring responsibilities to another public agency or to a private entity which accepts the delegation; however, until mitigation measures have been completed the CEQA Lead Agency remains responsible for ensuring that implementation of the mitigation measures occurs in accordance with the program.

According to Sections 21081.6 and 21081.7, Public Resources Code:

- *(b) Where the project at issue is the adoption of a general plan, specific plan, community plan or other plan-level document (zoning, ordinance, regulation, policy), the monitoring plan shall apply to policies and any other portion of the plan that is a mitigation measure or adopted alternative. The monitoring plan may consist of policies included in plan-level documents. The annual report on general plan status required pursuant to the Government Code is one example of a reporting program for adoption of a city or county general plan.*
- *(c) The public agency may choose whether its program will monitor mitigation, report on mitigation, or both. "Reporting" generally consists of a written compliance review that is presented to the decision making body or authorized staff person. A report may be required at various stages during project implementation or upon completion of the mitigation measure. "Monitoring" is generally an ongoing or periodic process of project oversight. There is often no clear distinction between monitoring and reporting and the program best suited to ensuring compliance in any given instance will usually involve elements of both. The choice of program may be guided by the following:*
    - *Reporting is suited to projects which have readily measurable or quantitative mitigation measures or which already involve regular review. For example, a report may be required upon issuance of final occupancy to a project whose mitigation measures were confirmed by building inspection.*
    - *Monitoring is suited to projects with complex mitigation measures, such as wetlands restoration or archeological protection, which may exceed the expertise of the local agency to oversee, are expected to be implemented over a period of time, or require careful implementation to assure compliance.*
    - *Reporting and monitoring are suited to all but the most simple projects. Monitoring ensures that project compliance is checked on a regular basis during and, if*

necessary after, implementation. Reporting ensures that the approving agency is informed of compliance with mitigation requirements.

- *(d) Lead and responsible agencies should coordinate their mitigation monitoring or reporting programs where possible. Generally, lead and responsible agencies for a given project will adopt separate and different monitoring or reporting programs. This occurs because of any of the following reasons: the agencies have adopted and are responsible for reporting on or monitoring different mitigation measures; the agencies are deciding on the project at different times; each agency has the discretion to choose its own approach to monitoring or reporting; and each agency has its own special expertise.*
- *(e) At its discretion, an agency may adopt standardized policies and requirements to guide individually adopted monitoring or reporting programs. Standardized policies and requirements may describe, but are not limited to:*
    - The relative responsibilities of various departments within the agency for various aspects of monitoring or reporting, including lead responsibility for administering typical programs and support responsibilities.
    - The responsibilities of the project proponent.
    - Agency guidelines for preparing monitoring or reporting programs.
    - General standards for determining project compliance with the mitigation measures or revisions and related conditions of approval.
    - Enforcement procedures for noncompliance, including provisions for administrative appeal.
    - Process for informing staff and decision makers of the relative success of mitigation measures and using those results to improve future mitigation measures.
- (f) Where a trustee agency, in timely commenting upon a draft EIR or a proposed mitigated negative declaration, proposes mitigation measures or project revisions for incorporation into a project, that agency, at the same time, shall prepare and submit to the lead or responsible agency a draft monitoring or reporting program for those measures or revisions. The lead or responsible agency may use this information in preparing its monitoring or reporting program.
- (g) When a project is of statewide, regional, or areawide importance, any transportation information generated by a required monitoring or reporting program shall be submitted to the transportation planning agency in the region where the project is located and to the California Department of Transportation. Each transportation planning agency and the California Department of Transportation shall adopt guidelines for the submittal of such information.

E.7.7 Mitigation Banks

In addition to the impact fee program model that is widely used to mitigate impacts from land use developments, it is possible that the examples and models of “mitigation banks” discussed below could provide an avenue for mitigating VMT impacts of transportation projects under SB 743. For example, Caltrans and its local/regional partners who sponsor projects on the state highway system (SHS) regularly pay in-lieu fees to mitigate impacts to biological resources at off-site locations with comparable habitat values. These in lieu fees are often paid to separate agencies or third parties such as a non-profit conservancies that ultimately carry out the biological mitigation activity as separate stand-alone projects. It is important to note that the technical and regulatory protocols regarding the nexus between biological impacts and mitigations is complex and wide-ranging. However, there are three essential parallels to the potential mitigation of VMT impacts in the future:

1. In-lieu fees could be used to fund a wide variety of VMT-reducing strategies needed to mitigate related impacts;

2. VMT-specific methodologies and protocols would be required to demonstrate the nexus between VMT impacts and mitigations to ensure the adequacy of mitigation under CEQA as revised by SB 743, and;

3. There would need to be a comparable mechanism in place to collect these funds and pass them through to a party that would carry out those strategies in order to demonstrate that their implementation is reasonably assured.

E.7.8 Partial Funding of Mitigation

The discussions surfaced the idea of using a VMT mitigation offset as a source of supplemental financing for capital projects that are a bit short of total financing. For example, a government that is $1 million short of funding for extending a rail line or bicycle lane, could sell off a part of the VMT reduction from that project as offsets to finance the unfunded portion of project cost. This kind of payment would blend elements from the offset exchange mitigation transaction with the regional fee and planned transit investment approaches.

But appellate decisions interpreting CEQA currently prohibit the technique of gradually stockpiling parts of financing for mitigation. The reasoning is that there is no assurance these projects will actually be built and the mitigation carried out. The exception is Caltrans which the courts recognized had the scale and financial capacity to carry out mitigation projects over time.

This may be less of an issue for less costly projects that can be financed incrementally, such as a bike lane. That limitation could be overcome by a mitigation broker paying for the capital shortfall in advance and then selling off the VMT reduction mitigation credit subsequently. Neal Peacock's paper provides examples of annual reports demonstrating that VMT impact fees are being collected in sufficient volumes, year to year, to effectively funding congestion mitigation (road construction) projects.

E.8 Impact Fee Nexus and Proportionality

While the AMP does not propose impact fees, the potential application of impact fees to mitigate VMT impacts was explored. The use of a fair share contribution to a transportation improvement project while not part of a fee program or structure, would nevertheless need to be consistent with all applicable constitutional requirements such as having a nexus to a legitimate governmental interest and being roughly proportional to the impact. (CEQA Guidelines § 15126.4(a)(4) Furthermore if a jurisdiction in Ventura County were to implement a VMT-based impact fee, either for CEQA mitigation or general transportation system impact assessment, the following findings would support their VMT fee implementation.

Therefore, the AMP reviews the standards of the Section 66000 of the Government Code to recommend appropriate mitigation standards to CEQA lead agencies and to provide guidance for CEQA lead agencies if they were to establish a fee program based on a VMT metric.

It should be noted that a fee program that was established prior to a CEQA assessment of a proposed project would not be able to be used as mitigation due to additionality requirements, however participation in such a program could be substantial evidence of “avoidance and minimization measures” or “environmental commitments” which could be used to avoid or minimize VMT impacts as part of a project’s description.

E.8.1 Impact Fee Requirements

As background, the imposition of impact fees is one authorized method of financing public infrastructure and capital improvements, including vehicles, fixtures, and equipment, (collectively, the “Public Facilities”), necessary to mitigate the impacts of new development. The term Public Facilities excludes maintenance, salaries, and other programming/servicing costs. Impact fees are limited by both the California and federal constitutions, and further limited by the California Mitigation Fee Act (Government Code Sections 66000 et seq.). A fee is “a monetary exaction, other than a tax or special assessment, which is charged by a local agency to the applicant in connection with approval of a development project for the purpose of defraying all or a portion of the cost of public facilities related to the development project...” (California Government Code, Section 66000). A fee may be imposed for each type of Public Facility required for new development, with the payment of the fee typically occurring prior to the beginning of construction of a dwelling unit or non-residential building. Fees are often imposed at final map recordation, issuance of a certificate of occupancy, or, more commonly, issuance of a building permit.

AB 1600, which created Section 66000 et seq. of the Government Code, was enacted by the State of California in 1987, and requires that a public agency re-evaluate their Development Impact Fees every five (5) years and make findings that the funds collected are still needed to complete the identified projects and there is a reasonable relationship between the fee and purpose for which it was collected.

In 2006, Government Code Section 66001 was amended to clarify that a fee cannot include costs attributable to existing deficiencies but can fund costs used to maintain the existing LOS or meet an adopted level of service that is consistent with the general plan.

In 2020, Government Code Section 66019 was amended to require that any increase in the existing LOS must be justified, and that impact fees imposed on residential property must be on a per-square foot basis, unless a different basis is justified in the study.

Section 66000 et seq. of the Government Code thus requires that all public agencies satisfy the following requirements when establishing, increasing, or imposing a fee as a condition of new development:

1. Identify the purpose of the fee. [Government Code Section 66001, subd. (a)(1)];
2. Identify the use to which the fee will be put. [Government Code Section 66001, subd. (a)(2)];
3. Determine that there is a reasonable relationship between the fee's use and the type of development on which the fee is to be imposed. [Government Code Section 66001, subd. (a)(3)]; and
4. Determine how there is a reasonable relationship between the need for the public facility and the type of development project on which the fee is to be imposed. [Government Code Section 66001, subd. (a)(4)].

Additionally, for adjudicatory (ad hoc) fees, the study must demonstrate how there is a reasonable relationship between the amount of each fee and the cost of the Public Facilities or portion of the Public Facilities attributable to the development on which each fee is imposed. [Government Code Section 66001, subd. (b)].

Presented below are the legal requirements as they relate to the calculation and imposition of a VMT based impact fee.

E.8.2 Purpose of Fee [Government Code Section 66001(A)(1)]

The purpose of a VMT fee would be to fund Public Facilities that would reduce and/or mitigate VMTs generated by future development, including but not limited to multi-modal infrastructure, vehicles, equipment, and other capital improvements and investments (the "Public Facilities"). The CEQA Lead Agency evaluates VMT impacts for development projects and establishes (i) a baseline for mitigating future VMT increases resulting from new development, and (ii) a framework to identify Public Facilities that mitigate future increases in overall VMTs resulting from future development. Specifically, the impact VMTs resulting from future development, translates into greater impacts on the local jurisdiction's transportation network and regional greenhouse gas emissions. Therefore, such increases in VMTs from future development would be offset in each local jurisdiction, through the construction of Public Facilities that reduce overall local VMTs. The fee applicable to a given project will depend on the total VMTs generated by the project and the target VMT reduction level.

The Use to Which the Fee is to be Put [Government Code Section 66001(A)(2)]

The fee should fund Public Facilities identified in the jurisdiction's capital improvement program. These improvements would offset the increases in VMT resulting from future development, by reducing overall VMT in the respective local jurisdiction.

There is a Reasonable Relationship Between the Fee's Use and the Type of Development Project Upon Which the Fee is Imposed (Benefit Relationship) [Government Code Section 66001(A)(3)]

The fee should be used to fund Public Facilities that reduce or mitigate VMT impacts of future development, and in turn reduce/mitigate impacts to the local mobility network and regional greenhouse gas emission levels. Notably, VMT impacts will be determined on a project-by-project basis for each new development. Therefore, the fee attributable to a development project will be proportional to that project's VMT impacts.

There is a Reasonable Relationship Between the Need for the Public Facility and the Type of Development Project Upon Which the Fee is Imposed (Impact Relationship) [Government Code Section 66001(A)(4)]

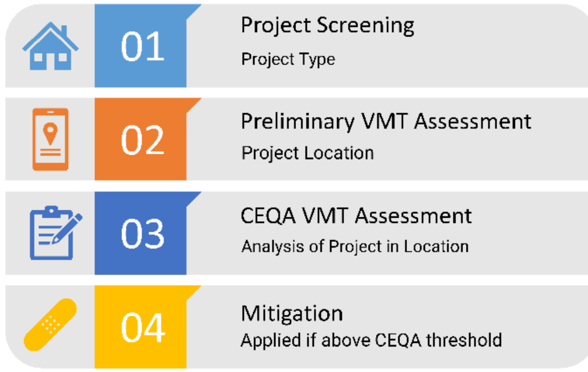
New development within a local jurisdiction, irrespective of location, contributes to the direct and cumulative impacts on the mobility network and regional greenhouse gas emission levels. As a result, the burden created by future development necessitates additional Public Facilities that reduce and/or offset VMT impacts of future development, consistent with a jurisdictions capital facilities programs. As VMT impacts are determined on a project-by-project basis, the need for additional Public Facilities is directly linked to the increase in VMTs resulting from a development project.

There is a Reasonable Relationship Between the Amount of the Fee and the Cost of the Public Facilities Attributable to the Development Upon Which the Fee is Imposed (Rough Proportionality Relationship) [Government Code Section 66001(B)]

Each individual development project and its related increase in population and/or employment, along with the cumulative impacts of all development in the County, will impact the overall VMT. In order to maintain the current quality of life, health, and safety, certain Public Facilities that reduce or mitigate such increases in VMT, would need to be constructed or activated. Thus, the amount of the fee and the cost of Public Facilities associated with the project, are proportional to the overall VMT generated by the project.

Appendix F: Example Case Studies of VMT Assessment

Appendix F describes example case studies of VMT assessment to provide for proactive identification of the potential for significant impacts under CEQA to streamline and achieve the goals of reducing greenhouse gas emissions, develop multimodal transportation networks to promote public health and diversify land uses to support infill development.

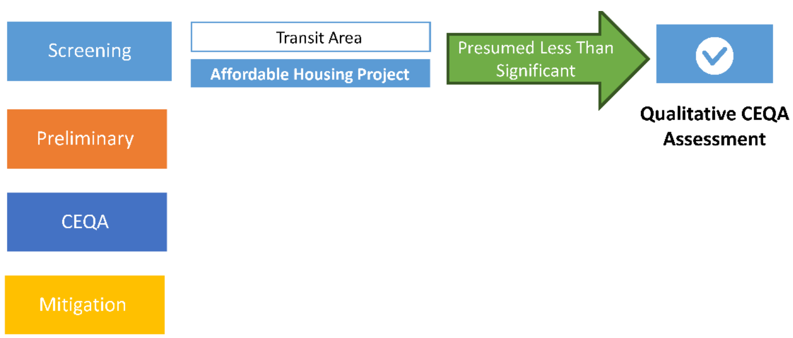


The five example case studies are:

1. An affordable housing development
2. Housing development in a low VMT area
3. Housing development in a high VMT area
4. Housing development in a higher VMT area
5. Housing development in highest VMT area

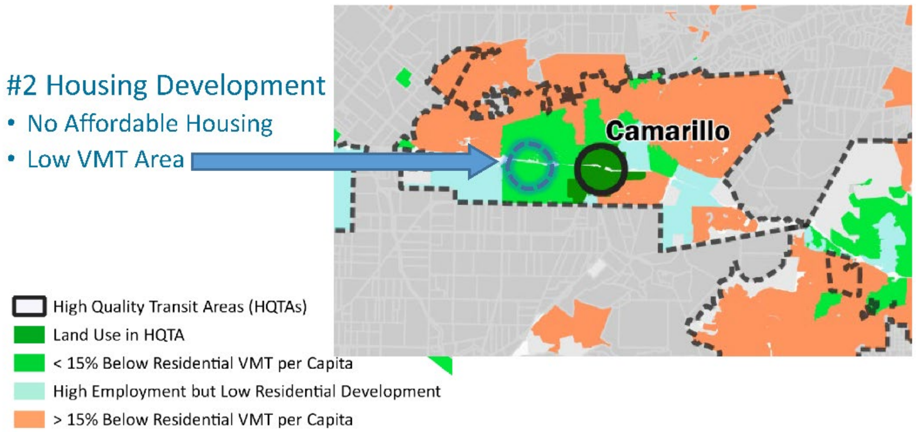
Example Case Study #1: Affordable Housing

The screening step of the VMT assessment methodology leads to a presumption of less than significant due to the project being affordable housing—without a need to assess the VMT of the project itself.

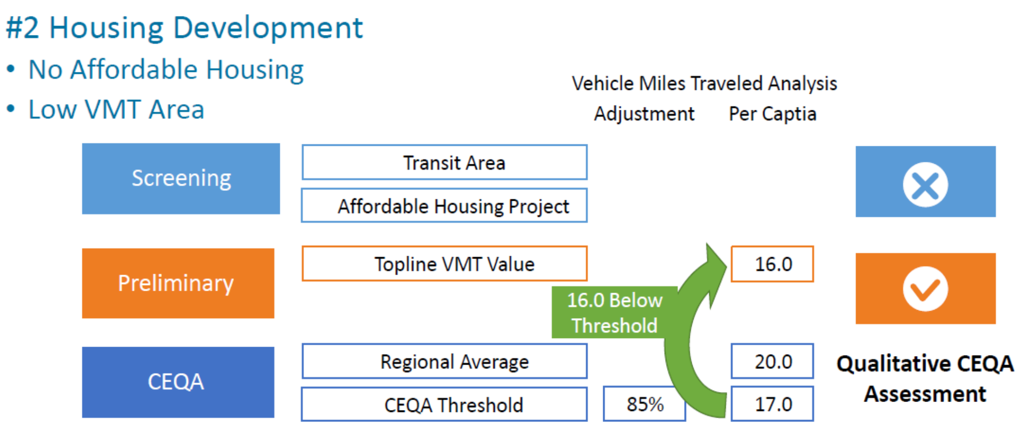


Example Case Study #2: Housing Project in Low VMT Area

A housing project in a low VMT area may not screen, however based on review of the outputs of the VCTM model the project would be expected to have VMT characteristics below the CEQA Lead Agency threshold.

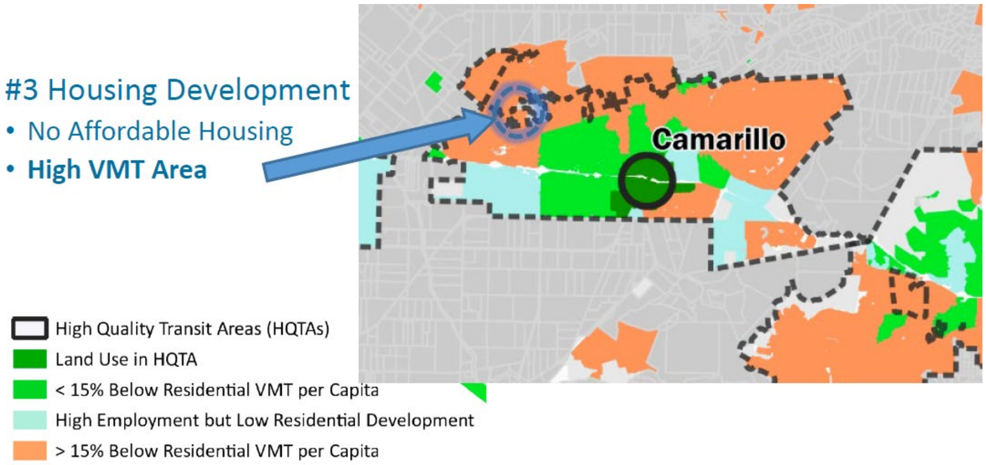


Based on a CEQA Lead Agency threshold of 17.0 VMT per capita and a VCTM topline output of 16.0 VMT per capita for the traffic analysis zone containing the project, the project would be expected to be less than significant under CEQA.

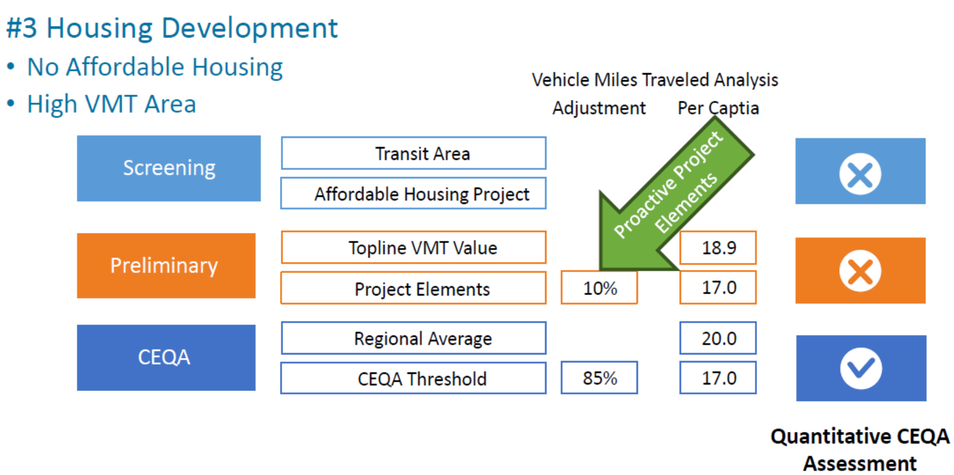


Example Case Study #3: Housing Project in High VMT Area

A housing project in a high VMT area would not screen and the VCTM output would indicate the potential for a significant impact.

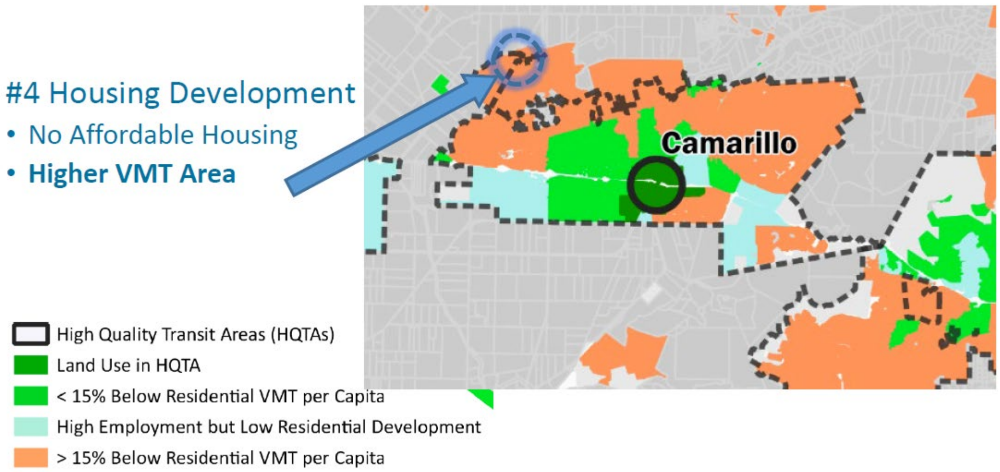


Since the project had the preliminary assessment, the Project Proponent has the opportunity to proactively include VMT reduction strategies to avoid potentially significant impacts.

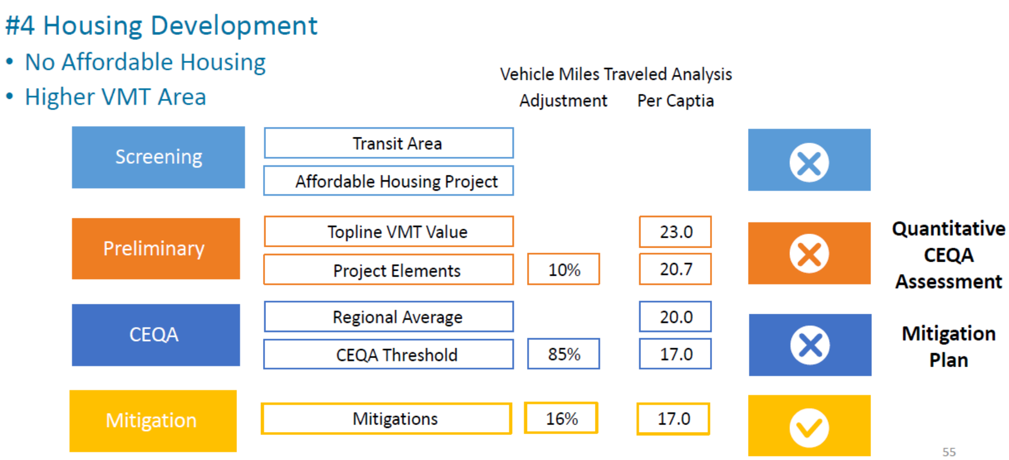


Example Case Study #4: Housing Project in Higher VMT Area

Similar to Case Study #3, a housing project in a higher VMT area would not screen and the VCTM output would indicate the potential for a significant impact.



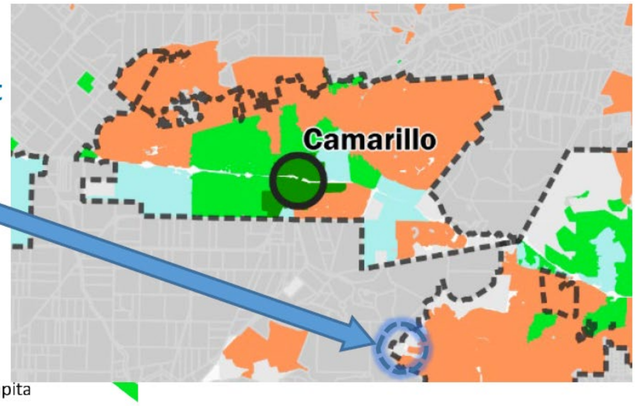
Since the project had the preliminary assessment, the Project Proponent has the opportunity to proactively include VMT reduction strategies to avoid potentially significant impacts. However, even with project elements, the project would not be able to reduce the impact to less than significant. Therefore, it would need to apply additional mitigations under a mitigation plan to reduce the project to a less than significant impact to VMT.



Example Case Study #5: Housing Project in Highest VMT Area

Projects in the highest VMT areas that do not screen from analysis would need to perform all feasible mitigations. If, after applying those mitigations, the project is unable to reduce the impact to less than significant the CEQA Lead Agency could make a Statement of Overriding Conditions.

#5 Housing Development
- No Affordable Housing
- **Highest VMT Area**



- High Quality Transit Areas (HQTAs)
- Land Use in HQTA
- < 15% Below Residential VMT per Capita
- High Employment but Low Residential Development
- > 15% Below Residential VMT per Capita

#5 Housing Development
- No Affordable Housing
- **Highest VMT Area**

Vehicle Miles Traveled Analysis

		Adjustment	Per Captia
Screening	Transit Area		
	Affordable Housing Project		
Preliminary	Topline VMT Value		28.0
	Project Elements	10%	25.2
CEQA	Regional Average		20.0
	CEQA Threshold	85%	17.0
Mitigation	Mitigations	20%	19.6

Quantitative CEQA Assessment

Mitigation Plan

Statement of Overriding Considerations

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Appendix G: VMT Reduction Strategies

Category: Land Use

1. Increase Residential Density

Project Site | Infrastructure

Targeted Trip Reduction: All Trips

Increasing residential density is a land use strategy that has the potential to shift single-occupancy vehicle trips to other modes and therefore decrease project-related VMT. Projects with higher density of dwelling units compared to the national average (9.1 du/acre) are likely to reduce distances people travel and provide greater option for the mode of travel they choose. This measure is most successful when applied to larger developments.

The elasticity of VMT with respect to residential density has been observed to be -0.22, meaning a one percent increase in residential density results in a 0.22 percent decrease in VMT (Stevens 2016). **Assuming a 10 percent increase in residential density, the measure would result in a 2.2 percent reduction in VMT.** The range of effectiveness for this measure is estimated to be 0-25.0 percent based on multifamily residential having 25 percent less VMT per capita than rural residential housing in Ventura County.

This measure can be supported by measures from the VCAPCD's RACM. **Table E-1** summarizes the RACM measures that are relevant to this strategy.

Table E-1: VCAPCD RACM Nexus with Increase Residential Density

Measure No.	Measure Title	Feasible for Ventura County?	Used before in Ventura County?	Potential Implementing Agency
14.3	Land Use/Development Alternatives	Y	Y	Cities, County

Reference:

- California Air Pollution Control Officers Association. (2021). *Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity.*

Source:

- Stevens, M. 2016. *Does Compact Development Make People Drive Less?* Journal of the American Planning Association 83:1(7–18), DOI: 10.1080/01944363.2016.1240044. November. Available: https://www.researchgate.net/publication/309890412_Does_Compact_Development_Make_People_Drive_Less. Accessed: January 2021.

2. Increase Job Density

Project Site | Infrastructure

Targeted Trip Reduction: All Trips

Increasing job density is a land use strategy that has the potential to shift single-occupancy vehicle trips to other modes and therefore decrease project-related VMT. Projects with higher density of jobs compared to the national average (145 jobs/acre) are likely to reduce distances people travel and provide greater option for the mode of travel they choose. This measure is most successful when applied to larger developments.

The elasticity of VMT with respect to residential density has been observed to be -0.07, meaning a one percent increase in residential density results in a 0.07 percent decrease in VMT (Stevens 2016). **Assuming a 10 percent increase in job density, the measure would result in a 0.7 percent reduction in VMT.** The range of effectiveness for this measure is estimated to be 0-30.0 percent.

This measure can be supported by measures from the VCAPCD's RACM. **Table E-2** summarizes the RACM measures that are relevant to this strategy.

Table E-2: VCAPCD RACM Nexus with Increase Job Density

Measure No.	Measure Title	Feasible for Ventura County?	Used before in Ventura County?	Potential Implementing Agency
14.3	Land Use/Development Alternatives	Y	Y	Cities, County

Reference:

- California Air Pollution Control Officers Association. (2021). *Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity.*

Source:

- Stevens, M. 2016. *Does Compact Development Make People Drive Less?* Journal of the American Planning Association 83:1(7–18), DOI: 10.1080/01944363.2016.1240044. November. Available: https://www.researchgate.net/publication/309890412_Does_Compact_Development_Make_People_Drive_Less. Accessed: January 2021.

3. Increase Density (Residential or Job)

Project Site | Infrastructure

Targeted Trip Reduction: All Trips

Increasing density is a land use strategy that has the potential to shift single-occupancy vehicle trips to other modes and therefore decrease project-related VMT. Projects with higher density of jobs compared to the national average (refer to ITE Trip Generation Manual) are likely to reduce distances people travel and provide greater option for the mode of travel they choose.

The elasticity of VMT with respect to residential and/or job density has been observed to be -0.12, meaning a one percent increase in residential density results in a 0.12 percent decrease in VMT (Brownstone 2009). **Assuming a 10 percent increase in job density, the measure would result in a 1.2 percent reduction in VMT.** The range of effectiveness for this measure is estimated to be 0-30.0 percent. The measure is best quantified for project sites with less than ½-mile radius.

This measure can be supported by measures from the VCAPCD's RACM. **Table 3** summarizes the RACM measures that are relevant to this strategy.

Table E-3: VCAPCD RACM Nexus with Increased Density (Residential or Job)

Measure No.	Measure Title	Feasible for Ventura County?	Used before in Ventura County?	Potential Implementing Agency
14.3	Land Use/Development Alternatives	Y	Y	Cities, County

Reference:

- California Air Pollution Control Officers Association. (2010). *Quantifying Greenhouse Gas Mitigation Measures.*

Source:

- Stevens, M. 2016. *Does Compact Development Make People Drive Less?* Journal of the American Planning Association 83:1(7–18), DOI: 10.1080/01944363.2016.1240044. November. Available: https://www.researchgate.net/publication/309890412_Does_Compact_Development_Make_People_Drive_Less. Accessed: January 2021.

4. Provide Transit-Oriented Development

Project Site | Infrastructure

Targeted Trip Reduction: All Trips

Providing transit-oriented development (TOD) is a land use strategy that has the potential to decrease project-related VMT by increasing access to public transit. TOD refers to projects built in compact, walkable areas that have easy access to public transit, ideally in a location with a mix of uses, including housing, retail offices, and community facilities. Project should be within a ten-minute walk (0.5 mile) of a high-frequency transit station (either rail, or bus with headways less than 15 minutes). Incorporate adequate bike and pedestrian access to transit. Project site residents, employees, and visitors would have access to high-quality public transit, thereby encouraging transit ridership.

VMT reduction can be calculated using the ratio of transit mode share for a TOD compared to the surrounding city. This ratio has been observed to be around 4.9 for TODs in California (Lund et al. 2004). The formula for estimating VMT reduction in Ventura County is:

$$A = \frac{B \times C}{D}\ where$$

A = VMT Reduction

B = 3.0% (transit mode share in surrounding city – Ventura County)

C = 4.9 (ratio of transit mode share for a TOD compared to surrounding city)

B = 85.1% (auto mode share in surrounding city – Ventura County)

The measure results in a 20 percent reduction in VMT based on current travel characteristics in Ventura County. The range of effectiveness for this measure is estimated to be 6.9-31.0 percent in California, depending on existing transit use.

This measure can be supported by measures from the VCAPCD's RACM. **Table E-4** summarizes the RACM measures that are relevant to this strategy.

Table E-4: VCAPCD RACM Nexus with Provide Transit Oriented Development

Measure No.	Measure Title	Feasible for Ventura County?	Used before in Ventura County?	Potential Implementing Agency
7.17	Transit Oriented Development	Y	Y	ARB, Cities, County, SCAG, VCAPCD
7.12	Incentives to increase density around transit centers	Y	Y	Cities, County
14.7	Incentives to increase density around transit centers	Y	Y	Cities, County

Reference:

- California Air Pollution Control Officers Association. (2021). *Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity.*
- San Diego Association of Governments. (2019). *Mobility Management VMT Reduction Calculator Tool – Design Document.*
- California Air Pollution Control Officers Association. (2010). *Quantifying Greenhouse Gas Mitigation Measures.*

Source:

- Lund, H., R. Cervero, and R. Wilson. 2004. *Travel Characteristics of Transit-Oriented*

Development in California. January. Available: https://community-wealth.org/sites/clone.community-wealth.org/files/downloads/report-lund-cerv-wil.pdf. Accessed: January 2021.

5. Provide Mixed Use Development

Project Site | Infrastructure

Targeted Trip Reduction: All Trips

Providing mixed use development is a land use strategy that has the potential to decrease VMT by reducing trip lengths and encouraging walking and other non-auto modes of transport. Combining various land uses, such as office, commercial, institutional, and residential in a single building or on a single site in an integrated development project with functional interrelationships and a coherent physical design encourage walking and other non-auto modes of transport from residential to office/commercial/institutional locations (and vice versa). The residential units should be within ¼-mile of parks, schools, or other civic uses. High-quality mixed-use development projects also minimize the need for external trips by including services/facilities for day care, banking/ATM, restaurants, vehicle refueling, and shopping. In suburban settings, a mixed-use development can be achieved by locating various land uses within ¼ mile of one another.

The elasticity of VMT with respect to increase in land use diversity has been observed to be -0.09, meaning a one percent increase in land use diversity results in a 0.09 percent decrease in VMT (Ewing and Cervero 2010). **Assuming a 100 percent increase in land use diversity (which reflects a minimal increase in land use mix in a development compared to baseline), the measure would result in a 9 percent reduction in VMT.** The range of effectiveness for this measure is estimated to be 9-30.0 percent.

This measure can be supported by measures from the VCAPCD's RACM. **Table E-5** summarizes the RACM measures that are relevant to this strategy.

Table E-5: VCAPCD RACM Nexus with Provide Mixed Use Development

Measure No.	Measure Title	Feasible for Ventura County?	Used before in Ventura County?	Potential Implementing Agency
14.3	Land Use/Development Alternatives	Y	Y	Cities, County, SCAG, VCTC

Reference:

- San Diego Association of Governments. (2019). *Mobility Management VMT Reduction Calculator Tool – Design Document.*
- California Air Pollution Control Officers Association. (2010). *Quantifying Greenhouse Gas Mitigation Measures.*

Source:

- Ewing, R., and Cervero, R. 2010. "*Travel and the Built Environment – A Meta-Analysis.*" Journal of the American Planning Association.

6. Increase Destination Accessibility

Project Site | Infrastructure

Targeted Trip Reduction: All Trips

Increasing destination accessibility by locating projects in an area with high accessibility to destinations is a land use strategy that has the potential to decrease project related VMT by reducing trip lengths. Destination accessibility is measured in terms of the number of jobs or other attractions reachable within a given travel time. In practice, it can be represented by the distance to a downtown or major job center. Destination accessibility tends to be highest at central locations and lowest at peripheral ones.

The elasticity of VMT with respect to increase in destination accessibility has been observed to be -0.2, meaning a one percent increase in destination accessibility results in a 0.2 percent decrease in VMT (Ewing and Cervero 2010). **Assuming a project is 8 miles to a downtown or job center, the measure would result in a 6.7 percent reduction in VMT.** The range of effectiveness for this measure is estimated to be 6.7-20.0 percent.

Reference:

- California Air Pollution Control Officers Association. (2010). *Quantifying Greenhouse Gas Mitigation Measures.*

Source:

- Ewing, R., and Cervero, R., "*Travel and the Built Environment - A Meta-Analysis*." Journal of the American Planning Association, (2010). Table E-4.

7. Integrate Affordable and Below Market Rate Housing

Project Site | Infrastructure

Targeted Trip Reduction: Low-income Household Trips

Integrating affordable and below market rate housing is a land use strategy that has the potential to decrease project-related VMT by reducing commute trip lengths and increasing access to transit of below-income households. Below market rate housing provides greater opportunity for lower income families to live closer to jobs centers and achieve jobs/housing match near transit. This strategy potentially encourages building a greater percentage of smaller units that allow a greater number of families to be accommodated on infill and transit-oriented development sites within a given building footprint and height limit. Lower income families tend to have lower levels of auto ownership, allowing buildings to be designed with less parking which, in some cases, represents the difference between a project being economically viable or not. The measure is appropriate for residential and mixed-use projects.

A four percent reduction in vehicle trips for each deed-restricted below market rate unit has been observed (Nelson\Nygaard 2005). **Assuming a project has 1 percent below market rate housing, the measure would result in a 0.04 percent reduction in VMT.** The range of effectiveness for this measure is estimated to be 0.04 – 1.20 percent.

This measure can be supported by measures from the VCAPCD's RACM. **Table E-6** summarizes the RACM measures that are relevant to this strategy.

Table E-6: VCAPCD RACM Nexus with Integrate Affordable and Below Market Rate Housing

Measure No.	Measure Title	Feasible for Ventura County?	Used before in Ventura County?	Potential Implementing Agency
14.6	Transportation for Livable Communities/Housing Incentives Program	Y	Y	SCAG, State, VCTC

Reference:

- California Air Pollution Control Officers Association. (2010). *Quantifying Greenhouse Gas Mitigation Measures.*

Source:

- Nelson\Nygaard, 2005. *Crediting Low-Traffic Developments (p.15)*. http://www.montgomeryplanning.org/transportation/documents/TripGenerationAnalysisUsingURBEMIS.pdf

8. Orient Project Toward Non-Auto Corridor

Project Site | Infrastructure

Targeted Trip Reduction: All Trips

Orienting a project toward a non-auto corridor is a land use strategy that has the potential to decrease project-related VMT by shifting single-occupancy vehicle use to transit, bike, and/or walk modes. This measure is achieved by orienting a project towards a planned or existing transit, bicycle, or pedestrian corridor. Use of the non-auto corridor is encouraged by minimizing set back distances and implementing other strategies including neighborhood design, density and diversity of development, transit accessibility and pedestrian and bicycle network improvements.

The range of effectiveness for VMT reduction from orienting a project toward a non-auto corridor is estimated to be 0.25 – 0.5% (SMAQMD). **Orienting a project toward an existing non-auto corridor result in a 0.5 percent reduction in VMT whereas orienting a project toward a planned non-auto corridor result in a 0.25 percent reduction in VMT.**

Reference:

- California Air Pollution Control Officers Association. (2010). *Quantifying Greenhouse Gas Mitigation Measures.*

Source:

- Sacramento Metropolitan Air Quality Management District (SMAQMD). "Recommended Guidance for Land Use Emission Reductions." http://www.airquality.org/ceqa/GuidanceLUEmissionReductions.pdf

9. Locate Project Near Bike Path/Bike Lane

Project Site | Infrastructure

Targeted Trip Reduction: All Trips

Locating a project near a bike path or bike lane is a land use strategy that has the potential to decrease project-related VMT by shifting single-occupancy vehicle use to bike. A project can be designed within ½ mile of an existing or planned Class I path or Class II bike facility. To achieve highest VMT reduction, the design should include a comparable network that connects the project uses to the existing offsite facilities and grouped with the strategies to increase accessibility to increase the opportunities for multi-modal travel.

The effectiveness of this strategy has been observed to be 0.625 percent decrease in VMT (CCAP 2005).

Reference:

- California Air Pollution Control Officers Association. (2010). *Quantifying Greenhouse Gas Mitigation Measures.*

Source:

- Center for Clean Air Policy (CCAP). *Transportation Emission Guidebook*. http://www.ccap.org/safe/guidebook/guide_complete.html; TIAX Results of 2005 Literature Search Conducted by TIAX on behalf of SMAQMD.

10. Improve Street Connectivity

Off-Site | TDM

Targeted Trip Reduction: All Trips

Improving street connectivity is a land use strategy that has the potential to decrease project related VMT by reducing auto trip lengths. A project has improved street connectivity if it has a higher density of vehicle intersections compared to the surrounding region. Vehicle intersection density can be used as a proxy for street connectivity improvements.

The elasticity of VMT with respect to increase in intersection density has been observed to be -0.14, meaning a one percent increase in destination accessibility results in a 0.14 percent decrease in VMT

(Fehr & Peers 2009). **Assuming a 10 percent increase in intersection density in an area with a typical density of 36 intersections per square mile, the measure would result in a 1.4 percent reduction in VMT.** The range of effectiveness for this measure is estimated to be 0.0-30.0 percent.

This measure can be supported by measures from the VCAPCD's RACM. **Table E-7** summarizes the RACM measures that are relevant to this strategy.

Table E-7: VCAPCD RACM Nexus with Improve Street Connectivity

Measure No.	Measure Title	Feasible for Ventura County?	Used before in Ventura County?	Potential Implementing Agency
7.17	Transit Oriented Development	Y	Y	ARB, Cities, County, SCAG, VCAPCD

Reference:

- California Air Pollution Control Officers Association. (2021). Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity.
- San Diego Association of Governments. (2019). Mobility Management VMT Reduction Calculator Tool – Design Document.
- California Air Pollution Control Officers Association. (2010). Quantifying Greenhouse Gas Mitigation Measures.

Source:

- Fehr & Peers. 2009. Proposed Trip Generation, Distribution, and Transit Mode Split Forecasts for the Bayview Waterfront Project Transportation Study.

Category: Trip Reduction Programs

11. Implement Commute Trip Reduction Program (Voluntary)

Project Site | TDM

Targeted Trip Reduction: Commute Trips

Implementing a voluntary trip reduction program is a strategy that has the potential to decrease project related VMT by reducing commute trips. Trip reduction programs are offered through employers and typically include carpool or vanpool programs, subsidized or discounted transit passes, bike amenities, commute trip-reduction marketing, and/or preferential parking permit programs. These programs discourage single occupancy vehicle trip and encourage alternative modes of transportation.

Voluntary trip reduction programs have been shown to decrease VMT four to six percent for participating employees (Boarnet et al. 2014). VMT reduction from this measure can be calculated based on the percent of employees eligible for the program. The formula for estimating VMT reduction is:

$$A = B \times C \; where$$

A = VMT Reduction

B = 4.0 - 6.0% (VMT reduction for participating employees)

C = 0 – 100% (share of participating employees)

The range of effectiveness for this measure is estimated to be 0 - 6 percent, depending on percent of employees eligible. **Assuming 20 percent employee eligibility, the measure results in around 0.8 percent reduction in VMT.**

This measure can be supported by several measures from the VCAPCD's RACM. **Table E-8** summarizes the RACM measures that are relevant to this strategy.

Table E-8: VCAPCD RACM Nexus with Implement Commute Trip Reduction Program (Voluntary)

Measure No.	Measure Title	Feasible for Ventura County?	Used before in Ventura County?	Potential Implementing Agency
3.1	Commute Solutions	Y	Y	Employers, Transit Operators, VCTC
3.2	Parking Cash-Out	Y	Y	ARB, Employers
3.3	Employer Rideshare Program Incentives	Y	Y	Employers, VCAPCD, VCTC
3.4	Implement Parking Charge Incentive Program	Y	Y	Cities, County, Employers
3.5	Preferential Parking for Carpools and Vanpools	Y	Y	Employers, VCAPCD
3.6	Employee Parking Fees	N	N	
3.7	Merchant Transportation Incentives	N	N	
3.8	Purchase vans for vanpools	Y	Y	Employers
3.9	Encourage merchants and employers to subsidize the cost of transit for employees	Y	Y	VCAPCD, VCTC
3.17	Showers and Lockers at Work	Y	Y	Cities, County, State
3.18	Voluntary Employer Parking Cash-out Subsidy	Y	Y	Cities, County, Employers, State
8.1	Financial Incentives, Including Zero Bus Fares	Y	Y	Employers

Measure No.	Measure Title	Feasible for Ventura County?	Used before in Ventura County?	Potential Implementing Agency
8.3	Preferential parking for carpoolers	Y	Y	Cities, County, Employers, VCTC
8.4	Credits and incentives for carpoolers	Y	Y	Cities, County, Employers, VCTC
8.5	Employers provide vehicles to carpoolers for running errands or emergencies	Y	Y	Cities, County, Employers
8.7	Guaranteed ride home	Y	Y	Employers, VCTC
10.1	Bike racks at work site	Y	Y	Cities, County, Employers, VCTC

Reference:

- California Air Pollution Control Officers Association. (2021). Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity.
- San Diego Association of Governments. (2019). Mobility Management VMT Reduction Calculator Tool – Design Document.
- California Air Pollution Control Officers Association. (2010). Quantifying Greenhouse Gas Mitigation Measures.

Source:

- Boarnet, M., H. Hsu, and S. Handy. 2014. *Impacts of Employer-Based Trip Reduction Programs and Vanpools on Passenger Vehicle Use and Greenhouse Gas Emissions.* September. Available: https://ww2.arb.ca.gov/sites/default/files/2020-06/Impacts_of_Employer-Based_Trip_Reduction_Programs_and_Vanpools_on_Passenger_Vehicle_Use_and_Greenhouse_Gas_Emissions_Policy_Brief.pdf. Accessed: January 2021.

12. Implement Commute Trip Reduction Program (Mandatory Implementation and Monitoring)

Project Site | TDM

Targeted Trip Reduction: Commute Trips

Implementing a trip reduction program with mandatory implementation and monitoring is a strategy that has the potential to decrease project related VMT by reducing commute trips. Trip reduction programs are offered through employers and typically include carpool or vanpool programs, subsidized or discounted transit passes, bike amenities, commute trip-reduction marketing, and/or preferential parking permit programs. These programs discourage single occupancy vehicle trip and encourage alternative modes of transportation. The mandatory program differs from the voluntary program in that employers would be required to offer the program and have regular monitoring and reporting on program use. Mandatory commute trip reduction programs may also have established performance standards.

Trip reduction programs with mandatory implementation and monitoring have been shown to decrease VMT 26 percent for participating employees (Nelson\Nygaard 2015). VMT reduction from this measure can be calculated based on the percent of employees eligible for the program. The formula for estimating VMT reduction is:

$$A = B \times C \text{ where}$$

A = VMT Reduction

B = 26% (VMT reduction for participating employees)

C = 0 – 100% (share of participating employees)

The range of effectiveness for this measure is estimated to be 0 - 26 percent, depending on percent of employees eligible. **Assuming 20 percent employee eligibility, the measure results in around 5.2 percent reduction in VMT.**

This measure can be supported by several measures from the VCAPCD's RACM. **Table E-9** summarizes the RACM measures that are relevant to this strategy.

Table E-9: VCAPCD RACM Nexus with Commute Trip Reduction Program (Voluntary)

Measure No.	Measure Title	Feasible for Ventura County?	Used before in Ventura County?	Potential Implementing Agency
3.1	Commute Solutions	Y	Y	Employers, Transit Operators, VCTC
3.2	Parking Cash-Out	Y	Y	ARB, Employers
3.3	Employer Rideshare Program Incentives	Y	Y	Employers, VCAPCD, VCTC

Measure No.	Measure Title	Feasible for Ventura County?	Used before in Ventura County?	Potential Implementing Agency
3.4	Implement Parking Charge Incentive Program	Y	Y	Cities, County, Employers
3.5	Preferential Parking for Carpools and Vanpools	Y	Y	Employers, VCAPCD
3.6	Employee Parking Fees	N	N	
3.7	Merchant Transportation Incentives	N	N	
3.8	Purchase vans for vanpools	Y	Y	Employers
3.9	Encourage merchants and employers to subsidize the cost of transit for employees	Y	Y	VCAPCD, VCTC
3.17	Showers and Lockers at Work	Y	Y	Cities, County, State
3.18	Voluntary Employer Parking Cash-out Subsidy	Y	Y	Cities, County, Employers, State
8.1	Financial Incentives, Including Zero Bus Fares	Y	Y	Employers
8.3	Preferential parking for carpoolers	Y	Y	Cities, County, Employers, VCTC
8.4	Credits and incentives for carpoolers	Y	Y	Cities, County, Employers, VCTC
8.5	Employers provide vehicles to carpoolers for running errands or emergencies	Y	Y	Cities, County, Employers
8.7	Guaranteed ride home	Y	Y	Employers, VCTC
10.1	Bike racks at work site	Y	Y	Cities, County, Employers, VCTC

Reference:

- California Air Pollution Control Officers Association. (2021). Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity.
- San Diego Association of Governments. (2019). Mobility Management VMT Reduction Calculator Tool – Design Document.
- California Air Pollution Control Officers Association. (2010). Quantifying Greenhouse Gas Mitigation Measures.

Source:

- Nelson/Nygaard Consulting Associates. 2015. *Genentech–South San Francisco Campus TDM and Parking Report*. June. Available: http://ci-ssf-ca.granicus.com/MetaViewer.php?view_id=2&clip_id=859&meta_id=62028. Accessed: January 2021.

13. Implement Commute Trip Reduction Marketing

Project Site | TDM

Targeted Trip Reduction: Commute Trips

Implementing a trip reduction program through marketing is a strategy that has the potential to decrease project related VMT by reducing commute trips. Trip reduction programs are offered through employers and typically include carpool or vanpool programs, subsidized or discounted transit passes, bike amenities, commute trip-reduction marketing, and/or preferential parking permit programs. These programs discourage single occupancy vehicle trip and encourage alternative modes of transportation. The mandatory program differs from the voluntary program in that employers would be required to offer the program and have regular monitoring and reporting on program use. Mandatory commute trip reduction programs may also have established performance standards.

Trip reduction programs with mandatory implementation and monitoring have been shown to decrease VMT 26 percent for participating employees (Nelson\Nygaard 2015). VMT reduction from this measure can be calculated based on the percent of employees eligible for the program. The formula for estimating VMT reduction is:

$$A = B \times C \text{ } where$$

A = VMT Reduction

B = 26% (VMT reduction for participating employees)

C = 0 – 100% (share of participating employees)

The range of effectiveness for this measure is estimated to be 0 - 26 percent, depending on percent of employees eligible. **Assuming 20 percent employee eligibility, the measure results in around 5.2 percent reduction in VMT.**

This measure can be supported by measures from the VCAPCD's RACM. **Table E-10** summarizes the RACM measure that is relevant to this strategy.

Table E-10: VCAPCD RACM Nexus with Implement Commute Trip Reduction Program (Voluntary)

Measure No.	Measure Title	Feasible for Ventura County?	Used before in Ventura County?	Potential Implementing Agency
3.1	Commute Solutions	Y	Y	Employers, Transit Operators, VCTC

Reference:

- California Air Pollution Control Officers Association. (2021). *Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity.*
- San Diego Association of Governments. (2019). *Mobility Management VMT Reduction Calculator Tool – Design Document.*
- California Air Pollution Control Officers Association. (2010). *Quantifying Greenhouse Gas Mitigation Measures.*

Source:

- Nelson/Nygaard Consulting Associates. 2015. *Genentech–South San Francisco Campus TDM and Parking Report*. June. Available: http://ci-ssf-ca.granicus.com/MetaViewer.php?view_id=2&clip_id=859&meta_id=62028. Accessed: January 2021.

14. Provide Ridesharing Program

Project Site | TDM

Targeted Trip Reduction: Commute Trips

Implementing a ridesharing program is a strategy that has the potential to decrease project related VMT by reducing commute trips. Ridesharing programs are typically offered through employers but can also be implemented by non-employer agencies. An employer can provide and promote ridesharing by:

- Managing and/or funding a ride-sharing program
- Designating a certain percentage of parking spaces for ride sharing vehicles
- Designating adequate passenger loading and unloading and waiting areas for ride-sharing vehicles
- Providing a web site or message board for coordinating rides

Ridesharing programs with have been shown to decrease VMT up to 5 percent for participating employees in suburban locations (Ewing 1993). VMT reduction from this measure can be calculated based on the percent of employees participating in the program. The formula for estimating VMT reduction is:

$$A = B \times C \text{ where}$$

A = VMT Reduction

B = 0-5% (VMT reduction for participating employees)

C = 0 – 100% (share of participating employees)

The range of effectiveness for this measure is estimated to be 0 - 20 percent, depending on percent of employees participating. **Assuming 20 percent employee participate, the measure results in around 0.8 percent reduction in VMT in a suburban location.**

This measure can be supported by measures from the VCAPCD's RACM. **Table E-11** summarizes the RACM measures that are relevant to this strategy.

Table E-11: VCAPCD RACM Nexus with Implement Ridesharing Program

Measure No.	Measure Title	Feasible for Ventura County?	Used before in Ventura County?	Potential Implementing Agency
3.3	Employer Rideshare Program Incentives	Y	Y	Employers, VCAPCD, VCTC
8.10	Rideshare and Vanpool Services (Non-employer based)	Y	Y	CTC, Transit Operators, Cities, County

Reference:

- California Air Pollution Control Officers Association. (2021). *Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity.*
- San Diego Association of Governments. (2019). *Mobility Management VMT Reduction Calculator Tool – Design Document.*
- California Air Pollution Control Officers Association. (2010). *Quantifying Greenhouse Gas Mitigation Measures.*

Source:

- Ewing, R. 1993. "TDM, Growth Management and the Other Four out of Five Trips." Transportation Quarterly, Vol. 48, No. 3.

15. Implement Subsidized or Discounted Transit Program

Project Site | TDM

Targeted Trip Reduction: Commute Trips

Implementing a subsidized or discounted transit program is a strategy that has the potential to decrease project related VMT by reducing commute trips by reducing the cost of travel by transit and thus making transit a more attractive travel option. Subsidized or discounted transit programs can be both employee-based or resident-based. An employer or agency can provide and promote ridesharing for employees or residents by:

- Provide subsidized/discounted or daily or monthly public transit passes for employees and/or residents
- Provide free transfers between all shuttles and transit to participants

The elasticity of transit boardings with respect to transit fare price has been observed to be 0.43, meaning a one percent decrease in transit fare price results in a 0.43 percent increase in transit boardings (Taylor 2008). VMT reduction from this measure can be calculated based on the percent of residents/employees eligible in the program. The formula for estimating VMT reduction is:

$$A = B \times C \times D \times E \times F \text{ where}$$

A = VMT Reduction

B = 0.43 (elasticity of transit boardings with respect to transit fare price)

C = 0 – 100% (share of participating employees)

D = 3% (transit commute mode share for Ventura County)

E = 0-100% (transit subsidy)

F = 0-100% (project generated VMT from employees/residents)

Assuming a program provides 100 percent transit subsidy (free transit use), 20 percent employee/resident eligibility, and 100 percent project generated VMT from employees/residents a project, the measure would result in around 0.13 percent reduction in VMT. The range of effectiveness for this measure is estimated to be 0 – 0.65 percent in Ventura County, depending on percent of employees participating.

This measure can be supported by measures from the VCAPCD's RACM. **Table E-12** summarizes the RACM measures that are relevant to this strategy.

Table E-12: VCAPCD RACM Nexus with Implement Subsidized or Discounted Transit Program

Measure No.	Measure Title	Feasible for Ventura County?	Used before in Ventura County?	Potential Implementing Agency
1.13	Half Price Fares on Feeder Bus Services	N	Y	*(not economically feasible)*
8.1	Financial Incentives, Including Zero Bus Fares	Y	Y	Employers

Reference:

- California Air Pollution Control Officers Association. (2021). *Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity.*
- San Diego Association of Governments. (2019). *Mobility Management VMT Reduction Calculator Tool – Design Document.*
- California Air Pollution Control Officers Association. (2010). *Quantifying Greenhouse Gas Mitigation Measures.*

Source:

- Taylor, B., D. Miller, H. Iseki, and C. Fink. 2008. Nature and/or Nurture? Analyzing the Determinants of Transit Ridership Across US Urbanized Areas. Transportation Research Part A:

Policy and Practice, 43(1), 60-77. Available: https://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.367.5311&rep=rep1&type=pdf. Accessed: January 2021.

16. Provide Employer-Sponsored Vanpool

Project Site | TDM

Targeted Trip Reduction: Commute Trips

An employer-sponsored vanpool program is a strategy that has the potential to decrease project related VMT by reducing commute trips by replacing single-occupancy auto trips with vanpool trips. Vanpooling is a flexible form of public transportation that provides a cost-effective a convenient ridesharing option for groups of 5 to 15 people. Rider charges are normally set based on vehicle and operating cost. An employer can sponsor vanpooling by:

- Purchasing or leasing vans for employee use
- Subsidizing the cost of at least program administration
- Preferential parking for vanpool

Employee vanpool participation rate has been observed to be 2.7 percent, average length of one-way vanpool commute trips is 42.0 miles, and average vanpool occupancy has been observed to be 6.25 occupants (SANDAG 2019). VMT reduction from this measure can be calculated based on the average length of one-way vehicle commute trips in the region. The formula for estimating VMT reduction is:

$$A = \frac{\big((1-B)\ \times C\big) + (B \times \frac{D}{E})}{\big((1-B)\ \times C\big) + (B \times D)} where$$

A = VMT Reduction

B = 2.7% (percent of employees that participate in vanpool)

C = 18.0 miles (average length of one-way vehicle commute trip in Ventura County)

D = 42.0 (average length of one-way vanpool commute trip)

E = 6.25 occupants (average vanpool occupancy including driver)

An employer-sponsored vanpool program is estimated to reduce VMT around 5.11 percent.

This measure can be supported by several measures from the VCAPCD's RACM. **Table E-13** summarizes the RACM measures that are relevant to this strategy.

Table E-13: VCAPCD RACM Nexus with Provide Employer-Sponsored Vanpool

Measure No.	Measure Title	Feasible for Ventura County?	Used before in Ventura County?	Potential Implementing Agency
3.5	Preferential Parking for Carpools and Vanpools	Y	Y	*Employers, VCAPCD*
3.8	Purchase vans for vanpools	Y	Y	Employers
6.3	Regional Parking Regulations to Provide Incentives for alternative transportation modes (vanpools)	Y	Y	Cities, County, SCAG, VCTC
8.7	Guaranteed ride home	Y	Y	Employers, VCTC
8.10	Rideshare and Vanpool Services	Y	Y	CTC, Transit Operators, Cities, County

Reference:

- California Air Pollution Control Officers Association. (2021). *Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity.*
- San Diego Association of Governments. (2019). *Mobility Management VMT Reduction Calculator Tool – Design Document.*
- California Air Pollution Control Officers Association. (2010). *Quantifying Greenhouse Gas Mitigation Measures.*

Source:

- SANDAG. 2018. Commute Behavior Survey.
- SANDAG. 2018. SANDAG Vanpool Program
- Transportation Research Board. 2005. *"TCRP Report 95 Chapter 5 Buspools and Vanpools."* trb.org/Publications/TCRPReport95.aspx

17. Price Workplace Parking

Project Site | TDM

Targeted Trip Reduction: Commute Tr

Pricing workplace parking is a strategy that has the potential to decrease project related VMT by reducing commute trips by increase the cost of personal auto travel to disincentivizing auto trips. Pricing workplace parking may include:

- explicitly charging for parking for its employees
- implementing above market rate pricing
- validating parking only for invited guests
- not providing employee parking and transportation allowances
- educating employees about available alternatives

The elasticity of parking demand with respect to parking price has been observed to be -0.4, meaning a one percent increase in parking price results in a 0.4 percent decrease in parking demand (Lehner & Peer 2019). VMT reduction from this measure can be calculated based on the change in parking price and share of employees paying for parking. The formula for estimating VMT reduction is:

$$A = B \times C \times D \text{ where}$$

A = VMT Reduction

B = Proposed change in parking price (if baseline parking is free, set to 50%)

C = 0 – 100% (share of employees paying for parking)

D = 0.4 (elasticity of parking demand with respect to parking price)

Assuming the baseline parking is free, 20 percent employee eligibility, the measure would result in around 4 percent reduction in VMT. The range of effectiveness for this measure is estimated to be 0 – 20 percent in Ventura County, depending on percent of employees participating. This strategy is also dependent on parking management of adjacent street and lot parking to reduce the unintended consequences of employees parking in adjacent areas.

This measure can be supported by several measures from the VCAPCD's RACM. **Table E-14** summarizes the RACM measures that are relevant to this strategy.

Table E-14: VCAPCD RACM Nexus with Price Workplace Parking

Measure No.	Measure Title	Feasible for Ventura County?	Used before in Ventura County?	Potential Implementing Agency
3.4	Implement Parking Charge Incentive Program	Y	Y	*Cities, County, Employers*
3.6	Employee Parking Fees	N	N	*Not technologically feasible because the region is not urbanized enough to make it effective and could have negative effect to public parking areas (curb parking).*
5.8	On-Street Parking Restrictions	N	N	*No authority to implement*
5.29	On-Street Parking Restrictions	Y	Y	*State, County, Cities*
7.5	Area-wide tax for parking	N	N	*No authority to implement*
7.6	Increase parking fees	N	N	*No authority to implement*
7.7	Graduated pricing starting with highest in Central Business District	N	N	*No authority to implement*

Measure No.	Measure Title	Feasible for Ventura County?	Used before in Ventura County?	Potential Implementing Agency
7.19	Increase fees for parking garages and meters during ozone episodes	N	N	*Not economically feasible*
7.20	Charge city-owned parking garage pass holders a fee for more than one entrance and exit each day	N	N	*Not economically feasible*

Reference:

- California Air Pollution Control Officers Association. (2021). *Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity.*
- San Diego Association of Governments. (2019). *Mobility Management VMT Reduction Calculator Tool – Design Document.*
- California Air Pollution Control Officers Association. (2010). *Quantifying Greenhouse Gas Mitigation Measures.*

Source:

- SANDAG. 2018. Commute Behavior Survey.
- SANDAG. 2018. SANDAG Vanpool Program
- Transportation Research Board. 2005. *"TCRP Report 95 Chapter 5 Buspools and Vanpools."* trb.org/Publications/TCRPReport95.asp

18. Implement Employee Parking Cash-Out

Project Site | TDM

Targeted Trip Reduction: Commute Trips

Implementing employee parking cash-out is a strategy that has the potential to decrease project related VMT by reducing commute trips by incentivizing employees to not use personal auto to commute. Employee parking cash-out is when employers provide employees with a choice to forgo their current subsidized/free parking for a cash payment equivalent to or greater than the cost of the parking space.

The VMT reduction for employees eligible for parking cash-out has been observed to be 12 percent (Shoup 2005). VMT reduction from this measure can be calculated based on the share of employees eligible for parking. The formula for estimating VMT reduction is

$$A = B \times C \ \ where$$

A = VMT Reduction

B = 12% (VMT reduction for employees eligible for parking cash-out)

C = 0 – 100% (share of employees eligible for parking cash-out program)

Assuming 20 percent employee eligibility, the measure would result in around 2.4 percent reduction in VMT. The range of effectiveness for this measure is estimated to be 0 – 20 percent, depending on percent of employees participating.

This measure can be supported by measures from the VCAPCD's RACM. **Table E-15** summarizes the RACM measures that are relevant to this strategy.

Table E-15: VCAPCD RACM Nexus with Price Workplace Parking

Measure No.	Measure Title	Feasible for Ventura County?	Used before in Ventura County?	Potential Implementing Agency
3.2	Parking Cash-Out	Y	Y	ARB, Employers
3.18	Voluntary Employer Parking Cash-out Subside	Y	Y	Cities, County, Employers, State
3.23	Extend parking cash-out rule to more employer	N	N	*Requires State legislation*

Reference:

- California Air Pollution Control Officers Association. (2021). *Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity.*
- San Diego Association of Governments. (2019). *Mobility Management VMT Reduction Calculator Tool – Design Document.*
- California Air Pollution Control Officers Association. (2010). *Quantifying Greenhouse Gas Mitigation Measures.*

Source:

- Shoup, D. 2005. Parking Cash Out. Planners Advisory Service, American Planning Association. Available: http://shoup.bol.ucla.edu/ParkingCashOut.pdf. Accessed: January 2021.

19. Telework and Alternative Work Schedules

Project Site | TDM

Targeted Trip Reduction: Commute Trips

Broadband internet allows for more efficient telecommuting, telehealth, and other virtual replacements for in-person encounters requiring travel. Telework and alternative work schedule is a strategy that has the potential to decrease project related VMT by reducing commute trips. Telework and alternative work schedules can be a combination of telework, staggered staring times, flexible schedules, or compressed work weeks. **VMT reduction for commute trips has been estimated to be 0.15 percent for 1 percent of employees telecommuting 1 day a week, 0.29 percent for 2 days a week, and 0.44% for 3 days a week.**

This measure can be supported by measures from the VCAPCD's RACM. **Table E-16** summarizes the RACM measures that are relevant to this strategy.

Table E-16: VCAPCD RACM Nexus with Price Workplace Parking

Measure No.	Measure Title	Feasible for Ventura County?	Used before in Ventura County?	Potential Implementing Agency
13.1	Alternative Work Schedules	Y	Y	Employers, VCAPCD
13.2	Modified Work Schedules	Y	Y	Employers, VCAPCD
13.3	Telecommunication - Telecommuting	Y	Y	SCAG, VCAPCD

Reference:

- San Diego Association of Governments. (2019). *Mobility Management VMT Reduction Calculator Tool – Design Document.*
- California Air Pollution Control Officers Association. (2010). *Quantifying Greenhouse Gas Mitigation Measures.*

Source:

- Cambridge Systematics. 2009. "Moving Cooler: An Analysis of Transportation Strategies for Reducing Greenhouse Gas Emissions." Technical Appendices. Prepared for the Urban Land Institute. reconnectingamerica.org/assets/Uploads/2009movingcoolerexecsumandappend.pdf
- Fuhr, J.P. Jr. & Pociask, S.B. (2011). Broadband and Telecommuting: Helping the U.S. Environment and the Economy. Low Carbon Economy Journal. Retrieved from http://www.scirp.org/journal/PaperInformation.aspx?paperID=4227.

20. Provide End of Trip Facilities (such as on-site food service, gym, shower)

Project Site | Infrastructure

Targeted Trip Reduction: Commute Trips

Providing and maintaining end of trip facilities is a strategy that has the potential to decrease project related VMT by reducing auto-commute trips by making non-motorized travel more attractive. End of trip facilities typically are designed for bicycle riders and include bike parking, showers, secure bicycle/personal lockers and changing spaces for employee use.

Employees with access to end of trip facilities have been observed to be 1.78 times more likely to bike to work than those without such facilities (Buehler 2012). VMT reduction from this measure can be calculated based on the existing bicycle and vehicle trip lengths and commute mode shares. The formula for estimating VMT reduction is:

$$A = \frac{C \times (E \times (B \times E))}{D \times F} \; where$$

A = VMT Reduction

B = 1.78 (bike mode adjustment factor)

C = 0.6 miles (existing bicycle trip length in Ventura County)

D = 18.0 miles (existing vehicle trip length in Ventura County)

E=0.7% (existing bicycle commute mode share in Ventura County)

F = 95.8% (existing vehicle commute mode share in Ventura County)

The VMT reduction by providing end of trip facilities is estimated to be 6.14% in Ventura County.

This measure can be supported by measures from the VCAPCD's RACM. **Table E-17** summarizes the RACM measures that are relevant to this strategy.

Table E-17: VCAPCD RACM Nexus with End of Trip Facilities

Measure No.	Measure Title	Feasible for Ventura County?	Used before in Ventura County?	Potential Implementing Agency
3.17	Showers and Lockers at Work	Y	Y	Cities, County, State
10.1	Bike racks at work sites	Y	Y	Cities, County, Employers, VCTC
10.3	Regional Bike Parking Ordinance for all new construction	N	N	*No authority to implement*

Reference:

- California Air Pollution Control Officers Association. (2021). *Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity.*
- California Air Pollution Control Officers Association. (2010). *Quantifying Greenhouse Gas Mitigation Measures.*

Source:

- Buehler, R. 2012. Determinants of bicycle commuting in the Washington, DC region: The role bicycle parking, cyclist showers, and free car parking at work. Transportation Research Part D, 17, 525–531. Available: http://www.pedbikeinfo.org/cms/downloads/DeterminantsofBicycleCommuting.pdf. Accessed: January 2021.

21. Provide Community-Based Travel Planning

Off-Site | TDM

Targeted Trip Reduction: Commute Trips

Providing community-based travel planning is a strategy that has the potential to decrease project related VMT by reducing commute trips. CBTP is a residential based approach to outreach that provides households with customized information, incentives, and support to encourage the use of transportation alternatives in place of single occupancy vehicles. Travel advisor administrators consult residents to offer personalized information, incentives, and advice about how members of households can travel in alternative ways that meet their needs.

It is estimated that 19 percent of residents targeted will participate and participating residents have a 12 percent reduction in VMT (MTC 2021). **The measure would result in around 2.3 percent reduction in VMT per resident in a plan/community are targeted for the CBTP program.** The range of effectiveness for this measure is estimated to be 0 – 2.3 percent, depending on share of residents targeted for CBTP.

Reference:

- California Air Pollution Control Officers Association. (2021). *Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity.*
- San Diego Association of Governments. (2019). *Mobility Management VMT Reduction Calculator Tool – Design Document.*

Source:

- Metropolitan Transportation Commission (MTC). Forthcoming June 2021. Plan Bay Area 2050, Supplemental Report.

22. Implement School Pool Program

Off-Site | TDM

Targeted Trip Reduction: School Trip

Implementing a school pool program is a strategy that has the potential to decrease project related VMT by reducing auto-school trips by facilitating carpooling for school children. A school pool program is an alternative an alternative to auto or bus trips. School pool programs are ridesharing programs that help match parents to transport students to school. It can be a viable school trip reduction option where students cannot walk or bike but do not meet the requirements for bussing.

School VMT reduction is dependent on the share of family participation. School pool program participation has been observed to be up to 35 percent. **Assuming 15 percent of families participate in the school pool program, the measure would result in around 7.2 percent reduction in school VMT.** The range of effectiveness for this measure is estimated to be 0-15.8 percent.

This measure can be supported by measures from the VCAPCD's RACM. **Table E-18** summarizes the RACM measures that are relevant to this strategy.

Table E-18: VCAPCD RACM Nexus with School Pool Program

Measure No.	Measure Title	Feasible for Ventura County?	Used before in Ventura County?	Potential Implementing Agency
8.6	School carpools	N	N	No authority to implement

Reference:

- California Air Pollution Control Officers Association. (2010). *Quantifying Greenhouse Gas Mitigation Measures.*

Source:

- Denver Regional Council of Governments (DRCOG). Survey of Schoolpool Participants, April 2008. http://www.drcog.org/index.cfm?page=SchoolPool.

23. Implement School Bus Program

Off-Site | Infrastructure

Targeted Trip Reduction: School Trips

Implementing a school bus program is a strategy that has the potential to decrease project related VMT by reducing auto-school trips. A school bus program can either create, restore, or expand school bus service in the project area.

School VMT reduction is dependent on the share of family participation. School bus program participation has been observed to be up to 85 percent. **Assuming 50 percent of families participate in the school pool program, the measure would result in around 38 percent reduction in school VMT**. The range of effectiveness for this measure is estimated to be 0-63 percent.

Reference:

- California Air Pollution Control Officers Association. (2010). *Quantifying Greenhouse Gas Mitigation Measures.*

Source:

- JD Franz Research, Inc.; Lamorinda School Bus Program, 2003 Parent Survey, Final Report; January 2004;

Category: Parking or Road Pricing/Management

24. Provide Electric Vehicle Charging Infrastructure

Project Site | Infrastructure

Targeted Trip Reduction: All Trips

Pricing electric vehicle charging infrastructure is a strategy that has the potential replace non-ZEV VMT with ZEV VMT. The charging infrastructure will enable drivers of plug-in hybrid electric vehicles to drive a larger share of miles in electric mode, as opposed to gasoline powered mode. **This measure is not estimated to reduce VMT, however it would substitute fuel trips 1:1 to non-ZEV trips.**

Reference:

- California Air Pollution Control Officers Association. (2021). *Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity.*
- California Air Pollution Control Officers Association. (2010). *Quantifying Greenhouse Gas Mitigation Measures.*

25. Limit Residential Parking Supply

Project Site | Infrastructure

Targeted Trip Reduction: Home-Based Trips

Limiting residential parking supply is a strategy that has the potential to decrease project related VMT by reducing home-based trips by adding additional time and inconvenience to trips made by private auto. This strategy can be achieved by eliminating/reducing minimum parking requirements, creating maximum parking requirements, and/or providing shared parking.

Auto commute mode share has been observed to decrease 37 percent for households in areas with scarce parking (Chatman 2013). VMT reduction from this measure can be estimated based on residential parking supply and demand and percent of household VMT that is commute based. The formula for estimating VMT reduction is:

$$A = \frac{B - C}{B} \times D \times E \times F \ where$$

A = VMT Reduction

B = residential parking demand

C = project residential parking supply

D = (0-100%) percentage of project VMT generated by residents)

E = 37% (percent of household VMT that is commute based; Caltrans 2012)

F = 37% (percent reduction in commute mode share by driving among households in areas with scarce parking)

Assuming a 5 percent undersupply of parking, the VMT reduction by limiting residential parking supply is estimated to be 0.68 percent. The range of effectiveness of this measure is estimated to be between 0-13.7 percent.

This measure can be supported by measures from the VCAPCD's RACM. **Table E-19** summarizes the RACM measures that are relevant to this strategy.

Table E-19: VCAPCD RACM Nexus with Limit Residential Parking Supply

Measure No.	Measure Title	Feasible for Ventura County?	Used before in Ventura County?	Potential Implementing Agency
5.5	Removal of On-Street Parking	N	N	*No authority to implement*
5.8	On-Street Parking Restrictions	N	N	*No authority to implement*
5.29	On-Street Parking Restrictions	Y	Y	State, County, Cities
7.8	Buy parking lots and convert to other land use	N	N	*Not technologically feasible because the area is too rural to be able to make this effective*

Reference:

- California Air Pollution Control Officers Association. (2021). *Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity.*
- California Air Pollution Control Officers Association. (2010). Quantifying Greenhouse Gas Mitigation Measures.

Source:

- Chatman, D. 2013. Does TOD need the T? On the importance of factors other than rail access. Journal of the American Planning Association 79(1). Available: https://trid.trb.org/view/1243004 . Accessed: January 2021.

26. Unbundle Residential Parking Costs from Property Cost

Project Site | Infrastructure

Targeted Trip Reduction: Home-Based Trips

Unbundling residential parking costs from property costs is a strategy that has the potential to decrease project related VMT by reducing home-based trips by requiring those who wish to purchase parking spaces to do so at an additional cost. This strategy can be achieved by pricing parking separately from home rents/purchase prices.

The elasticity of vehicle ownership with respect to increase in vehicle costs has been observed to be -0.4, meaning a one percent increase in vehicle ownership costs results in a 0.4 percent decrease in vehicle ownership (Litman 2020). VMT reduction from this measure can be calculated based on the parking cost per space relative to vehicle ownership cost. The formula for estimating VMT reduction is:

$$A = \frac{B}{C} \times D \times E \;\; where$$

A = VMT Reduction

B = Annual parking cost per space

C = $9,282 (average annual vehicle cost, AAA 2019)

D = -0.4 (elasticity of vehicle ownership with respect to total vehicle cost)

E = 1.01 (Adjustment factor from vehicle ownership to VMT, FHWA 2017)

Assuming a $25/month ($300/year) parking fee, the measure would result in around 1.31 percent reduction in VMT. The range of effectiveness for this measure is estimated to be 0 – 15.7 percent in, depending on the parking cost.

Reference:

- California Air Pollution Control Officers Association. (2021). *Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity.*
- California Air Pollution Control Officers Association. (2010). *Quantifying Greenhouse Gas Mitigation Measures.*

Source:

- Litman, T. 2020. Parking Requirement Impacts on Housing Affordability. June. Available: https://www.vtpi.org/park-hou.pdf. Accessed: January 2021.
- AAA. 2019. Your Driving Costs. September. Available: https://exchange.aaa.com/wp-content/uploads/2019/09/AAA-Your-Driving-Costs-2019.pdf. Accessed: January 2021.
- Federal Highway Administration (FHWA). 2017. National Household Travel Survey – 2017 Table E-Designer. Annual VMT / Vehicle by Count of Household Vehicles in California. Available: https://nhts.ornl.gov/. Accessed: March 2021.

27. Implement Market Price Public Parking (On-Street)

Off Site | Infrastructure

Targeted Trip Reduction: All Trips

Implementing market pricing for on-street public parking is a strategy that has the potential to decrease project related VMT by reducing vehicle trips by adding additional cost to auto trips. This strategy can be achieved by price all on-street parking in a community and is most effective when implemented near central business districts, employment centers, and retail centers. This strategy can be used in combination with pricing project site parking to deter parking spillover. Paid parking encourages park once behavior, area-wide mode shifts to transit and bike/walk.

The elasticity of parking demand with respect to parking price has been observed to be 0.4, meaning a one percent increase in parking costs results in a 0.4 percent decrease in parking demand (Pierce & Shoup 2013). VMT reduction from this measure can be calculated based on the increase in parking price and the percentage of trips parking on street. The formula for estimating VMT reduction is:

$$A = B \times C \times D \ \ where$$

A = VMT Reduction

B = (0-100%) Percent Increase in parking price

C = 0.4 (elasticity of parking demand with respect to parking cost)

D = (0-100%) percent of trips parking on street

Assuming a 25 percent increase in parking fee and 75 percent of trips parking on street, the measure would result in around 7.5 percent reduction in VMT. The range of effectiveness for this measure is estimated to be 0 – 30 percent in.

Reference:

- California Air Pollution Control Officers Association. (2021). *Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity.*
- California Air Pollution Control Officers Association. (2010). *Quantifying Greenhouse Gas Mitigation Measures.*

Source:

- Pierce, G., and D. Shoup. 2013. Getting the Prices Right: An Evaluation of Pricing Parking by Demand in San Francisco. Journal of the American Planning Association 79(1)67–81. May. Available: https://www.tandfonline.com/doi/pdf/10.1080/01944363.2013.787307?needAccess=true. Accessed: January 2021.

28. Require Residential Area Parking Permits

Off Site | Infrastructure

Targeted Trip Reduction: Home-Based Trips

Requiring residential area parking permits is a strategy that has the potential to decrease project related VMT by reducing home-based vehicle trips by adding additional cost to vehicle ownership. This strategy can be achieved by requiring the purchase of residential parking permits for long-term use of on-street parking in residential areas. This strategy can be used in combination with pricing project site parking to deter parking spillover.

The elasticity of VMT with respect to vehicle ownership price has been observed to be 0.45, meaning a one percent increase in vehicle ownership costs due to parking permit requirement results in a 0.45 percent decrease in VMT (Cambridge Systematics 2009). VMT reduction from this measure can be calculated based on the increase in parking price and the percentage of trips parking on street. The formula for estimating VMT reduction is:

$$A = \frac{B}{C} \times D \times E \;\; where$$

A = VMT Reduction

B = Annual parking permit cost

C = $9,282 (average annual vehicle cost, AAA 2019)

D = -0.45 (elasticity of VMT with respect to total vehicle cost)

Assuming a $25/month ($300/year) parking permit cost, the measure would result in around 1.45 percent reduction in VMT.

Reference:

- California Air Pollution Control Officers Association. (2010). *Quantifying Greenhouse Gas Mitigation Measures.*

Source:

- Cambridge Systematics. Moving Cooler: An Analysis of Transportation Strategies for Reducing Greenhouse Gas Emissions. Technical Appendices. Prepared for the Urban Land Institute. http://www.movingcooler.info/Library/Documents/Moving%20Cooler_Appendix%20B_Effectiveness_102209.pdf.
- AAA. 2019. Your Driving Costs. September. Available: https://exchange.aaa.com/wp-content/uploads/2019/09/AAA-Your-Driving-Costs-2019.pdf. Accessed: January 2021.

29. Implement Area or Cordon Pricing

Off Site | Infrastructure

Targeted Trip Reduction: All Trips

Implementing area or cordon pricing is a strategy that has the potential to decrease project related VMT by reducing vehicle trips by adding additional cost to vehicle trips. This strategy can be achieved by charging a toll to enter an area by vehicle. Cordon pricing is typically used at central business districts or urban centers and pricing can vary by time-of-day/congestion levels. Cordon pricing can result in mode shift if there are transit or non-motorized alternatives.

The elasticity of VMT with respect to vehicle ownership price has been observed to be 0.45, meaning a one percent increase in vehicle ownership costs due to parking permit requirement results in a 0.45 percent decrease in VMT (Cambridge Systematics 2009). VMT reduction from this measure can be calculated based on the increase in parking price and the percentage of trips parking on street. The formula for estimating VMT reduction is:

$$A = \frac{B}{C} \times D \ \times E \ \ where$$

A = VMT Reduction

B = Annual cordon pricing toll cost

C = $9,282 (average annual vehicle cost, AAA 2019)

D = -0.45 (elasticity of VMT with respect to total vehicle cost)

Assuming a $100/month ($1200/year) cordon toll cost, the measure would result in around 5.8 percent reduction in VMT.

Reference:

- California Air Pollution Control Officers Association. (2010). *Quantifying Greenhouse Gas Mitigation Measures.*

Source:

- Cambridge Systematics. Moving Cooler: An Analysis of Transportation Strategies for Reducing Greenhouse Gas Emissions. Technical Appendices. Prepared for the Urban Land Institute. http://www.movingcooler.info/Library/Documents/Moving%20Cooler_Appendix%20B_Effectiveness_102209.pdf.
- AAA. 2019. Your Driving Costs. September. Available: https://exchange.aaa.com/wp-content/uploads/2019/09/AAA-Your-Driving-Costs-2019.pdf. Accessed: January 2021.

30. Install Park-and-Ride Lots

Off Site | Infrastructure

Targeted Trip Reduction: Commute Trips

Installing park-and-ride lots in coordination with transit agencies is a strategy that has the potential to decrease project related VMT by reducing commute trips by shifting trips to transit or carpooling. **Installing park-and-ride lots has been observed to reduce VMT by 0.1-0.5%.**

Reference:

- California Air Pollution Control Officers Association. (2010). *Quantifying Greenhouse Gas Mitigation Measures.*

Source:

- Washington State Department of Transportation. Cost Effectiveness of Park-and-Ride Lots in the Puget Sound Area. http://www.wsdot.wa.gov/research/reports/fullreports/094.1.pdf

Category: Neighborhood Design

31. Construct or Improve Bike Facility

Off Site | TDM

Targeted Trip Reduction: All Trips

Constructing or improving a bike facility is a strategy that has the potential to decrease project related VMT by enabling mode shift to biking. This strategy can be achieved by incorporating bike lanes, routes, and share-use paths (Class I, II, or IV) into the street system, improving bicycle network connectivity, adding/improving bike wayfinding, and/or increasing bicycle access to transit hubs.

VMT reduction from this measure can be estimated based on factors such as percent of plan/community VMT on parallel roadway and existing regional average bike and vehicle trip length. The formula for estimating VMT reduction is:

$$A = B \times \frac{\frac{F}{I} \times (C + D) \times E \times G}{H} \quad where$$

A = VMT Reduction

B = (0-100%) percent of plan/community VMT on parallel roadway

C = 0.001 (active transportation adjustment factor, CARB 2020)

D = 0.001 (credits for key destinations near project, CARB 2020)

E = 1 (growth factor adjustment for facility type, CARB 2020)

F = 334 (annual days of use of new facility, NOAA 2017

G =0.5 miles (Existing regional average one-way bicycle trip length)

H = 7.5 miles (Existing regional average one-way vehicle trip length)

I = 365 (Days per Year)

Assuming a new class II bike lane in Ventura County is constructed where 100 percent of plan/community VMT is on parallel roadways, parallel roadways have ADT>24,000, 4-6 key destinations within ½ mile, the VMT reduction is estimated to be 0.01 percent. The range of effectiveness of this measure is estimated to be between 0-0.8 percent.

An alternative calculation is a 2 percent reduction within a project site and connections off-site in an urban/suburban context, with 1 percent reduction within the project site. With 1 percent or lower within a project site and connecting off-site in a rural site.

This measure can be supported by several measures from the VCAPCD's RACM. **Table E-20** summarizes the RACM measures that are relevant to this strategy.

Table E-20: VCAPCD RACM Nexus with Construct or Improve Bike Facility

Measure No.	Measure Title	Feasible for Ventura County?	Used before in Ventura County?	Potential Implementing Agency
10.4	Bike lockers at Metro stations, park & ride lots, other locations	N	N	*Not economically feasible*
10.5	Development of bicycle travel facilities	Y	Y	Cities, County, VCTC
10.7	Inclusion of bicycle lanes on throughfare projects	Y	Y	Cities, County, State

Measure No.	Measure Title	Feasible for Ventura County?	Used before in Ventura County?	Potential Implementing Agency
10.8	Bicycle lanes on arterial and frontage roads	Y	Y	Cities, County, State
10.9	Bicycle Route lighting	Y	Y	Cities, County, State
10.10	Expedite bicycle projects from the RTP/SCS	Y	Y	Cities, County, SCAG, VCTC
10.11	Complete Streets	Y	Y	Cities, County, Transit Operators
10.15	Greenway Network	Y	Y	Cities, County
10.16	First Mile/Last Mile Program	Y	Y	VCTC, Transit Operators
15.2	Pedestrian and Bicycle Overpasses Where Safety Dictates	Y	Y	Cities, County
15.3	Require inclusion of bicycle lanes on state and federally funded thoroughfare projects	N	N	No authority to implement. Not economically feasible.
15.4	Require inclusion of paved shoulders adequate for bicycle use on state or federally funded reconstruction or widening of federal collectors	N	N	No authority to implement. Not economically feasible.
9.3	Bicycle & Pedestrian Program	Y	Y	Cities, County, VCTC

Reference:

- California Air Pollution Control Officers Association. (2021). *Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity.*
- San Diego Association of Governments. (2019). *Mobility Management VMT Reduction Calculator Tool – Design Document.*
- California Air Pollution Control Officers Association. (2010). *Quantifying Greenhouse Gas Mitigation Measures.*

Source:

- California Air Resources Board (CARB). 2020. Quantification Methodology for the Strategic Growth Council's Affordable Housing and Sustainable Communities Program. September. Available: https://ww2.arb.ca.gov/sites/default/files/classic/cc/capandtrade/auctionproceeds/draft_sgc_ahsc_qm_091620.pdf. Accessed: January 2021.
- National Oceanic and Atmospheric Administration (NOAA). 2021. Global Historical Climatology Network–Daily (GHCN-Daily), Version 3. 2015-2019 Average of Days Per Year with Precipitation >0.1 Inches. Available: https://www.ncei.noaa.gov/access/search/data-search/daily-

summaries?bbox=38.922,-120.071,38.338,-119.547&place=County:1276&dataTypes=PRCP&startDate=2015-01-01T00:00:00&endDate=2019-01-01T23:59:59. Accessed: May 2021.

32. Construct or Improve Bike Boulevard

Off Site | TDM

Targeted Trip Reduction: All Trips

Constructing or improving a bike boulevard is a strategy that has the potential to decrease project related VMT by enabling mode shift to bike and walking. This strategy can be achieved by including a bicycle boulevard (Class III) that connects to a larger existing bike network.

Bicycle ridership has been observed to increase on average by 114 percent after a bike boulevard is built (Schwartz 2021). The formula for estimating VMT reduction is:

$$A = B \times \frac{D \ \times (F - (C \times F))}{E \times G} \ \ where$$

A = VMT Reduction

B = (0-100%) percent of plan/community VMT on parallel roadway

C = 1.14 (bike mode adjustment factor

D =0.5 miles (Existing regional average one-way bicycle trip length)

E = 7.5 miles (Existing regional average one-way vehicle trip length)

F =1% (Existing regional bicycle commute mode share)

G = 96% miles (Existing regional vehicle commute mode share)

Assuming a new class III bike boulevard is constructed in Ventura County where 100 percent of plan/community VMT is on parallel roadways, the VMT reduction is estimated to be 0.01 percent. The range of effectiveness of this measure is estimated to be between 0-0.2 percent.

This measure can be supported by several measures from the VCAPCD's RACM. **Table E-21** summarizes the RACM measures that are relevant to this strategy.

Table E-21: VCAPCD RACM Nexus with Construct or Improve Bike Boulevard

Meas ure No.	Measure Title	Feasible for Ventura County?	Used before in Ventura County?	Potential Implementing Agency
10.5	Development of bicycle travel facilities	Y	Y	Cities, County, VCTC

Measure No.	Measure Title	Feasible for Ventura County?	Used before in Ventura County?	Potential Implementing Agency
10.7	Inclusion of bicycle lanes on throughfare projects	Y	Y	Cities, County, State
10.8	Bicycle lanes on arterial and frontage roads	Y	Y	Cities, County, State
10.10	Expedite bicycle projects from the RTP/SCS	Y	Y	Cities, County, SCAG, VCTC
10.11	Complete Streets	Y	Y	Cities, County, Transit Operators
10.15	Greenway Network	Y	Y	Cities, County
10.16	First Mile/Last Mile Program	Y	Y	VCTC, Transit Operators
15.2	Pedestrian and Bicycle Overpasses Where Safety Dictates	Y	Y	Cities, County
15.3	Require inclusion of bicycle lanes on state and federally funded thoroughfare projects	N	N	No authority to implement. Not economically feasible.
9.3	Bicycle & Pedestrian Program	Y	Y	Cities, County, VCTC

Reference:

- California Air Pollution Control Officers Association. (2021). *Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity.*
- San Diego Association of Governments. (2019). *Mobility Management VMT Reduction Calculator Tool – Design Document.*

Source:

- C Schwartz, S. 2021. Planning for Stress Free Connections: Estimating VMT Reductions. February.

33. Expand Bikeway Network

Off Site | TDM

Targeted Trip Reduction: All Trips

Expanding the existing bikeway network is a strategy that has the potential to decrease project related VMT by enabling mode shift to biking. This strategy can be achieved by improving bicycle network connectivity by adding more miles of bike facilities, adding/improving bike wayfinding, improving bicycle safety and convenience, and/or increasing bicycle access to transit hubs.

The elasticity of the number of bike commuters with respect to bikeway miles per 10,000 population has been observed to be 0.25, meaning a one percent increase in bikeway miles per 10,000 population results in a 0.25 percent increase in bike commuters (Pucher & Buehler 2011). VMT reduction from this measure can be estimated based on factors such as the percent increase of bikeway miles in the plan/community and existing regional average bike and vehicle trip length. The formula for estimating VMT reduction is:

$$A = \frac{B \times C \times E \times G}{D \times F} \quad where$$

A = VMT Reduction

B = (percent increase in bikeway miles in plan/community)

C = bike mode share

D = vehicle mode share

E = 0.5 miles (Existing regional average one-way bicycle trip length)

F =7.5 miles (Existing regional average one-way vehicle trip length

G = 0.25 (elasticity of bike commuters with respect to bikeway miles per 10,000 population)

Assuming a 10 percent increase in bikeway miles for a plan/community in Ventura County, the VMT reduction is estimated to be 0.002 percent. The range of effectiveness of this measure is estimated to be between 0-5.0 percent.

Alternatively, a 1 percent increase in bicycle commute share per each additional miles of bicycle lanes per square mile implemented.

This measure can be supported by several measures from the VCAPCD's RACM. **Table E-22** summarizes the RACM measures that are relevant to this strategy.

Table E-22: VCAPCD RACM Nexus with Expand Bikeway Network

Measure No.	Measure Title	Feasible for Ventura County?	Used before in Ventura County?	Potential Implementing Agency
10.4	Bike lockers at Metro stations, park & ride lots, other locations	N	N	*Not economically feasible*
10.5	Development of bicycle travel facilities	Y	Y	Cities, County, VCTC
10.7	Inclusion of bicycle lanes on throughfare projects	Y	Y	Cities, County, State
10.8	Bicycle lanes on arterial and frontage roads	Y	Y	Cities, County, State
10.9	Bicycle Route lighting	Y	Y	Cities, County, State
10.10	Expedite bicycle projects from the RTP/SCS	Y	Y	Cities, County, SCAG, VCTC

Measure No.	Measure Title	Feasible for Ventura County?	Used before in Ventura County?	Potential Implementing Agency
10.11	Complete Streets	Y	Y	Cities, County, Transit Operators
10.15	Greenway Network	Y	Y	Cities, County
10.16	First Mile/Last Mile Program	Y	Y	VCTC, Transit Operators
15.2	Pedestrian and Bicycle Overpasses Where Safety Dictates	Y	Y	Cities, County
15.3	Require inclusion of bicycle lanes on state and federally funded thoroughfare projects	N	N	*No authority to implement. Not economically feasible.*
15.4	Require inclusion of paved shoulders adequate for bicycle use on state or federally funded reconstruction or widening of federal collectors	N	N	*No authority to implement. Not economically feasible.*
9.3	Bicycle & Pedestrian Program	Y	Y	Cities, County, VCTC

Reference:

- California Air Pollution Control Officers Association. (2021). *Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity.*
- San Diego Association of Governments. (2019). *Mobility Management VMT Reduction Calculator Tool – Design Document.*

Source:

- Pucher, J., and Buehler, R. 2011. Analysis of Bicycling Trends and Policies in Large North American Cities: Lessons for New York. March. Available: http://www.utrc2.org/sites/default/files/pubs/analysis-bike-final_0.pdf. Accessed: January 2021.

34. Provide Pedestrian Network Improvement

Off Site | TDM

Targeted Trip Reduction: All Trips

Providing pedestrian network improvements is a strategy that has the potential to decrease project related VMT by enabling mode shift to walking. This strategy can be achieved increasing/improving sidewalk coverage, pedestrian network connectivity, streetscapes, pedestrian crossing, compact communities, narrower roadways, shorter block lengths, access to transit hubs, and parks/public spaces.

The elasticity of VMT with respect to the ratio of sidewalk-to-streets has been observed to be -0.05, meaning a one percent increase in the ratio of sidewalk-to-streets results in a 0.05 percent decrease in VMT (Frank et al. 2011). The formula for estimating VMT reduction is:

$$A = \left(\frac{C}{B} - 1\right) \times D \;\; where$$

A = VMT Reduction

B = existing sidewalk length

C = (existing + measure) sidewalk length in study area

D = 0.05 (elasticity of VMT with respect to the ratio of sidewalk-to-streets)

Assuming a 10 percent increase in sidewalk miles for a plan/community in Ventura County, the VMT reduction is estimated to be 0.5 percent. The range of effectiveness of this measure is estimated to be between 0-6.4 percent.

This measure can be supported by several measures from the VCAPCD's RACM. **Table E-23** summarizes the RACM measures that are relevant to this strategy.

Table E-23: VCAPCD RACM Nexus with Provide Pedestrian Network Improvement

Measure No.	Measure Title	Feasible for Ventura County?	Used before in Ventura County?	Potential Implementing Agency
9.2	Encouragement of Pedestrian Travel	Y	Y	SCAG, VCTC, VCAPCD
9.3	Bicycle & Pedestrian Program	Y	Y	Cities, County, VCTC
10.10	Expedite bicycle projects from the RTP/SCS	Y	Y	Cities, County, SCAG, VCTC
10.11	Complete Streets	Y	Y	Cities, County, Transit Operators
10.15	Greenway Network	Y	Y	Cities, County
10.16	First Mile/Last Mile Program	Y	Y	VCTC, Transit Operators
15.2	Pedestrian and Bicycle Overpasses Where Safety Dictates	Y	Y	Cities, County

Reference:

- California Air Pollution Control Officers Association. (2021). *Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity.*
- San Diego Association of Governments. (2019). *Mobility Management VMT Reduction Calculator Tool – Design Document.*

Source:

- Pucher, J., and Buehler, R. 2011. Analysis of Bicycling Trends and Policies in Large North American Cities: Lessons for New York. March. Available: http://www.utrc2.org/sites/default/files/pubs/analysis-bike-final_0.pdf. Accessed: January 2021.

35. Provide Traffic Calming Measures

Off Site | Infrastructure

Targeted Trip Reduction: All Trips

Providing traffic calming measures is a strategy that has the potential to decrease project related VMT by enhancing multi-modal safety and shifting travel to biking and walking modes. This strategy can be achieved by incorporating roadway designs that reduce vehicle speeds including marked crosswalks, count-down signal timers, curb extensions, speed tables, raised crosswalks, raised intersections, median islands, tight corner radii, roundabouts or mini-circles, on-street parking, planter strips with street trees, chicanes/chockers, and others. **VMT reduction from traffic calming measures has been estimated to be 0.25-1.00 percent VMT.**

Reference:

- California Air Pollution Control Officers Association. (2010). *Quantifying Greenhouse Gas Mitigation Measures.*

Source:

- Cambridge Systematics. 2009. "Moving Cooler: An Analysis of Transportation Strategies for Reducing Greenhouse Gas Emissions." Technical Appendices. Prepared for the Urban Land Institute. reconnectingamerica.org/assets/Uploads/2009movingcoolerexecsumandappend.pdf

36. Create Urban Non-Motorized Zones

Off Site | Infrastructure

Targeted Trip Reduction: All Trips

Creating urban non-motorized zones is a strategy that has the potential to decrease project related VMT by encouraging non-motorized travel. These strategies are typically employed in central business districts or major activity centers. **VMT reduction from non-motorized zones has been shown to be insignificant in suburban locations like Ventura County.**

This measure can be supported by measures from the VCAPCD's RACM. **Table E-24** summarizes the RACM measures that are relevant to this strategy.

Table E-24: VCAPCD RACM Nexus with Create Urban Non-Motorized Zones

Measure No.	Measure Title	Feasible for Ventura County?	Used before in Ventura County?	Potential Implementing Agency
9.1	Establish Auto Free Zones and Pedestrian Malls	Y	Y	Cities, County

Reference:

- California Air Pollution Control Officers Association. (2010). *Quantifying Greenhouse Gas Mitigation Measures.*

Source:

- Cambridge Systematics. 2009. "Moving Cooler: An Analysis of Transportation Strategies for Reducing Greenhouse Gas Emissions." Technical Appendices. Prepared for the Urban Land Institute. reconnectingamerica.org/assets/Uploads/2009movingcoolerexecsumandappend.pdf
- Pucher J., Dill, J., and Handy, S. Infrastructure, Programs and Policies to Increase Bicycling: An International Review. February 2010. Preventive Medicine 50 (2010) S106–S125. http://policy.rutgers.edu/faculty/pucher/Pucher_Dill_Handy10.pdf

37. Dedicated Land for Bike Trails

Off Site | Infrastructure

Targeted Trip Reduction: All Trips

Dedicating land for bike trails is a strategy that has the potential to decrease project related VMT by encouraging mode shift to biking. This strategy would provide for or contribute to funds to dedicate land for bicycle trails linking the project to designated bike commuting routes. **VMT reduction dedicating land for bike trails can be estimated to be like expanding the bike network and would be around 0.002 percent in Ventura County.**

This measure can be supported by measures from the VCAPCD's RACM. **Table E-25** summarizes the RACM measures that are relevant to this strategy.

Table E-25: VCAPCD RACM Nexus with Dedicate Land for Bike Trails

Measure No.	Measure Title	Feasible for Ventura County?	Used before in Ventura County?	Potential Implementing Agency
10.4	Bike lockers at Metro stations, park & ride lots, other locations	N	N	*Not economically feasible*
10.5	Development of bicycle travel facilities	Y	Y	Cities, County, VCTC

Measure No.	Measure Title	Feasible for Ventura County?	Used before in Ventura County?	Potential Implementing Agency
10.7	Inclusion of bicycle lanes on throughfare projects	Y	Y	Cities, County, State
10.8	Bicycle lanes on arterial and frontage roads	Y	Y	Cities, County, State
10.9	Bicycle Route lighting	Y	Y	Cities, County, State
10.10	Expedite bicycle projects from the RTP/SCS	Y	Y	Cities, County, SCAG, VCTC
10.11	Complete Streets	Y	Y	Cities, County, Transit Operators
10.15	Greenway Network	Y	Y	Cities, County
10.16	First Mile/Last Mile Program	Y	Y	VCTC, Transit Operators
15.2	Pedestrian and Bicycle Overpasses Where Safety Dictates	Y	Y	Cities, County
15.3	Require inclusion of bicycle lanes on state and federally funded thoroughfare projects	N	N	*No authority to implement. Not economically feasible.*
15.4	Require inclusion of paved shoulders adequate for bicycle use on state or federally funded reconstruction or widening of federal collectors	N	N	*No authority to implement. Not economically feasible.*
9.3	Bicycle & Pedestrian Program	Y	Y	Cities, County, VCTC

Reference:

- California Air Pollution Control Officers Association. (2010). *Quantifying Greenhouse Gas Mitigation Measures.*

38. Provide Bike Parking in Non-Residential Projects

Project Site | Infrastructure

Targeted Trip Reduction: All Trips

Providing bike parking in non-residential projects is a strategy that has the potential to decrease project related VMT by encouraging mode shift to biking. **VMT reduction is estimated to be 0.6 percent.**

This measure can be supported by measures from the VCAPCD's RACM. **Table E-26** summarizes the RACM measures that are relevant to this strategy.

Table E-26: VCAPCD RACM Nexus with Provide Bike Parking in Non-Residential Projects

Measure No.	Measure Title	Feasible for Ventura County?	Used before in Ventura County?	Potential Implementing Agency
10.1	Bike racks at work sites	Y	Y	Cities, County, Employers, VCTC
10.3	Regional Bike Parking Ordinance for all new construction	N	N	*No authority to implement*
10.4	Bike lockers at Metro stations, park & ride lots, other locations	N	N	*Not economically feasible*
10.5	Development of bicycle travel facilities	Y	Y	Cities, County, VCTC
9.3	Bicycle & Pedestrian Program	Y	Y	Cities, County, VCTC

Reference:

- California Air Pollution Control Officers Association. (2010). *Quantifying Greenhouse Gas Mitigation Measures.*

Source:

- Cambridge Systematics. 2009. "Moving Cooler: An Analysis of Transportation Strategies for Reducing Greenhouse Gas Emissions." Technical Appendices. Prepared for the Urban Land Institute. reconnectingamerica.org/assets/Uploads/2009movingcoolerexecsumandappend.pdf
- Center For Clean Air Policy (CCAP) Transportation Emission Guidebook. http://www.ccap.org/safe/guidebook/guide_complete.html

39. Provide Bike Parking in Multi-Unit Residential Projects

Project Site | Infrastructure

Targeted Trip Reduction: All Trips

Providing bike parking in multi-unit residential projects is a strategy that has the potential to decrease project related VMT by encouraging mode shift to biking. **VMT reduction from this strategy can be estimated to be similar providing bike parking in non-residential buildings and would be around 0.062 percent.**

This measure can be supported by measures from the VCAPCD's RACM. **Table E-27** summarizes the RACM measures that are relevant to this strategy.

Table E-27: VCAPCD RACM Nexus with Provide Bike Parking in Multi-Unit Residential Projects

Measure No.	Measure Title	Feasible for Ventura County?	Used before in Ventura County?	Potential Im plementing Agency
10.3	Regional Bike Parking Ordinance for all new construction	N	N	*No authority to implement*
10.5	Development of bicycle travel facilities	Y	Y	Cities, County, VCTC
9.3	Bicycle & Pedestrian Program	Y	Y	Cities, County, VCTC

Reference:

- California Air Pollution Control Officers Association. (2010). *Quantifying Greenhouse Gas Mitigation Measures.*

40. Implement Conventional Carshare Program

Off Site | TDM

Targeted Trip Reduction: Auto Trips

Implementing conventional carshare program is a strategy that has the potential to decrease project related VMT by auto- trips. A conventional carshare program provides on-demand access to a shared fleet of vehicles on an as-needed bases. Car-share programs can be residential-, employer-, or transit station-based**.** The range of effectiveness for this measure is estimated to be 0 – 0.7 percent, depending on factors such as the number of vehicles deployed and share of population with access to the program. **A conventional carshare program in Ventura County can be estimated to have 0.15 percent VMT reduction,** which is the estimated VMT reduction for San Diego's Car2go carshare program. San Diego's Car2go program deployed over 800 vehicles.

Reference:

- California Air Pollution Control Officers Association. (2021). *Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity*.
- San Diego Association of Governments. (2019). *Mobility Management VMT Reduction Calculator Tool – Design Document.*
- California Air Pollution Control Officers Association. (2010). *Quantifying Greenhouse Gas Mitigation Measures.*

Source:

- Martin, E. and S. Shaheen. 2016. The Impacts of Car2go on Vehicle Ownership, Modal Shift, Vehicle Miles Traveled, and Greenhouse Gas Emissions: An Analysis of Five North American Cities. July. Available: https://tsrc.berkeley.edu/publications/impacts-car2go-vehicle-ownership-modal-shift-vehicle-miles-traveled-and-greenhouse-gas. Accessed: March 2021.

41. Implement Electric Carshare Program

Off Site | TDM

Targeted Trip Reduction: Auto Trips

Implementing an electric carshare program is a strategy that has the potential to decrease project related VMT by auto- trips. An electric carshare is similar in many ways to a conventional carshare**.** An electric carshare may generate additional VMT if EVs need to be shuttled to and from charging points. **An electric carshare program in Ventura County can be estimated to have 0.15 percent VMT reduction,** which is the estimated VMT reduction for San Diego's Car2go carshare program. San Diego's Car2go program deployed over 800 vehicles.

Reference:

- California Air Pollution Control Officers Association. (2021). *Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity.*

Source:

- Martin, E. and S. Shaheen. 2016. The Impacts of Car2go on Vehicle Ownership, Modal Shift, Vehicle Miles Traveled, and Greenhouse Gas Emissions: An Analysis of Five North American Cities. July. Available: https://tsrc.berkeley.edu/publications/impacts-car2go-vehicle-ownership-modal-shift-vehicle-miles-traveled-and-greenhouse-gas. Accessed: March 2021.

42. Implement Pedal (Non-Electric) Bikeshare Program

Off Site | TDM

Targeted Trip Reduction: All Trips

Implementing a pedal (non-electric) bikeshare program is a strategy that has the potential to decrease project related VMT by shifting to bicycle travel mode. A pedal bikeshare is typically a bike-share station, kiosk, or rack near commercial or transit hubs. Pedal bikeshare programs provide users with on-demand access to pedal bikes for short term rentals.

The vehicle to bikeshare substitution rate has been calculated to be 19.6 percent (McQueen et al. 2020). The average one-way trip length for bikeshare is observed to be 1.4 miles (Lazarus et al. 2019). The daily bikeshare trips per person is observed to be 0.021 (MTC 2017). VMT reduction from this measure can be estimated based on factors such as the share of population with access to the bikeshare and existing regional average vehicle trip length. The formula for estimating VMT reduction is:

$$A = \frac{B \times C \times D \times E}{F \times G} \quad where$$

A = VMT Reduction

B = 0-100% (change in percent of residences in plan/community with access to bikeshare system without measure)

C =0.021 (daily bikeshare trips per person)

D = 19.6% (vehicle to bikeshare substitution rate)

E = 1.4 miles per trip (bikeshare average one-way trip length)

F = 2.7 (daily vehicle trips per person)

G = 7.5 miles (Existing regional average one-way vehicle trip length)

Assuming a 100 percent increase in share of population with access to bikeshare system in plan/community in Ventura County, the VMT reduction is estimated to be 0.03 percent. The range of effectiveness of this measure is estimated to be between 0-0.03 percent.

This measure can be supported by measures from the VCAPCD's RACM. Table E-28 summarizes the RACM measures that are relevant to this strategy.

Table E-28: VCAPCD RACM Nexus with Implement Pedal (Non-Electric) Bikeshare Program

Measure No.	Measure Title	Feasible for Ventura County?	Used before in Ventura County?	Potential Implementing Agency
10.2	Bike Share	Y	Y	Cities, County, Transit Operators
9.3	Bicycle & Pedestrian Program	Y	Y	Cities, County, VCTC

Reference:

- California Air Pollution Control Officers Association. (2021). *Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity.*
- San Diego Association of Governments. (2019). *Mobility Management VMT Reduction Calculator Tool – Design Document.*
- California Air Pollution Control Officers Association. (2010). *Quantifying Greenhouse Gas Mitigation Measures.*

Source:

- Lazarus, J., J. Pourquier, F. Feng, H. Hammel, and S. Shaheen. 2019. Bikesharing Evolution and Expansion: Understanding How Docked and Dockless Models Complement and Compete – A Case Study of San Francisco. Paper No. 19-02761. Annual Meeting of the Transportation Research Board: Washington, D.C. Available: https://trid.trb.org/view/1572878. Accessed: January 2021.

- McQueen, M., G. Abou-Zeid, J. MacArthur, and K. Clifton. 2020. Transportation Transformation: Is Micromobility Making a Macro Impact on Sustainability? Journal of Planning Literature. November. Available: https://doi.org/10.1177/0885412220972696. Accessed: March 2021.
- Metropolitan Transportation Commission (MTC). 2017. Plan Bay Area 2040 Final Supplemental Report–Travel Modeling Report. July. Available: http://2040.planbayarea.org/files/2020-02/Travel_Modeling_PBA2040_Supplemental%20Report_7-2017.pdf. Accessed: January 2021.

43. Implement Electric Bikeshare Program

Off Site | TDM

Targeted Trip Reduction: All Trips

Implementing an electric bikeshare program is a strategy that has the potential to decrease project related VMT by shifting to bicycle travel mode. An electric bikeshare is similar in many ways to a pedal bikeshare**.** Electric bikeshares are slightly more effective at VMT reduction than their pedal counterparts because vehicle to bikeshare substitution rate is higher than vehicle to conventional bikeshare and electric bike trips tend to be longer.

The vehicle to electric bikeshare substitution rate has been calculated to be 35 percent (compared to 19.6 percent for conventional) (Fitch et al. 2020). The average one-way trip length for electric bikeshare is observed to be 2.1 miles (compared to 1.4 miles for conventional) (Fitch et al. 2021). The daily electric bikeshare trips per person is observed to be 0.021 (same as conventional) (MTC 2017). VMT reduction from this measure can be estimated based on factors such as the share of population with access to the bikeshare and existing regional average vehicle trip length. The formula for estimating VMT reduction is:

$$A = \frac{B \times C \times D \times E}{F \times G} \quad where$$

A = VMT Reduction

B = 0-100% (change in percent of residences in plan/community with access to bikeshare system without measure)

C =0.021 (daily bikeshare trips per person)

D = 35% (vehicle to bikeshare substitution rate)

E = 2.1 miles per trip (bikeshare average one-way trip length)

F = 2.7 (daily vehicle trips per person)

G = 7.5 miles (Existing regional average one-way vehicle trip length)

Assuming a 100 percent increase in share of population with access to electric bikeshare system in plan/community in Ventura County, the VMT reduction is estimated to be 0.08 percent. The range of effectiveness of this measure is estimated to be between 0-0.08 percent.

This measure can be supported by measures from the VCAPCD's RACM. Table E-29 summarizes the RACM measures that are relevant to this strategy.

Table E-29: VCAPCD RACM Nexus with Implement Electric Bikeshare Program

Measure No.	Measure Title	Feasible for Ventura County?	Used before in Ventura County?	Potential Implementing Agency
10.2	Bike Share	Y	Y	Cities, County, Transit Operators
9.3	Bicycle & Pedestrian Program	Y	Y	Cities, County, VCTC

Reference:

- California Air Pollution Control Officers Association. (2021). *Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity.*

Source:

- Fitch, D., H. Mohiuddin, and S. Handy. 2021. Examining the Effects of the Sacramento Dockless E-Bike Share on Bicycling and Driving. MDPI: Sustainability. January. Available: https://www.mdpi.com/2071-1050/13/1/368. Accessed: March 2021.
- Metropolitan Transportation Commission (MTC). 2017. Plan Bay Area 2040 Final Supplemental Report–Travel Modeling Report. July. Available: http://2040.planbayarea.org/files/2020-02/Travel_Modeling_PBA2040_Supplemental%20Report_7-2017.pdf. Accessed: January 2021.

44. Implement Scooter-Share Program

Off Site | TDM

Targeted Trip Reduction: All Trips

Implementing a scooter-share program is a strategy that has the potential to decrease project related VMT by shifting to scooter travel mode. A scooter-share is similar in many ways to a bikeshare. Scooter-shares are more effective at VMT reduction than their bike counterparts because vehicle to scooter-share substitution rate is higher than vehicle to conventional and electric bikeshare and scooter trips tend to be longer.

The vehicle to electric bikeshare substitution rate has been calculated to be 38.5 percent (compared to 35 percent for electric bike) (McQueen et al. 2020). The average one-way trip length for scooter-share is observed to be 2.14 miles (compared to 2.1 miles for electric bike) (PBOT. 2021). The daily electric scooter-share trips per person is observed to be 0.021 (same as conventional/electric bike) (MTC 2017). VMT reduction from this measure can be estimated based on factors such as the share of population with access to the scooter-share and existing regional average vehicle trip length. The formula for estimating VMT reduction is:

$$A = \frac{B \times C \ \times D \times E}{F \times G} \ \ where$$

A = VMT Reduction

B = 0-100% (change in percent of residences in plan/community with access to bikeshare system without measure)

C =0.021 (daily scooter-share trips per person)

D = 38.5% (vehicle to bikeshare substitution rate)

E = 2.14 miles per trip (bikeshare average one-way trip length)

F = 2.7 (daily vehicle trips per person)

G = 7.5 miles (Existing regional average one-way vehicle trip length)

Assuming a 100 percent increase in share of population with access to scooter-share system in plan/community in Ventura County, the VMT reduction is estimated to be 0.07 percent. The range of effectiveness of this measure is estimated to be between 0-0.07 percent.

Reference:

- California Air Pollution Control Officers Association. (2021). *Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity.*

Source:

- McQueen, M., G. Abou-Zeid, J. MacArthur, and K. Clifton. 2020. Transportation Transformation: Is Micromobility Making a Macro Impact on Sustainability? Journal of Planning Literature. November. Available: https://doi.org/10.1177/0885412220972696. Accessed: March 2021.
- Portland Bureau of Transportation (PBOT). 2021. Portland Bureau of Transportation E-Scooter Dashboard. Available: https://public.tableau.com/profile/portland.bureau.of.transportation#!/vizhome/PBOTE-ScooterTripsDashboard/ScooterDashboard. Accessed: March 2021.
- Metropolitan Transportation Commission (MTC). 2017. Plan Bay Area 2040 Final Supplemental Report–Travel Modeling Report. July. Available: http://2040.planbayarea.org/files/2020-02/Travel_Modeling_PBA2040_Supplemental%20Report_7-2017.pdf. Accessed: January 2021.

45. Implement Preferential Rideshare Parking Program

Project Site | TDM

Targeted Trip Reduction: Commute Trips

Implementing a preferential ridesharing parking program is a strategy that has the potential to decrease project related VMT by reducing commute trips. An employer can provide preferential parking by:

- Designating parking in convenient locations for rideshare
- Offering free or reduced parking fees for rideshare
- Offering priority or reserved parking for rideshare

The VMT reduction for this strategy can be estimated to be like implementing an employer rideshare program. The range of effectiveness for this measure is estimated to be 0 - 20 percent, depending on percent of employees participating. **Assuming 20 percent employee participate, the measure results in around 0.8 percent reduction in VMT in a suburban location.**

This measure can be supported by measures from the VCAPCD's RACM. **Table E-30** summarizes the RACM measures that are relevant to this strategy.

Table E-30: VCAPCD RACM Nexus with Implement Preferential Rideshare Parking Program

Measure No.	Measure Title	Feasible for Ventura County?	Used before in Ventura County?	Potential Implementing Agency
3.3	Employer Rideshare Program Incentives	Y	Y	Employers, VCAPCD, VCTC
8.10	Rideshare and Vanpool Services (Non-employer based)	Y	Y	CTC, Transit Operators, Cities, County

Reference:

- California Air Pollution Control Officers Association. (2021). *Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity.*
- San Diego Association of Governments. (2019). *Mobility Management VMT Reduction Calculator Tool – Design Document.*
- California Air Pollution Control Officers Association. (2010). *Quantifying Greenhouse Gas Mitigation Measures.*

Source:

- Ewing, R. 1993. "TDM, Growth Management and the Other Four out of Five Trips." Transportation Quarterly, Vol. 48, No. 3

Category: Transit

All transit VMT reduction strategies should be done in coordination with local transit agencies.

46. Extend Transit Network Coverage or Hours

Off Site | Infrastructure

Targeted Trip Reduction: All Trips

Extending transit network coverage or hours is a strategy that has the potential to decrease project related VMT by shifting trips to transit. The strategy can be implemented by adding new transit stops and starting services earlier in the morning and/or extending services to late-night hours to accommodate alternative-shift workers.

The elasticity of transit demand with respect to service miles or service hours has been observed to be 0.7, meaning a one percent increase in transit service miles/hours results in a 0.7 percent increase in transit demand (Handy et al. 2013). VMT reduction from this measure can be estimated based on factors such as the percent increase of transit service miles/hours and existing regional transit mode share. The formula for estimating VMT reduction is:

$$A = B \times C \times D \times E \times F \ where$$

A = VMT Reduction

B = percent increase in transit frequency

C = 0.5 (elasticity of transit demand with respect to service frequency)

D = 3% transit mode share

E = 85.1% vehicle mode share

F = 57.8% (mode shift factor – reduction in vehicle trips associated with a reduction in person trips considering vehicle occupancy)

Assuming 10 percent increase in transit hours/miles in plan/community in Ventura County, the measure would result in around 12.1 percent reduction in VMT. The range of effectiveness for this measure is estimated to be 0 – 25.2 percent, depending on increase in service.

This measure can be supported by measures from the VCAPCD's RACM. Table E-31 summarizes the RACM measures that are relevant to this strategy.

Table E-31: VCAPCD RACM Nexus with Extend Transit Network Coverage or Hours

Measure No.	Measure Title	Feasible for Ventura County?	Used before in Ventura County?	Potential Implementing Agency
1.5	Expansion of Public Transportation Systems	Y	Y	Transit Operators, VCTC

Reference:

- California Air Pollution Control Officers Association. (2021). *Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity.*
- San Diego Association of Governments. (2019). *Mobility Management VMT Reduction Calculator Tool – Design Document.*

- California Air Pollution Control Officers Association. (2010). *Quantifying Greenhouse Gas Mitigation Measures.*

Source:

- Handy, S., K. Lovejoy, M. Boarnet, and S. Spears. 2013. Impacts of Transit Service Strategies on Passenger Vehicle Use and Greenhouse Gas Emissions. October. Available: https://ww2.arb.ca.gov/sites/default/files/2020-06/Impacts_of_Transit_Service_Strategies_on_Passenger_Vehicle_Use_and_Greenhouse_Gas_Emissions_Policy_Brief.pdf. Accessed: January 2021.

47. Increase Transit Service Frequency/Speed

Off Site | Infrastructure

Targeted Trip Reduction: All Trips

Increasing transit service frequency or speed is a strategy that has the potential to decrease project related VMT by shifting trips to transit. The strategy can be implemented by increasing transit frequency on one or more transit lines serving the plan/community to reduce headways and thus reduce transit waiting times and overall travel times.

The elasticity of transit demand with respect to frequency of service has been observed to be 0.5, meaning a one percent increase in the number of bus arrivals in an hour result in a 0.5 percent increase in transit demand (Handy et al. 2013). VMT reduction from this measure can be estimated based on factors such as the percent increase of transit frequency and existing regional transit mode share. The formula for estimating VMT reduction is:

$$A = \frac{B \times C \times D \times F}{E} where$$

A = VMT Reduction

B = percent increase in transit frequency

C = 0.5 (elasticity of transit demand with respect to service frequency)

D = 3% transit mode share

E = 85.1% vehicle mode share

F = 57.8% (mode shift factor – reduction in vehicle trips associated with a reduction in person trips considering vehicle occupancy)

Assuming 10 percent increase in transit frequency in plan/community in Ventura County, the measure would result in around 10.2 percent reduction in VMT. The range of effectiveness for this measure is estimated to be 0 – 34.6 percent, depending on increase in frequency.

Reference:

- California Air Pollution Control Officers Association. (2021). *Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity.*
- San Diego Association of Governments. (2019). *Mobility Management VMT Reduction Calculator Tool – Design Document.*

Source:

- Handy, S., K. Lovejoy, M. Boarnet, and S. Spears. 2013. Impacts of Transit Service Strategies on Passenger Vehicle Use and Greenhouse Gas Emissions. October. Available: https://ww2.arb.ca.gov/sites/default/files/2020-06/Impacts_of_Transit_Service_Strategies_on_Passenger_Vehicle_Use_and_Greenhouse_Gas_Emissions_Policy_Brief.pdf. Accessed: January 2021.

48. Implement Transit-Supportive Roadway Treatments

Off Site | Infrastructure

Targeted Trip Reduction: All Trips

Implementing transit supportive roadway treatments is a strategy that has the potential to decrease project related VMT by shifting trips to transit. The strategy involves building sidewalk/crosswalk safety enhancements, creating new paths to transit stops, transit signal priority, bus-only signal phasing, queue jumping for transit, curb extensions to speed passenger loading, and dedicated bus lanes. Roadway treatments are intended to improve transit travel time and reliability.

The elasticity of transit demand with respect to transit travel time has been observed to be -0.4, meaning a one percent decrease in transit travel time results in a 0.4 percent increase in transit demand (TRB 2007). VMT reduction from this measure can be estimated based on factors such as the percent decrease of transit travel time and existing regional transit and vehicle mode share. The formula for estimating VMT reduction is:

$$A = \frac{B \times C \times D \times F}{E} where$$

A = VMT Reduction

B = percent decrease in transit travel time

C = 0.4 (elasticity of transit demand with respect to transit travel time)

D = 3% transit mode share

E = 85.1% vehicle mode share

F = 57.8% (mode shift factor – reduction in vehicle trips associated with a reduction in person trips considering vehicle occupancy)

Assuming 10 percent increase in transit frequency in plan/community in Ventura County, the measure would result in around 8.2 percent reduction in VMT.

This measure can be supported by measures from the VCAPCD's RACM. **Table E-32** summarizes the RACM measures that are relevant to this strategy.

Table E-32: VCAPCD RACM Nexus with Implementing Transit-Supportive Roadway Treatments

Measure No.	Measure Title	Feasible for Ventura County?	Used before in Ventura County?	Potential Implementing Agency
1.15	Shorter Distance from Buildings to Bus Stops	N	N	Not economically feasible, however, some jurisdictions may already have existing requirements for new developments
1.18	Bus Signal Priority	Y	Y	Transit Operators
1.20	Installation of additional platforms, double tracks, concrete ties, bridges, signal relocation	Y	Y	Cities, Rail Transit Agencies
2.2	Fixed Lanes for Buses and Carpools on Arterials	Y	Y	Caltrans, SCAG, VCTC
5.1	Develop Intelligent Transportation Systems	Y	Y	Caltrans, Cities, County, SCAG, Transit Operators, VCTC
5.9	Bus Pullouts in Curbs for Passenger Loading	Y	Y	Cities, County, Transit Operators, VCTC
10.11	Complete Streets	Y	Y	Cities, County, VCTC, Transit Operators

Reference:

- California Air Pollution Control Officers Association. (2021). *Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity.*
- San Diego Association of Governments. (2019). *Mobility Management VMT Reduction Calculator Tool – Design Document.*
- California Air Pollution Control Officers Association. (2010). *Quantifying Greenhouse Gas Mitigation Measures.*

Source:

- Transportation Research Board (TRB). 2007. Transit Cooperative Research Program Report 118: Bus Rapid Transit Practitioner's Guide. Available: https://nacto.org/docs/usdg/tcrp118brt_practitioners_kittleson.pdf. Accessed: January 2021.

49. Reduce Transit Fares

Off Site | TDM

Targeted Trip Reduction: All Trips

Reducing transit fares is a strategy that has the potential to decrease project related VMT by shifting trips to transit by reducing transit fares on transit lines serving the plan/community. The elasticity of transit demand with respect to transit fare has been observed to be -0.3, meaning a one percent decrease in transit fare results in a 0.3 percent increase in transit demand (Handy et al. 2013). VMT reduction from this measure can be estimated based on factors such as the percent decrease of transit travel time and existing regional transit and vehicle mode share. The formula for estimating VMT reduction is:

$$A = \frac{B \times C \times D \times F}{E} where$$

A = VMT Reduction

B = percent decrease in transit fare

C = 0.3 (elasticity of transit demand with respect to transit fare)

D = 3% transit mode share

E = 85.1% vehicle mode share

F = 57.8% (mode shift factor – reduction in vehicle trips associated with a reduction in person trips considering vehicle occupancy)

Assuming 10 percent decrease in transit frequency in plan/community in Ventura County, the measure would result in around 6.1 percent reduction in VMT.

This measure can be supported by measures from the VCAPCD's RACM. **Table E-33** summarizes the RACM measures that are relevant to this strategy.

Table E-33: VCAPCD RACM Nexus with Reducing Transit Fares

Measure No.	Measure Title	Feasible for Ventura County?	Used before in Ventura County?	Potential Implementing Agency
1.13	Half Price Fres on Feeder Bus Service	N	Y	Not economically feasible
8.1	Financial Incentives, Including Zero Bus Fares	Y	Y	Employers

Reference:

- California Air Pollution Control Officers Association. (2021). *Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity.*
- San Diego Association of Governments. (2019). *Mobility Management VMT Reduction Calculator Tool – Design Document.*
- California Air Pollution Control Officers Association. (2010). *Quantifying Greenhouse Gas Mitigation Measures.*

Source:

- Handy, S., K. Lovejoy, M. Boarnet, and S. Spears. 2013. Impacts of Transit Service Strategies on Passenger Vehicle Use and Greenhouse Gas Emissions. October. Available: https://ww2.arb.ca.gov/sites/default/files/2020-06/Impacts_of_Transit_Service_Strategies_on_Passenger_Vehicle_Use_and_Greenhouse_Gas_Emissions_Policy_Brief.pdf. Accessed: January 2021.

50. Provide Bike Parking Near Transit

Off Site | Infrastructure

Targeted Trip Reduction: All Trips

Providing bike parking near transit is a strategy that has the potential to decrease project related VMT by encouraging mode shift to biking. This reduction strategy should be implemented as part of the 'Provide Bike Parking in Non-Residential Projects' strategy. This measure can be supported by measures from the VCAPCD's RACM. **Table E-34** summarizes the RACM measures that are relevant to this strategy.

Table E-34: VCAPCD RACM Nexus with Provide Bike Parking Near Transit

Measure No.	Measure Title	Feasible for Ventura County?	Used before in Ventura County?	Potential Implementing Agency
10.1	Bike racks at work sites	Y	Y	Cities, County, Employers, VCTC
10.3	Regional Bike Parking Ordinance for all new construction	N	N	*No authority to implement*
10.4	Bike lockers at Metro stations, park & ride lots, other locations	N	N	*Not economically feasible*
10.5	Development of bicycle travel facilities	Y	Y	Cities, County, VCTC
9.3	Bicycle & Pedestrian Program	Y	Y	Cities, County, VCTC

Reference:

- California Air Pollution Control Officers Association. (2010). *Quantifying Greenhouse Gas Mitigation Measures.*

51. Provide Local Shuttles

Off Site | Infrastructure

Targeted Trip Reduction: All Trips

Providing local shuttles is a strategy that has the potential to decrease project related VMT by shifting trips to transit. The strategy can be implemented by adding shuttle service within a zone (for example a commercial center) or between attractions (for example between an office and transit station). To quantify the VMT reduction, use the methodology to quantify VMT reduction due to transit network expansion.

This measure can be supported by measures from the VCAPCD's RACM. **Table E-35** summarizes the RACM measures that are relevant to this strategy.

Table E-35: VCAPCD RACM Nexus with Provide Local Shuttles

Measure No.	Measure Title	Feasible for Ventura County?	Used before in Ventura County?	Potential Implementing Agency
1.5	Expansion of Public Transportation Systems	Y	Y	Transit Operators, VCTC

Reference:

- California Air Pollution Control Officers Association. (2010). *Quantifying Greenhouse Gas Mitigation Measures.*

52. Microtransit NEV (neighborhood electric vehicles)

Off Site | Infrastructure

Targeted Trip Reduction: All Trips

Supporting microtransit NEV (neighborhood electric vehicles) has the potential to decrease project related VMT by shifting trips to transit. Microtransit services are flexible and can be designed to fulfill the mobility needs of a community where trips are typically less than 2 miles long. **Microtransit NEV has been estimated to have 0.04 reduction in VMT.**

This measure can be supported by measures from the VCAPCD's RACM. **Table E-36** summarizes the RACM measures that are relevant to this strategy.

Table E-36: VCAPCD RACM Nexus with Microtransit NEV (Neighborhood Electric Vehicles)

Measure No.	Measure Title	Feasible for Ventura County?	Used before in Ventura County?	Potential Implementing Agency
1.5	Expansion of Public Transportation Systems	Y	Y	Transit Operators, VCTC

Reference:

- San Diego Association of Governments. (2019). *Mobility Management VMT Reduction Calculator Tool – Design Document.*
- California Air Pollution Control Officers Association. (2010). *Quantifying Greenhouse Gas Mitigation Measures.*

Source:

- WSP. 2019. "Draft TDM Off-Model Methodology—March 2019 Revision." Memo to SANDAG.

Category: Cleaner Vehicles and Fuels

53. Use Cleaner-Fuel Vehicles

Off Site | TDM

Targeted Trip Reduction: All Trips

Using cleaner-fuel vehicles is a strategy that has the potential replace non-ZEV VMT with ZEV VMT. Cleaner-fuel vehicles include electric vehicles, natural gas vehicles, and vehicles powered renewable diesel or natural gas. **This measure is not estimated to reduce VMT, however it would substitute fuel trips 1:1 to non-ZEV trips.**

Reference:

- California Air Pollution Control Officers Association. (2021). *Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity.*
- California Air Pollution Control Officers Association. (2010). *Quantifying Greenhouse Gas Mitigation Measures.*

Appendix F: CEQA Lead Agency VMT Thresholds of Significance

This section will be updated as CEQA Lead Agencies develop guidelines for VMT thresholds of significance. Agencies are not required to enact their own agencywide thresholds of significance, and can use thresholds from peer agencies or utilize the OPR Technical Advisory On Evaluation Transportation Impacts in CEQA.

Table F-1: CEQA Lead Agency VMT Thresholds of Significance

Jurisdiction	CEQA Transportation Guidelines	Threshold
Camarillo	City of Camarillo CEQA Environmental Guidelines	Residential project results in per capita VMT that exceeds 85 percent of existing regional or city average VMT. Office project results in per employee VMT that exceeds 85 percent of existing regional average VMT.
Fillmore	-	-
Moorpark	-	-
Ojai	-	-
Oxnard	City of Oxnard CEQA Guidelines	Interim VMT thresholds in development.
Port Hueneme	2045 General Plan	Has not yet established VMT thresholds.
City of Ventura	-	-
Santa Paula	-	-
Simi Valley	-	-
Thousand Oaks	-	-
Ventura County	2040 General Plan EIR	15 percent below baseline level with specific values for different types of land uses