3.7 ADDITIONAL ANALYSES

This section of the Revised Analysis of Impacts to Public Trust Resources and Values (APTR) analyzes seven additional potential impacts to public trust lands, resources, and values associated with the proposed Broad Beach Restoration Project (Project):

- Air Quality and Greenhouse Gases (Section 3.7.1);
- Traffic and Parking (Section 3.7.2);
- Cultural and Paleontological Resources (Section 3.7.3)
- Noise (Section 3.7.4);
- Public Health and Safety Hazards (Section 3.7.5);
- Utilities and Service Systems (Section 3.7.6); and
- Environmental Justice (Section 3.7.7).

As described in Section 2, *Project Description*, the Broad Beach Geologic Hazard Abatement District (BBGHAD or Applicant) seeks to implement a shoreline protection plan to protect homes, septic systems, and other structures from coastal erosion along Broad Beach, in the city of Malibu, Los Angeles County. Project elements include: retain an existing 4,100-foot-long emergency rock revetment and remnant geotextile sand bag revetments on Broad Beach; perform beach nourishment to bury the revetment; and create and maintain a wide, dry sand beach and a restored dune system. As noted in Section 1, *Introduction*, implementation of the Project by the BBGHAD is statutorily exempt from the California Environmental Quality Act (CEQA) (pursuant to Pub. Resources Code §§ 26601 and 21080, subd. (b)(4)). The information presented in this APTR is intended to inform the California State Lands Commission (CSLC) as it considers whether to issue a lease for those portions of the Project within the CSLC's jurisdiction. The following areas lie within or are affected by the Project (see Figure 1-2).

<u>CSLC Lease Area and Public Trust Impact Area</u>

The CSLC lease area includes approximately 40.5 acres of public trust lands held by the State (approximately 27 acres of intertidal beach and 13.5 acres of subtidal lands) extending laterally for approximately 6,200 feet from Trancas Creek Lagoon on the east to Lechuza Point on the west (refer to Figure 1-1 and Figure 2-3 through 2-6). Proposed beach and dune restoration activities would encompass 46 acres of public and private land on Broad Beach. The public lands are bordered by adjacent privately owned upland parcels that support single-family residential homes and the Malibu West Beach Club, portions of which would also be subject to dune restoration. Portions of the privately owned parcels along Broad Beach are encumbered with existing public lateral access easements (LAEs) held by State or recorded as deed restrictions.

The Public Trust Impact Area encompasses: (1) the CSLC Lease Area; (2) the west end of Zuma Beach, including Parking Lot 12 located east of Trancas Creek Lagoon, which would accommodate construction equipment and materials staging, and approximately 1,000 feet of Zuma Beach south of this parking lot, which would be used for short-term storage of imported sand to be used on Broad Beach; and (3) areas along Broad Beach Road and Pacific Coast Highway (PCH) that provide public coastal access, as well as down coast beaches (e.g., Zuma Beach, Point Dume State Beach, and Los Angeles County beaches farther south to Point Dume) that may be indirectly affected by changes in sand supply and distribution through littoral drift.

BBGHAD Inland Project Area

The BBGHAD Inland Project Area includes three quarries proposed as sand supply sources, as well as the sand transportation routes inland of PCH that would be used by heavy haul trucks to transport sand to Broad Beach (see Figure 1-2). Communities along the proposed sand transportation routes include Moorpark, Simi Valley, Santa Paula, Camarillo and Fillmore. These areas generally do not support Public Trust Resources administered by the CSLC; however, the Project has the potential to result in impacts of potential concern to other agencies and members of the public in these areas. Therefore, qualitative analyses of affected resources outside the public trust impact area are provided in this APTR for informational purposes.

Resource areas that may be affected by the Project in the BBGHAD Inland Project Area include Air Quality and Greenhouse Gases; Traffic and Parking; Cultural and Paleontological Resources; Noise; and Environmental Justice. An analysis of potential impacts in the BBGHAD Inland Project Area is included for each of these resource areas. Utilities and service systems outside of the CSLC Lease Area and Public Trust Impact Area would not be affected by the Project; therefore this section does not include a discussion of these impacts. Public health and safety hazards in the BBGHAD Inland Project Area would be related to increased truck traffic and are addressed in Section 3.7.2, *Traffic and Parking*.

3.7.1 AIR QUALITY AND GREENHOUSE GASES

This section describes the potential air quality impacts in the Project Area, the potential effects of Project-generated air pollutant emissions and greenhouse gases (GHGs) on public trust lands, resources and values, and Avoidance and Minimization Measures (AMMs) to reduce potential impacts.

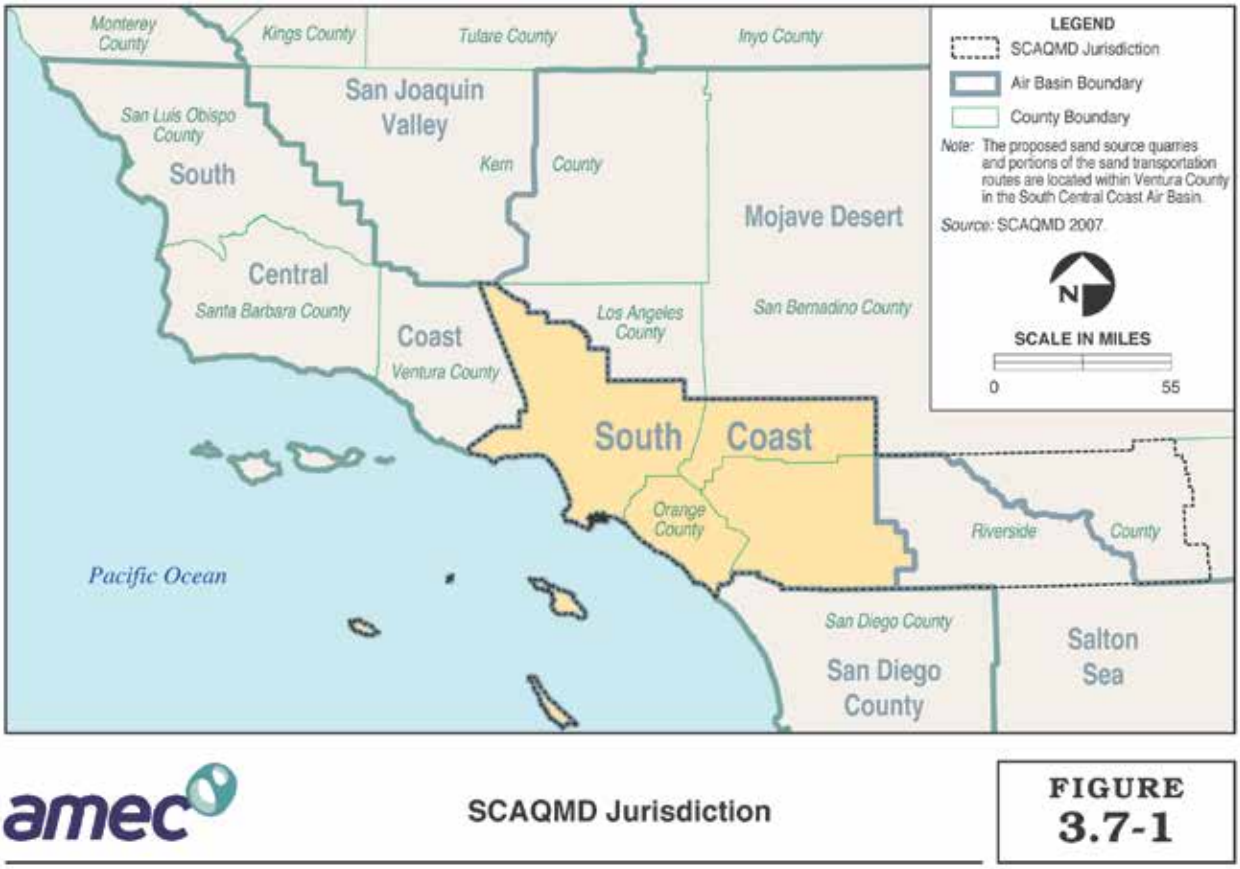
3.7.1.1 Environmental Setting Pertaining to the Public Trust

Relationship Between Air Quality/GHGs and Public Trust Resources and Values

Emissions generated during the implementation of the Project, including mid- to long-term emissions associated with annual backpassing and the follow up renourishment event, have the potential to affect the public's right to safely enjoy public trust resources in the vicinity of Broad Beach and the BBGHAD Inland Project Area. The public's right to access clean air within the public trust lands and waters is an important, contributing element for the public's enjoyment of activities in these locations.

Broad Beach and areas located immediately up and down coast are located in Los Angeles County within the boundaries of the South Coast Air Quality Management District (SCAQMD). The SCAQMD consists of the South Coast Air Basin (SCAB), which includes portions of Los Angeles and neighboring counties and is bound by the Pacific Ocean to the west and the San Gabriel, San Bernardino, and San Jacinto Mountains to the north and east (Figure 3.7-1). Regional emissions in the Broad Beach vicinity, down coast, and along PCH west of Broad Beach are dominated by mobile sources, mainly associated with motor vehicles on PCH and marine vessels in offshore shipping lanes. Broad Beach is not located near any major industrial source of air pollutant emissions.

Mobile sources also generate the majority of emissions in the vicinity of the proposed inland sand sources in Ventura County, which include one to three operating quarries—CEMEX, Grimes Rock, and P.W. Gillibrand—and along the roads haul trucks would use to transport sand from the quarries to Broad Beach. These include emissions from traffic along US-101 and other roadways proposed as sand transportation routes. The three primary transportation routes begin at one of the three quarries, end at Zuma Beach Parking Lot 12 along PCH, and use local roads, including, but not necessarily limited to, SR-126, US-101, SR-118, SR-23, and PCH (see Figure 1-2). The quarries and sand transportation routes along SR-23, US-101, Las Posas Road, and northern extents of PCH lie within the South Central Coast Air Basin (SCCAB), which includes Santa Barbara and Ventura counties, under the jurisdiction of the Ventura County Air Pollution Control District (VCAPCD). These sand transportation routes transition into the SCAB when they enter Los Angeles County, including PCH and US-101.



Source: SCAQMD 2007.

Regional Climate

A semi-permanent, subtropical, Pacific high-pressure system dominates the Broad Beach vicinity. Generally, mild, cool sea breezes temper the climate; nonetheless, periods of extremely hot weather, passing winter storms, or dry offshore Santa Ana winds occasionally interrupt this mild climate. Winters are seldom cold, frost is rare, and minimum temperatures average between 44 and 59 degrees Fahrenheit (°F). Spring days may be cloudy due to high fog. Rainfall averages about 13.7 inches per year, falling almost entirely from late October to early April (see Table 3.7-1).

Table 3.7-1. Average Monthly Temperatures/Precipitation (Malibu, 1961-1990)

Month	JAN	FEB	MAR	APR	MAY	JUN	July	AUG	SEP	OCT	NOV	DEC	Annual Average
Mean Monthly Temperature (°F) (Maximum/Minimum)	66/ 45	66/ 46	66/ 47	68/ 48	69/ 52	72/ 55	74/ 58	75/ 59	75/ 59	73/ 54	70/ 48	67/ 44	70.1/ 51.3
Total Precipitation (inches)	56	56	57	58	61	64	66	67	67	64	59	56	60.9

Source: National Climatic Data Center (NCDC) 2012.

Seasonal and diurnal wind regimes affect air transport in the Broad Beach vicinity. Diurnal sea-breeze drainage flow typically dominates the local wind pattern. The SCAB is characterized by frequent, strong, elevated inversions. These inversions, created by atmospheric subsidence, limit vertical mixing; therefore, they promote the buildup of pollution, especially in the late morning and early afternoon.

Criteria Pollutants and Toxic Air Contaminants

Pollutants that impact air quality are generally divided into two categories: (1) criteria pollutants, which are air pollutants associated with numerous health effects including increased respiratory symptoms and that are regulated by health-based ambient standards; and (2) toxic air contaminants (TACs), which the California Health and Safety Code defines as an air pollutant which may cause or contribute to an increase in mortality or an increase in serious illness, or which may pose a present or potential hazard to human health. TACs are regulated by minimizing exposure to the lowest extent feasible. Comparisons of contaminant levels in ambient air samples to national and State standards determine whether a region's air quality is healthy or unhealthy. The U.S. Environmental Protection Agency (USEPA) and California Air Resources Board (CARB) set standards to protect public health and welfare with an adequate margin of safety. The Federal Clean Air Act of 1970 first authorized National Ambient Air Quality Standards (NAAQS). The. Under California's TAC program, CARB, with the participation of the local air pollution control districts, evaluates and develops any necessary control measures for TACs. The general goal of regulatory agencies is to limit exposure to TAC to the maximum extent feasible.

The State legislature authorized California Ambient Air Quality Standards (CAAQS) in 1967. State and Federal health-based air quality standards in California regulate the following criteria air pollutants: ozone (O_3), carbon monoxide (CO), nitrogen dioxide (NO_2), particulate matter less than 10 microns and 2.5 in diameter (PM_{10} and $PM_{2.5}$), sulfur dioxide (SO_2), and lead (Pb). California also regulates sulfate, visibility reducing particles, hydrogen sulfide (H_2S), and vinyl chloride (VC). However, H_2S and VC are currently not monitored in the SCAQMD because these contaminants are not common air quality problems in the basin. CAAQS and NAAQS for each of these pollutants and their effects on health are summarized in Table 3.7-2.

Broad Beach is located near the SCAQMD Northwest Coastal Los Angeles (NWCLA) County monitoring station, which is located approximately 23 miles northeast in West Los Angeles. Ambient air quality was compared to the most stringent of either the CAAQS or NAAQS. The data indicate that the NWCLA County area is in compliance with the CO, NO_2, SO_2, sulfates and lead standards for both the CAAQS and NAAQS, and the CAAQS sulfate standard. State O_3, PM_{10}, and $PM_{2.5}$ air quality standards were exceeded at the NWCLA County air monitoring station on some days during 2009 through 2012 (see Table 3.7-3).

Table 3.7-2. Ambient Air Quality Standards

Pollutant	Concentration and Averaging Time		Most Relevant Effects
	CAAQS	Primary NAAQS	
O_3	0.09 ppm, 1-hr. avg 0.07 ppm, 8-hr. avg	0.075 ppm, 8-hr. avg	(a&b) short- and long-term exposures: risks to public health (c) vegetation damage; (d) property damage.
CO	20 ppm, 1-hr. avg 9.0 ppm, 8-hr. avg	35 ppm, 1-hr. avg 9.0 ppm, 8-hr. avg	(a) aggravation of aspects of coronary heart disease; (b) decreased exercise tolerance in persons with peripheral vascular disease and lung disease; (c) impairment of central nervous system functions; (d) possible increased risk to fetuses.
NO_2	0.18 ppm, 1-hr avg 0.03 ppm, annual avg	100 ppb, 1-hr avg 0.053 ppm, annual avg	(a) potential to aggravate chronic respiratory disease and respiratory symptoms in sensitive groups; (b) risk to public health; (c) contribution to atmospheric discoloration.
SO_2	0.25 ppm, 1-hr. avg 0.04 ppm, 24-hr avg	75 ppb, 1-hr avg 0.5 ppm, 3-hr avg	(a) bronchoconstriction accompanied by symptoms that may include wheezing, shortness of breath, chest tightness during exercise or physical activity in persons with asthma.
PM_{10}	50 µg/m_3, 24-hr avg 20 µg/m^3, annual arithmetic mean	150 µg/m^3, 24-hr avg	(a) excess deaths from short-term exposures and exacerbation of symptoms in sensitive patients with respiratory or cardiovascular disease; (b) excess seasonal declines in pulmonary function, especially in children.
$PM_{2.5}$	12 µg/m^3, annual arithmetic mean	12 µg/m^3, annual avg 35 µg/m^3, 24-hr avg	
Sulfates	25 µg/m^3, 24-hr avg	Not applicable	(a) decrease in ventilatory function; (b) aggravation of asthmatic symptoms; (c) aggravation of cardiopulmonary disease; (d) vegetation damage; (e) visibility degradation; (f) property damage.
Visibility-Reducing Particles	In sufficient amount to reduce visual range to < 10 miles at relative humidity <70%, 8-hour avg (10 AM – 6 PM)	Not applicable	Visibility impairment on days when relative humidity is less than 70 percent.
H_2S	0.03 ppm, 1-hr. avg	No Federal Standard	Odor annoyance.
VC	0.01 ppm, 24-hr avg	No Federal Standard	Known carcinogen.

Source: SCAQMD 2014.

Note: By convention, metric units are commonly used to describe pollutant concentrations in the air. avg = average; ppm/ppb = parts per million/billion (by volume); µg/m^3 = micrograms per cubic meter (air).

Table 3.7-3. Area 2 Monitoring Station Data (NWCLA County, 2009-12)

Constituent		Maximum Observed Concentration (Number of Standard Exceedances - most restrictive)					
		State Standard	Federal Standard	2009	2010	2011	2012
CO	1-hour	20.0 ppm	35.0 ppm	2 (0 days)	2 0 days)	--	--
	8-hour	9.0 ppm	9.5 ppm	1.5 (0 days)	1.4 (0 days)	1.6 (0 days)	1.2 (0 days)
O_3	1-hour	0.09 ppm	--	0.131 (6 days)	0.099 (2 days)	0.098 (2 days)	0.093 (0 days
	8-hour	0.07 ppm	0.075 ppm	0.094 (5 days)	0.078 (3 days)	0.068 (0 days)	0.073 (1 day)
NO_2	1-hour	0.18 ppm	--	0.08 (0 days)	0.07 (0 days)	0.08 (0 days)	0.06 (0 days)
	Annual	0.03 ppm	0.053 ppm	0.017	0.016	0.016	0.014
SO_2	1-hour	0.25 ppm	--	0.02 (0 days)	0.026 (0 days)	0.012 (0 days)	0.005 (0 days)
	24-hour	0.04 ppm	0.14 ppm	0.006 (0 days)	0.004 (0 days)	0.008 (0 days)	0.005 (0 days)
	Annual	--	0.03 ppm	--	--	--	--
PM_{10}	24-hour	50 µg/m^3	150 µg/m^3	52 (0 days)	37 (0 days)	41 (0 days)	31 (0 days)
	Annual	20 µg/m^3	--	25.4	20.6	29.0	19.8
$PM_{2.5}$[b]	24-hour	--	35 µg/m^3	63.0	35.0	39.7	49.8
	Annual	12.0 µg/m^3	15.0 µg/m^3	13.0	10.5	11.0	10.4
Pb	30-day	1.5 µg/m^3	--	0.01	0.01	0.01	*
	calendar quarter	--	1.5 µg/m^3	0.01	0.01	0.01	
Sulfates	24-hour	25 µg/m^3	--	9.1 (0 days)	7.5 (0 days)	5.9 (0 days)	*

Source: SCAQMD 2014, CARB 2014.
ppm = parts per million; µg/m^3 = microgram per cubic meter
[a] Less than 12 full months of data.
[b] SO_2, PM_{10}, $PM_{2.5}$, Pb, and sulfates are not measured at the NWCLA County Station. Data are from the Southwest and/or South Coastal Los Angeles County Monitoring Stations.

Ozone and particulate matter are the air pollutants of most concern within Ventura County, which is where the three inland quarries and significant portions of the sand transportation routes to Broad Beach are located. Ventura County is in attainment for all CAAQS and NAAQS except ozone (State 1-hour and Federal 8-hour standards) PM_{10} (State 24-hour/annual average standards), and $PM_{2.5}$ (State annual average standard).

Climate Change and GHG Generation

GHGs are any gases that absorb infrared radiation in the atmosphere, including water vapor, CO_2, methane (CH_4), nitrous oxide (N_2O), and fluorocarbons. GHGs lead to the trapping and buildup of heat in the atmosphere near the earth's surface, known as the Greenhouse Effect. The atmosphere and the oceans are reaching their capacity to

absorb CO_2 and other GHGs without significantly changing the earth's climate. As discussed further below, the increase in GHGs in the earth's climate is projected to substantially affect a wide range of issues and resources, sea level rise, flooding, water supply, agricultural and forestry resources and energy demand.

Climate Change

As stated on California's Climate Change Portal (www.climatechange.ca.gov/Climate):

> Climate change is expected to have significant, widespread impacts on California's economy and environment. California's unique and valuable natural treasures - hundreds of miles of coastline, high value forestry and agriculture, snow-melt fed fresh water supply, vast snow and water fueled recreational opportunities, as well as other natural wonders - are especially at risk.

In addition, the Intergovernmental Panel on Climate Change (IPCC), in the section of its Fifth Assessment Report by Working Group II, "Climate Change 2014: Impacts, Adaptation, and Vulnerability," (IPCC 2014; released March 31, 2014) specific to North America (Chapter 26), stated in part:

> **North American ecosystems are under increasing stress from rising temperatures, CO_2 concentrations, and sea-levels, and are particularly vulnerable to climate extremes (*very high confidence*).** Climate stresses occur alongside other anthropogenic influences on ecosystems, including land-use changes, non-native species, and pollution, and in many cases will exacerbate these pressures (*very high confidence*). [26.4.1; 26.4.3]. Evidence since the Fourth Assessment Report (IPCC 2007) highlights increased ecosystem vulnerability to multiple and interacting climate stresses in forest ecosystems, through wildfire activity, regional drought, high temperatures, and infestations (*medium confidence*) [26.4.2.1; Box 26-2]; and in coastal zones due to increasing temperatures, ocean acidification, coral reef bleaching, increased sediment load in run-off, sea level rise, storms, and storm surges (*high confidence*) [26.4.3.1].

California has already been affected by climate change: sea level rise, increased average temperatures, more extreme hot days and increased heat waves, fewer shifts in the water cycle, and increased frequency and intensity of wildfires. Higher sea levels can result in increased coastal erosion (which may have a secondary effect such as uncovering hazards such as occurred in March 2014 along the Santa Barbara coastline), more frequent flooding from storm surges, increased property damage, and reduced waterfront public access options. Other projected climate change impacts in California include: decreases in the water quality of surface water bodies, groundwater, and coastal waters; decline in aquatic ecosystem health; lowered profitability for water-intensive crops; changes in species and habitat distribution; and impacts to fisheries (California Regional Assessment Group 2002). These effects are expected to increase with rising GHG levels in the atmosphere.

Greenhouse Gases

According to the IPCC, the concentration of CO_2, the primary GHG, has increased from approximately 280 parts per million (ppm) in pre-industrial times to well over 380 ppm. The current rate of increase in CO_2 concentrations is about 1.9 ppm/year; present CO_2 concentrations are higher than any time in at least the last 650,000 years. To meet the statewide GHG reduction target for 2020, requiring California to reduce its total statewide GHG emissions to the level they were in 1990 (Health & Safety Code, § 38550), and the 2050 goal of 80 percent below 1990 levels (Executive Order S-3-05), not only must projects contribute to slowing the increase in GHG emissions, but, ultimately, projects should contribute to reducing the State's output of GHGs. To reach California's GHG reduction targets, it is estimated that per capita emissions will need to be reduced by slightly less than 5 percent per year during the 2020 to 2030 period, with continued reductions required through midcentury.

In its 2008 "Report on Climate Change: Evaluating and Addressing Greenhouse Gas Emissions from Projects Subject to the California Environmental Quality Act," the California Air Pollution Control Officers Association (CAPCOA) stated:

> [w]hile it may be true that many GHG sources are individually too small to make any noticeable difference to climate change, it is also true that the countless small sources around the globe combine to produce a very substantial portion of total GHG emissions (CAPCOA 2008).

The global warming potential (GWP), or potential of a gas or aerosol to trap heat in the atmosphere, of different GHGs varies since GHGs absorb different amounts of heat. A common reference gas, CO_2, is used to relate the amount of heat absorbed to the amount of the gas emissions, referred to as CO_2 equivalent (CO_2e). CO_2e is the amount of GHG emitted multiplied by the GWP. The GWP of CO_2 is therefore defined as 1. Methane has a GWP of 21; therefore, 1 pound of methane produce 21 pounds of CO_2e. Table 3.7-4 shows a range of gases with their associated GWP, their estimated lifetime in the atmosphere, and the range in GWP over 20, 100, and 500 years.

GHG emissions are generally classified as direct and indirect. Direct emissions are associated with the production of GHG emissions in the immediate Broad Beach area, and include combustion of natural gas, combustion of fuel in engines and construction vehicles, and fugitive emissions from valves and connections of equipment used during Project implementation or throughout the Project life. Indirect emissions include emissions from vehicles (both gasoline and diesel) delivering materials and equipment to Broad Beach (e.g., haul trucks).

Table 3.7-4. Global Warming Potential of Various Gases

Gas	Life in the Atmosphere (years)	20-year GWP (average)	100-year GWP (average)	500-year GWP (average)
Carbon Dioxide	50-200	1	1	1
Methane	12	21	56	6.5
Nitrous Oxide	120	310	280	170
HFC-23	264	11,700	9,100	9,800
HFC-125	32.6	2,800	4,600	920
HFC-134a	14.6	1,300	3,400	420
HFC-143a	48.3	3,800	5,000	1,400
HFC-152a	1.5	140	460	42
HFC-227ea	36.5	2,900	4,300	950
HFC-236fa	209	6,300	5,100	4,700
HFC-4310mee	17.1	1,300	3,000	400
CF4	50,000	6,500	4,400	10,000
C2F6	10,000	9,200	6,200	14,000
C4F10	2,600	7,000	4,800	10,100
C6F14	3,200	7,400	5,000	10,700
SF6	3,200	23,900	16,300	34,900

Source: USEPA 2007.
GWP = Global Warming Potential; CF = chlorfluorocarbon; HFC = hydroflourocarbon.

3.7.1.2 Regulations Pertaining to Additional Analysis

State and other statutes related to air quality and GHGs are listed in Table 3.3 in Section 3.0, *Issue Area Analysis*. Pursuant to a consolidated coastal development permit (CDP), the California Coastal Commission (CCC) will address the Project's consistency with the Coastal Act and city of Malibu Local Coastal Program (LCP).

Under the provisions of the Federal Clean Air Act, the USEPA requires each state that has not attained the NAAQS to prepare an Air Quality Management Plan (AQMP), a separate local plan detailing how these standards are to be met. The California Lewis Air Quality Act of 1976 established the SCAQMD and mandated a planning process requiring preparation of an AQMP. The SCAQMD Governing Board adopted the Final 2012 AQMP on December 7, 2012. Proposed projects in the Basin are to be evaluated for conformity with the provisions of the 2012 Plan, along with any subsequent amendments. The 2007 Ventura County AQMP was adopted by the VCAPCD on May 13, 2008. Proposed projects under the jurisdiction of the VCAPCD are to be evaluated for conformity with the provisions of this 2007 Plan along with any subsequent amendments. Local regulations are listed in Table 3.7.5.

Table 3.7-5. Local Air Regulations

South Coast AQMD	Regulations II and III	Regulations II and III (Permits) contain rules specifying requirements and permit fees to construct and operate stationary equipment capable of emitting air contaminants, including air pollutant emission control equipment. Regulation II sets general requirements for obtaining SCAQMD permits. Rules 201 through 203 require Permits to Construct and Permits to Operate. Rule 219 provides for exemptions from permit requirements under Regulation II.
	Regulation IV	Regulation IV (Emission Prohibitions) defines the allowable concentration and emission levels for pollutants from specific sources and activities, as well as related inspection and maintenance requirements. Rule 402, Nuisance, prohibits discharge of air contaminants or other material that cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public; or that endanger the comfort, repose, health, or safety of any such persons or the public; or that cause, or have a natural tendency to cause, injury or damage to business or property. Rule 403, Fugitive Dust, prohibits emissions of fugitive dust from any active operation, open storage pile, or disturbed surface area that remain visible beyond the emission source property line. Best available control measures identified in the rule would be required to minimize fugitive dust emissions from unpaved areas. For landside Project construction staging areas, measures such as site watering and vehicle speed control on unpaved surfaces may be required.
	Regulation XIII	Regulation XIII (New Source Review) sets forth requirements to obtain permits to construct/permits to operate for new, or modification of existing sources.
	Regulation XIV	Regulation XIV (Toxics and Other Non-Criteria Pollutants) specifies standards and control requirements for emissions of toxic and other non-criteria pollutants from specified sources.
Ventura County APCD	Permits–Regulations II and III	VCAPCD Regulations II and III contain rules specifying requirements and permit fees to construct and operate stationary equipment capable of emitting air contaminants, including air pollutant emission control equipment. Regulation II sets the general requirements for obtaining VCAPCD permits. Rules 13 and 14 require Permits to Construct and Permits to Operate. Rule 23 provides for exemptions from permit requirements under Regulation II.
	Prohibitions – Regulation IV	Regulation IV defines the allowable concentration and emission levels for pollutants from specific sources and activities, as well as inspection and maintenance requirements for sources of emissions. For example, Rule 51, Nuisance, prohibits discharge of air contaminants or other material that cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public or which endangers the comfort, repose, health, or safety of any such persons or the public; or that cause, or have a natural tendency to cause, injury or damage to business or property.
	Rule 55, Fugitive Dust	Rule 55 prohibits emissions of fugitive dust from any active operation, open storage pile, or disturbed surface area that remain visible beyond the emission source property line. Best available control measures identified in the rule would be required to minimize fugitive dust from unpaved areas.
	Other VCAPCD Regulations	V (Orchard Heaters); VI (Source Testing & Stack Monitoring); VII (Hearing Board); VIII (Emergency Action); IX (Public Records); X (Transportation Outreach Program); XI (Conformity); XII (Enforcement, and Regulation); XIII (Registration Programs).

3.7.1.3 Public Trust Impact Criteria

Criteria for determining the significance of air quality impacts are based on Federal, State, and local air pollution standards and regulations. Impacts on air quality are considered to be significant if the Project's emissions would: increase ambient air

pollution levels from below to above these standards; contribute measurably to an existing or projected air quality violation; or be inconsistent with measures contained in applicable Air Quality Management/ Attainment Plans.

Potential significant air quality impacts near Broad Beach are evaluated using SCAQMD significance criteria for measurable emissions, Project-related emission factors, and daily threshold levels from Project operation (see Table 3.7-6).

Table 3.7-6. SCAQMD Air Quality Significance Thresholds

Thresholds	Pollutant		Construction, lbs/day	Operation, lbs/day
Mass Daily Thresholds (Project-Level Emissions)	NO_x		100	55
	VOC		75	55
	PM_{10}		150	150
	$PM_{2.5}$		55	55
	SO_x		150	150
	CO		550	550
	Lead		3	3
Mass Daily Thresholds (Localized Emissions)[1]	NO_x		221	221
	PM_{10}		13	3
	$PM_{2.5}$		6	2
	CO		1,531	1,531
TAC/Odor Thresholds	TAC (carcinogen and non-carcinogen)		Maximum Incremental Cancer Risk ≥ 10 in 1 million; Cancer burden above 0.5; Hazard Index ≥ 1.0 (Project increment)	
	Odor		Project creates an odor nuisance (see SCAQMD Rule 402)	
Ambient Air Quality for Criteria Pollutants	NO_2	1-hr avg annual avg	District is in attainment. Project is significant if it causes or contributes to exceedance of the following attainment standards: • 0.18 ppm (State) • 0.03 ppm (State) and 0.0534 (Federal)	
	PM_{10}	24-hr avg annual avg	10.4 $\mu g/m^3$ (construction) and 2.5 $\mu g/m^3$ (operation) 1.0 $\mu g/m^3$	
	$PM_{2.5}$	24-hr avg	10.4 $\mu g/m^3$ (construction) and 2.5 $\mu g/m^3$ (operation)	
	SO_2	1-hr avg 24-hr avg	0.25 ppm (State) & 0.075 ppm (Federal – 99th percentile) 0.04 ppm (State)	
	Sulfate	24-hr avg	25 $\mu g/m^3$ (State)	
	CO	1-hr avg 8-hr avg	District is in attainment. Project is significant if it causes or contributes to exceedance of the following attainment standards: • 20 ppm (State) and 35 ppm (Federal) • 9.0 ppm (State/Federal)	
GHG Emissions	CO_2, N_20, CH_4, etc.		· Project is presumed to be insignificant for GHG if Project GHG emissions are < or reduced to < 10,000 MT CO_2e/year. · If an existing project emits > 10,000 MT of CO_2e/year, then any increases above the baseline level would be significant.	

$\mu g/m^3$ = micrograms per cubic meter; avg = average; CO_2e = carbon dioxide equivalents; GHG = greenhouse gas; lb = pounds; MT = metric tons; ppm = parts per million; TAC = Toxic Air Contaminant

[1] Localized significance thresholds for a 5-acre site in Northwest Central Los Angeles County at a 25-meter receptor distance.

Source: SCAQMD 2014. Available at http://www.aqmd.gov/docs/default-source/ceqa/handbook/scaqmd-air-quality-significance-thresholds.pdf?sfvrsn=2

Potentially significant air quality impacts along the sand transportation routes in Ventura County are evaluated using VCAPCD criteria. The VCAPCD's Ventura County Air Quality Assessment Guidelines for the Preparation of Air Quality Impact Analyses (Guidelines), which were adopted in 1989 and revised in 2003, are used by most jurisdictions in the county to assess project air impacts. According to these Guidelines, a project that may cause an exceedance of any ambient air quality standard (State or Federal), or may make a substantial contribution to an existing exceedance of an air quality standard will have a significant adverse air quality impact. As outlined in the VCAPCD Guidelines, the Project would have a major and adverse effect if it would:

- Generate emissions exceeding 25 pounds per day (lbs/day) of reactive organic compounds (ROC/G) or nitrogen oxides (NO_x);
- Cause an exceedance or making a substantial contribution to an exceedance of an ambient air quality standard;
- Directly or indirectly cause the existing population to exceed the population forecasts in the most recently adopted AQMP;
- Be inconsistent with the Ventura County AQMP and emit greater than 2 lbs/day of ROC/G or NO_x; or
- Create a human health hazard by exposing sensitive receptors to toxic air emissions.

For TACs, the VCAPCD Guidelines recommend the following significance thresholds, which are the same as those adopted by the SCAQMD:

- Lifetime probability of contracting cancer is greater than 10 in one million (as identified in a health risk assessment [HRA]).
- Ground-level concentrations of non-carcinogenic toxic air pollutants would result in a Hazard Index of greater than 1 (as identified in an HRA).

While the VCAPCD has not yet adopted a GHG emissions threshold, recent environmental impact assessments within the county have used the threshold 10,000 tons per year, consistent with recommended State thresholds.

Under these Guidelines, projects that generate more than 25 lbs/day of ROC/G or NO_x would individually and cumulatively jeopardize attainment of the Federal ozone standard and thus have a significant adverse impact on air quality. The VCAPCD's 25 lbs/day thresholds for ROG and NO_x do not apply to temporary construction emissions; for construction impacts, the VCAPCD recommends imposition of reduction if emissions of either pollutant exceed 25 lbs/day. The VCAPCD also considers a project to have a significant air quality impact if it may generate fugitive dust emissions in such quantities as to cause injury, detriment, nuisance, or annoyance to any considerable number of persons, or which may endanger the comfort, repose, health, or safety of any such

person, or which may cause or have a natural tendency to cause injury or damage to business or property. This non-numeric threshold is particularly applicable to the generation of fugitive dust during construction grading operations. The VCAPCD recommends minimizing fugitive dust through use of dust control measures.

3.7.1.4 Public Trust Impact Analysis

This impact analysis considers the existing setting (i.e., the emergency rock and sand bag revetments are in place). The Project will have construction emissions and ongoing operational emissions that affect air quality within both the SCAB and SCCAB. The Project would generate air emissions due to the following activities: construction equipment and fugitive dust; heavy haul trucks transporting sand from quarries; and vehicles commuting to and from Broad Beach.

Short-term construction-related emissions would be generated in the vicinity of Broad Beach during beach nourishment, dune construction, annual backpassing, and one follow-up (after about 10 years) beach renourishment event. Additionally, public trust lands and resources down coast from Broad Beach within the South Coast Air Basin are generally considered in this analysis. These emissions have the potential to affect the public's right to safely enjoy public trust resources and activities.

Emissions would also be generated at the proposed inland sand sources in Ventura County, which include one to three operating quarries—CEMEX, Grimes Rock, and P.W. Gillibrand—and along the traffic corridors haul trucks would use to transport sand from the quarries to Broad Beach. An Air Quality and Climate Change Technical Report has been prepared for the Project (see Appendix G); the air quality impact analysis presented below is based on the results of this Report, which used the California Emissions Estimator Model (CalEEMod) Version 2013.2.1 to estimate emissions for criteria pollutants, GHGs, and TACs that would result from implementation of each phase of the Project. The CalEEMod data encompass the entire BBGHAD Project area, including emissions generated by trucks traveling from and to the quarries within Ventura County to Broad Beach. These data are provided in Appendix G for use by the applicable air quality agencies.[1]

Air emissions associated with a project are cumulative and affect both local and regional air quality. In this analysis, air emissions associated with the Project have been analyzed as a whole, and therefore impacts related to Project activities in the CSLC Lease Area and Public Trust Impact Area as well as the BBGHAD Inland Project Area have been combined in this impact discussion.

[1] A critical assumption for this model was that 600,000 cubic yards (cy) of sand would be hauled to Broad Beach for initial nourishment, resulting in 43,000 round trips by trucks with 14-cy capacities for 56 miles each way. The Report assumed 411 round trips.

Impact AQ-1: Construction and Transportation Impacts on Air Quality

Construction activities would generate emissions that exceed South Coast Air Quality Management District thresholds, while emissions from Haul Trucks would exceed Ventura County Air Pollution Control District thresholds (Major Adverse Effect, Class Mj).

Impact Discussion (AQ-1)

Initial Nourishment Construction Activities

Operation of construction equipment with internal combustion engines (e.g., generators, bulldozers, backhoes, scrapers) and offsite vehicles (e.g., employee vehicles; delivery trucks) would generate criteria air pollutants (CO, ROC, NO_x, SO_2, and PM) during Project implementation. Large equipment traveling on disturbed soil, unpaved surfaces, and various earth-moving activities, such as trenching, grading, and clearing generates "fugitive dust" and other PM emissions. These emissions mostly depend on the size of graded area, volume of moved soil, the number of construction machinery and vehicles, and the duration of construction. Based on the CalEEMod data, total construction emissions generated during Project implementation would exceed SCAQMD project-level thresholds for pounds of pollutant generated each day for volatile organic compounds (VOCs), CO, and NO_x but not for SO_X, PM_{10}, and $PM_{2.5}$ (Table 3.7-7). Additionally, onsite construction emissions would exceed SCAQMD localized significance thresholds for NO_x and $PM_{2.5}$, but not for CO or PM_{10}; there are no localized significance thresholds for VOCs and SO_x (Table 3.7-7).

Table 3.7-7. Project Construction Criteria Emissions (SCAQMD)

Phase	Year	Peak Day Emissions (pounds/day)					
		VOC[1]	CO	NO_x	SO_2[2]	PM_{10}	$PM_{2.5}$
Maximum Total Emissions (with trucking)[3]	1	169.9	665.8	506.1	1.3	124.3	37.0
SCAQMD Project-Level Thresholds[4]		75	550	100	150	150	55
Above SCAQMD Threshold?		**Yes**	**Yes**	**Yes**	**No**	**No**	**No**
Maximum Onsite Emissions[5]	1	26.6	167.1	301.0	0.2	8.3	4.9
SCAQMD Localized Significance Thresholds[6]		--	1,531	221	--	13	6
Above SCAQMD Threshold?		**N/A**	**No**	**Yes**	**N/A**	**No**	**No**

[1]ROG as defined by CalEEMod is assumed to be equal to VOC as defined by SCAQMD.
[2]CalEEMod reported SO_2 emissions are assumed to be representative of SO_X emissions.
[3]Emissions are a conservative estimate based on the current Project Description, using a 56-mile average haul route distance, 420 truck loads per day, and an 11-hour construction day and have been updated from quantities listed in the Air Quality and Climate Change Report, Appendix G,
[4]SCAQMD significance threshold for construction activities.
[5]Emissions are based on an 11-hour day operating schedule and have been proportionally adjusted from quantities stated in Appendix G in order to reflect the current Project Description;
[6]Localized significance thresholds for a 5-acre site in Northwest Central Los Angeles County at a 25-meter receptor distance. It is assumed that mo more than 5 acres of Broad Beach would be worked on at any given time.

Air emissions from construction equipment were estimated using the emission factors from the CalEEMod software. All machinery used in the Project would be equipped with appropriate mufflers and all engines would be regularly maintained. Controlled emission factors were used from CalEEMod to calculate fugitive dust emissions. Detailed calculations are contained in the Air Quality and Climate Change Technical Report in Appendix G. In this analysis, emission quantities have been adjusted from those stated in Appendix G to reflect the current Project Description (see Section 2). Implementation of AMMs AQ-1a and AQ-1b (see below) would reduce potential impacts and would be required to obtain permits by the applicable air districts for these Project activities.

Total Project VOC, CO, and NO_x emission levels would exceed SCAQMD project-level significance thresholds due to emissions associated with use of grading, the use of construction equipment, and the relatively large number of haul truck trips necessary to transport 600,000 cy of sand. NO_x emissions would also exceed localized significance thresholds due to grading and use of construction equipment at Broad Beach. Given that VOC, CO, and NO_x emissions would exceed SCAQMD project-level significance thresholds and NO_x emissions would exceed localized significance thresholds, Project construction would result in a potentially major adverse effect.

The majority of inland construction emissions would be associated with hauling of sand from the quarries. Receptors close to PCH would experience a temporary increase in concentrations of VOC, CO, NO_X, and PM throughout the duration of the hauling phase, which is expected to last 5 months. Although of low potential to occur, CO hotspots may develop in areas with high vehicle density, such as congested intersections. Hauling activities would also affect local air quality along PCH, as haul trucks would pass close to hundreds of homes, several State Parks and campgrounds, and multiple public coastal access points and beaches. Table 3.7-8 lists examples of receptors that may be impacted from hauling operations, along with their proximity to PCH. Additional informal access points as well as access at County beach parks may also be impacted.

Table 3.7-8. Local Sensitive Receptors along PCH

Receptor	Minimum Distance from Travel Lane
Homes along PCH	35 ft
Sycamore Canyon Beach	130 ft
North Beach Campground	200 ft
Leo Carillo State Park	200 ft
Point Mugu State Park Campground	360 ft
El Matador State Beach	500 ft

As shown in Table 3.7-9, hauling activities along inland routes within Ventura County would emit VOC and NO_X levels in exceedance of thresholds listed in the VCAPCD Guidelines during the 5-month period. As the sand transportation routes pass through communities in Moorpark, Simi Valley, Santa Paula, Camarillo and Fillmore, hauling activities would affect air quality near residences, schools, and other sensitive land uses near transport routes. More information on sensitive land uses near the sand transportation routes is provided in Section 3.7.2, *Traffic and Parking*.

Table 3.7-9. Inland Project Criteria Emissions (VCAPCD)

Phase	Year	Peak Day Emissions (pounds/day)					
		VOC[1]	CO	NO_x	SO_x	PM_{10}	$PM_{2.5}$
Maximum BBGHAD Inland Project Area Emissions[1]	1, 10 [2]	143.3	498.7	205.1	1.1	116.0	32.1
VCAPCD Threshold		25	-	25	-	-	-
Above VCAPCD Threshold?		**Yes**	**-**	**Yes**	**-**	**-**	**-**

[1] Emissions based on a 56-mile average haul route distance and 420 truck trips per day. Inland Emissions Calculated by (Total Emissions - Onsite Emissions = Emissions in Inland Project Areas)

[2] Emissions levels in inland Project Areas are expected to be the same for both initial nourishment and renourishment hauling operations

Emissions of NO_x and VOCs can be reduced by using newer, cleaner diesel engines that meet USEPA Tier emissions requirements. However, based on the projection that the Project would exceed the SCAQMD NO_x threshold of 100 lbs/day by a factor of approximately five and the VOC threshold of 75 lbs/day by a factor of approximately two, and that onsite NO_x emissions would exceed the localized significance threshold of 221 lbs/day by 80 lbs/day, it is anticipated that the Project's construction-related emissions would continue to exceed the SCAQMD NO_x and VOC thresholds even with use of newer technologies described in AMM AQ-1c below. Therefore, impacts from NO_x and VOC emissions would remain a potentially major adverse effect.

While the projected emissions for PM are below SCAQMD project-level and SCAQMD localized thresholds, fugitive dust from the sand that would be stockpiled, moved, and placed throughout the dune construction and backpassing phases of the Project could impact local receptors. AMM AQ-1d below would reduce fugitive dust emissions associated with the Project by requiring implementation of dust control measures during construction activities, if necessary, to include spraying water from tank trucks over exposed areas. Additionally, use of newer technologies through implementation of AMM AQ-1c would also reduce $PM_{2.5}$ emissions at the Project site. Implementation of these AMMs would reduce this impact such that it would have a minor adverse effect.

$PM_{10,}$ $PM_{2.5}$ and SO_2 emissions from Project construction are not anticipated to exceed the SCAQMD project-level or localized thresholds of significance and would not be a major adverse effect during construction.

Backpassing and Renourishment Construction Activities

After initial nourishment, both backpassing operations and one follow-up renourishment event would generate emissions. The renourishment operation is projected to occur approximately 10 years after Project initiation in accordance with triggers based on monitoring. Renourishment is anticipated to involve placing an additional 450,000 cy of sand on the beach, similar to the original nourishment event. Sand would be deposited on Broad Beach within 6 months. The sand source for renourishment operations would

be the same as for the initial nourishment, unless applicable agencies approve other borrow sites. For the purposes of this analysis, renourishment operations are assumed to use the same construction methods, sand transportation routes, and truck haul trips per day as in the initial nourishment operation.

Backpassing operations will move sand from wider reaches of Broad Beach to narrower reaches of the beach and will occur no more than once per year. Backpassing would use scrapers, bulldozers, or other heavy equipment to excavate sand from the "sand rich" segment of Broad Beach and transport the sand to the eroding reach. Backpassing would likely involve movement of 35,000 cy of sand from the beach's east end to its west end, which is anticipated to occur during the fall/winter season. The duration of sand backpassing could be up to 3 weeks. Backpassing operations will not require the transportation of additional sand from inland sand sources, and therefore emissions from backpassing operations will not occur within Ventura County.

Because backpassing and renourishment are both relatively short term temporary construction activities, these activities were analyzed using SCAQMD construction thresholds as well as VCAPCD Guidelines for air emissions.[2] Construction activities for the initial and renourishment operations would be similar in type and scale, and therefore air quality impacts associated with nourishment and renourishment would be similar. As with initial beach construction, maximum daily emissions during renourishment would exceed SCAQMD thresholds for pounds of pollutant generated each day of VOCs, CO, and NO_x, but not for SO_X, PM_{10}, and $PM_{2.5}$ (see Table 3.7-10). Additionally, onsite construction emissions would exceed SCAQMD localized significance thresholds for NO_x and $PM_{2.5}$, but not for CO or PM_{10}. Backpassing operations would not exceed SCAQMD thresholds nor localized significance thresholds.

As with the initial nourishment, VOCs and NO_x emissions during the single renourishment event would be reduced through the implementation of AMM AQ-1c; however, these emissions are not expected to be reduced below SCAQMD thresholds. Therefore, emissions of VOCs, CO, and NO_x would remain above SCAQMD Project-level thresholds and emissions of NO_x would remain above SCAQMD localized significance thresholds, and this impact would be a potentially major short term adverse effect. Because backpassing would not exceed any SCAQMD localized significance thresholds, localized emissions would have a minor adverse effect. Implementation of AMM AQ-1c would reduce NOx, VOC, and PM emissions such that this impact would have a minor adverse effect.

[2] Backpassing would occur up to one time annually over a maximum 3-week period. Renourishment would occur once in approximately 20 years and would extend over an estimated 6 months.

Table 3.7-10. Project Backpassing and Renourishment Criteria Emissions

Phase	Year	Peak Day Emissions (pounds/day)					
		VOC[1]	CO	NO_x	SO_2[2]	PM_{10}	$PM_{2.5}$
Backpassing Emissions[3]	2-20	6.2	50.5	75.6	0.07	3.6	1.7
Renourishment Emissions[4]	10	168.2	651.5	487.2	1.3	123.9	36.8
SCAQMD Project-Level Thresholds[5]		75	550	100	150	150	55
Backpassing Above SCAQMD Threshold?		**No**	**No**	**No**	**No**	**No**	**No**
Renourishment Above SCAQMD Threshold?		**Yes**	**Yes**	**Yes**	**No**	**No**	**No**
Onsite Backpassing Emissions	2-20	6.2	50.5	75.6	0.07	3.6	1.7
Onsite Renourishment Emissions[6]	10	24.7	**152.8**	282.1	0.2	7.9	4.7
SCAQMD Localized Significance Thresholds[5]		--	1,531	221	--	13	6
Backpassing Above SCAQMD Threshold?		**No**	**No**	**No**	**N/A**	**No**	**No**
Renourishment Above SCAQMD Threshold?		**No**	**No**	**Yes**	**N/A**	**No**	**No**

[1] ROG as defined by CalEEMod is assumed to be equal to VOC as defined by SCAQMD.
[2] CalEEMod reported SO_2 emissions are assumed to be representative of SO_X emissions.
[3] Emission quantities in Appendix G were originally based on 50,000 cy and have been pro-rated to 35,000 cy assuming no change to duration of emissions.
[4] Emissions quantities calculated on initial nourishment emissions data, less emissions from dune construction and planting activities, assuming that construction hours and methods will be the same for both initial nourishment and renourishment
[5] SCAQMD significance threshold for construction activities.
[6] Emissions quantities calculated from total renourishment emission, less inland Project emissions.

Avoidance and Minimization Measure(s)

AMM AQ-1a: South Coast Air Quality Management District (SCAQMD) Compliance. Prior to placement of any sand on areas of Broad Beach under the jurisdiction of the CSLC, the Applicant shall provide CSLC staff copies of approvals or a letter of non-objection from the SCAQMD for construction and sand transport activities associated with the Broad Beach Restoration Project.

AMM AQ-1b: Ventura County Air Pollution Control District (VCAPCD) Compliance. Prior to placement of any sand on areas of Broad Beach under the jurisdiction of the CSLC, the Applicant shall provide CSLC staff copies of approvals or a letter of non-objection from the VCAPCD for transport of sand from inland quarries in Ventura County.

AMM AQ-1c: Nitrogen Oxides (NO_x), Volatile Organic Compounds (VOCs), and Particulate Matter (PM) Control. The Applicant shall implement a NO_x reduction program including the following, or equivalent, measures:

- All off-road construction equipment shall be tuned and maintained according to manufacturers' specifications.
- Any temporary electric power shall be obtained from the electrical grid, rather than portable diesel or gasoline generators.
- All off-road diesel construction equipment with greater than 100-horsepower engines shall meet Tier 4 requirements. If the SCAQMD determines or concurs that a Tier 4 fleet or portion thereof cannot be

obtained, the Applicant shall use construction equipment that meets Tier 3 emissions requirements or use other California Air Resources Board (CARB)-verified emission control technologies to achieve the same level of emission reduction.

- Limit onsite truck idling to less than 5 minutes.
- A copy of the certified tier specification, best available control technology documentation, or the CARB or SCAQMD operating permit for each piece of equipment shall be provided when each piece of equipment is mobilized.

AMM AQ-1d: Fugitive Dust Emission Control. The Applicant shall submit and implement a Fugitive Dust Control Plan that includes SCAQMD controls for fugitive dust, according to Rule 403. Fugitive dust control measures in the plan shall include the following:

- Require minimum soil moisture of 12 percent for earthmoving, by using a moveable sprinkler system or water truck. Moisture content can be verified by lab sample or moisture probe (69% reduction).
- Limit on-site vehicle speeds roads to 15 miles per hour (mph) with radar enforcement (57% reduction) and posting of speed limits.
- All trucks hauling sand and other loose materials are to be tarped with a fabric cover and maintain a freeboard height of 12 inches (91% reduction).
- Water storage piles by hand or apply cover when wind events are declared, according to SCAQMD Rule 403 when instantaneous wind speeds exceed 25 mph (90% reduction).
- Appoint a construction relations officer to act as a community liaison concerning onsite construction issues, such as dust generation.

Rationale for Avoidance and Minimization Measure(s)

The AMMs would reduce NO_x ,VOC, and PM emissions and help protect public health, but would not eliminate potential impacts on local and regional air quality.

Impact AQ-2: Construction Impact of Greenhouse Gas (GHG) Emissions

Potential beach enhancement activities would increase GHG emissions (Negligible Effect, Class N).

Impact Discussion (AQ-2)

Transport and placement of sand as part of beach nourishment would generate GHGs, with the largest source of GHG emissions associated with sand transport. GHG emissions were estimated using equipment size and fuel use data to estimate criteria emissions along with emission factors as defined by the CARB and USEPA (see Appendix G). GHGs associated with Project construction include emissions from combustion sources (construction equipment), offsite vehicles, electrical generation, and fugitive CO_2 and CH_4 emissions. Emissions associated with all equipment, including

mobile sources, as shown in Tables 3.7-11 and 3.7-12, are short-term and would not exceed the SCAQMD threshold of 10,000 tons per year. Therefore, potential impacts to Public Trust resources would be negligible.

Table 3.7-11. Initial Project Construction GHG Emissions

Construction Activity	Year	Off-Road Equipment	On-Road Vehicles	Total
		CO_2e Emissions (MT/year)		
Nourishment	1	1,608.2	1,980.0	3,588.2
Dune construction	1	21.1	378.9	400.0
Planting, fencing, signage, irrigation[1]	1	--	16.0	16.0
Total For all Activity (MT CO_2e)				**4,004.2**
30-year Amortized (MT/year CO_2e)				**133.5**

[1] No off-road equipment is used for the planting, fencing, signage, and irrigation phase.
[2] Haul truck trip length was changed to 56 miles after execution of the CalEEMod runs using an original hauling distance of 45 miles. Because emissions are a linear function of vehicle miles traveled, hauling emissions from the CalEEMod output files were scaled by multiplying by a factor of 56/45.

Table 3.7-12. Follow-Up Project Construction GHG Emissions

Construction Activity		CO_2e Emissions for Source Category (MT/year)	
		Phase	Project Total
Total Annual Emissions	Backpassing	Annual Project area sand redistribution	42
One-Time Emissions[1]	Renourishment[2]	10-year event (2024)	108
	Vegetation[3]	Planting, fencing, signage, irrigation	-0.4
	Construction	Nourishment, dune construction, and planting, fencing, signage, irrigation	133
		Total	**271**

[1] Total emissions from one-time events are amortized over 30 years. Emission quantities in Appendix G were originally based on 50,000 cy and have been pro-rated to 35,000 cy
[2] Total CO_2e emissions from renourishment is anticipated to be 3229 pounds since it would be 90 percent of the initial nourishment event (i.e., 450,000 cy instead of 500,000 cy).
[3] Negative emissions from vegetation change indicate an increase in CO_2e sequestration.

Impact AQ-3: Construction Toxic Pollutant Emissions and Potential Health Risks

Construction activities would generate emissions of toxic air contaminants that would potentially impact human health (Minor Adverse Effect, Class Mi).

Impact Discussion (AQ-3)

A HRA in accordance with SCAQMD Rule 1401 procedures was performed to analyze the risk of the estimate diesel particulate matter (DPM) emissions from on-site construction activities. DPM has carcinogenic and chronic health risks, but no acute health effects. The worst-case health risk associated with beach enhancement could potentially exceed applicable health risk criteria for individual cancer risk. Based on the HRA modeling results, potential health risks would be considered potentially significant

with the peak annual excess cancer risk exceeding 10 in one million at several locations. Sources that contributed the greatest to the health risk levels mainly included diesel engines from haul trucks and sand-spreading activities at Broad Beach.

As shown in Table 3.7-13, construction activities would generate a total of 346 lbs of DPM emissions. Because the analysis for calculating cancer risk assumes exposure over 70 years, the amortized exposure is equal to 4.95 lbs/yr. The maximum individual cancer risk (MICR) and chronic health index (HIC) were calculated using parameters found in the tables in Rule 1401 Attachment L. Construction activities were assumed to cover up to 5 acres at any given time and the distance to a nearest sensitive receptor was assumed to be 50 meters. The calculated MICR is 5.68E-06 and the calculated HIC is 2.49E-01, which are below the SCAQMD significance thresholds of 10 in a million and 1.0, respectively (see Appendix G). If higher Tier equipment is used, the estimated emissions and associated health risk would be lower than that estimated here.

Table 3.7-13. Toxic Air Contaminant Emissions at Broad Beach Area

Construction Activity	Year	Off-Road Equipment Diesel PM	
		(tons)	(lbs)
Nourishment	1	0.17	342
Dune Construction	1	0.002	4
Planting, Fencing, Signage, Irrigation	1	--	--
Total for All Activity		**0.173**	**346**
70-year Amortized[1]		**2.47E-03/yr**	**4.95/yr**

[1] The diesel exhaust PM_{10} emissions from on-site off-road construction equipment are amortized over 70 years because the analysis for calculating cancer risk assumes exposure occurs over 70 years.

Emissions of toxic materials can be further reduced by limiting operations near sensitive receptors and installing devices on diesel engines that reduce emissions of toxic materials. These devices are verified and registered by the CARB and are commonly used on diesel engines throughout industry to reduce DPM, the main toxic component of diesel exhaust.

TAC emissions are also a product of motor vehicles. About half of TAC emissions in the U.S. result from motor vehicles, and vehicles account for 75 percent of CO emissions (USEPA 2012). The Project is estimated to have 43,000 truck haul trips traveling about 56 miles per day along the sand transportation routes during initial nourishment operations. According to the Traffic and Parking Assessment in Appendix H, trucks in this Project will have a 2.0 Passenger Car Equivalent (PCE). Therefore the project is expected to produce the emissions of 86,000 passenger car trips. The exact levels of TAC emissions from truck hauling activities are currently unknown; however, AMM AQ-1c would reduce emissions such that this impact would have a minor adverse effect.

Avoidance and Minimization Measure(s)

The following AMM would also be required to minimize levels of public health risk.

AMM AQ-3: Diesel Particulate Emission Controls. The Applicant shall install California Air Resources Board (CARB)-verified Level 3 diesel catalysts on all diesel-powered off-road equipment or use diesel engines that have an equivalent particulate matter (PM) emission rate (Tier 4 engines). (See www.arb.ca.gov/diesel/verdev/vt/cvt.htm for a current list of CARB-verified Level 3 diesel catalysts.) Catalysts or engine certifications shall demonstrate achieving 85 percent reduction for diesel PM.

In addition, **AMMs AQ-1c** and **AQ-1d** would reduce emissions of TACs.

Rationale for Avoidance and Minimization Measure(s)

CARB recommends diesel catalysts, which are widely used to reduce emissions from diesel engines, as part of its Airborne Toxic Control Measures and maintains a list of certifications of applicable technologies. CARB has evaluated various types of control options for diesel particulate and identified the control efficiency, cost, and source test data. CARB found that the most effective control technologies are catalyst-based diesel particulate filters. CARB requires diesel catalyst manufacturers to certify that they can achieve the required reduction levels. Reductions in potential diesel particulate emissions would minimize potential health risks. Reductions in diesel particulate emissions would reduce the potential excess cancer risk to a level that is less than the SCAQMD significance threshold.

3.7.1.5 Summary of Air Quality and Greenhouse Gases Impacts and AMMs

Impact	Class	AMMs
AQ-1: Construction and Transportation Impacts on Air Quality	**Mj**	**AMM AQ-1a**. SCAQMD Compliance **AMM AQ-1b**. VCAPCD Compliance **AMM AQ-1c.** NO_x/VOC/PM Emission Controls **AMM AQ-1d.** Fugitive Dust Emission Controls
AQ-2: Construction Impact of Greenhouse Gas Emissions	**N**	No AMMs recommended
AQ-3: Construction Toxic Pollutant Emissions and Potential Health Risk	**Mi**	**AMM AQ-3.** Diesel Particulate Emission Controls **AMM AQ-1c.** NO_x/VOC/PM Emission Controls **AMM AQ-1d.** Fugitive Dust Emission Controls

3.7.2 TRAFFIC AND PARKING

This section of the Revised APTR describes local roads (including PCH) and parking facilities along Broad Beach and the Public Trust Impact Area (see Figure 1-2), impacts on these local facilities, and their use by the public when accessing public trust lands and waters. Public transit is not discussed, as the public's use of transit to access the shoreline is unlikely to be affected by short-term construction activities. The information in this section is based primarily on the Traffic and Parking Assessment for the Project, prepared by Linscott, Law & Greenspan (2013, 2014) provided in Appendix H and subject to independent peer review by Associated Transportation Engineers. This section also provides a qualitative assessment of the inland transportation routes from the three proposed inland sand sources (P.W. Gillibrand Quarry, CEMEX Quarry, and Grimes Rock Quarry) to PCH.

3.7.2.1 Environmental Setting Pertaining to the Public Trust

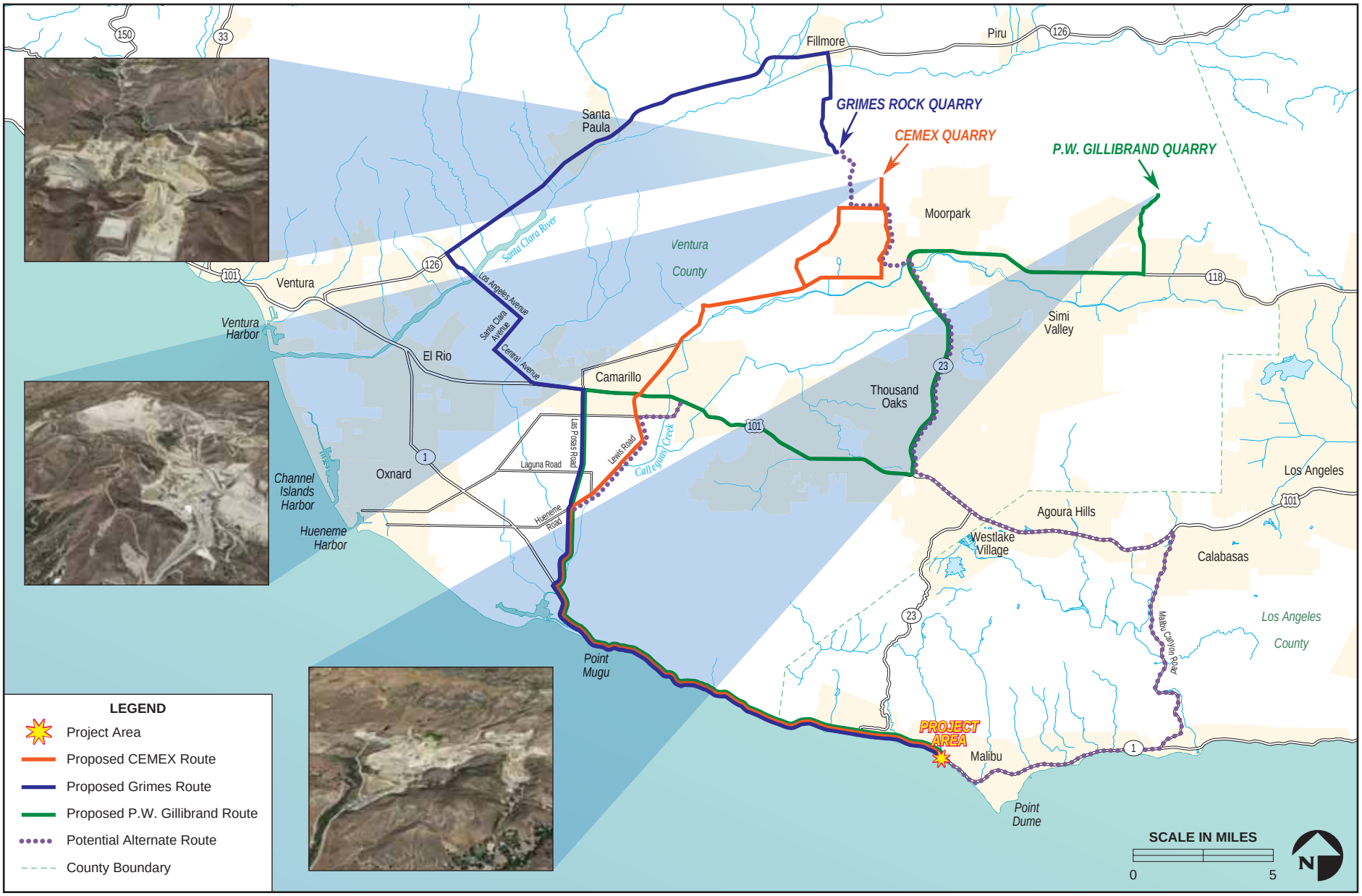
Relationship of Traffic and Parking to Public Trust Resources and Values

Traffic and parking relate to public trust resources to the extent that construction activities may worsen traffic and parking and affect the public's ability to access public trust lands along the shoreline and ocean waters.

PCH

PCH runs east and west through the Project area. PCH provides four travel lanes (two in each direction) with a center median in this reach that includes signalized and unsignalized left turn lanes at intersections (Illustration 3.7-1). Traffic volumes on PCH are approximately 25,000 average daily trips (ADTs) on the segment of PCH that fronts Zuma Beach. The two-lane segment of PCH from Las Posas Road to Yerba Buena Road has an approximate peak hour traffic volume of 1,173 trips and currently operates at a Level of Service (LOS) rating of D, while the passing lane segment is rated B. The AM and PM peak hour LOS for each of these intersections is provided in Table 3.7-14. Posted speed limits along PCH are 55 and 50 miles per hour (mph) west and east of Trancas Canyon Road respectively. The line of sight for drivers is generally excellent. Free road shoulder parking is available on the entire oceanside frontage of PCH along the western end of Zuma Beach.

Illustration 3.7-1. *PCH in the Project vicinity is a 50 to 55 mph, four-lane divided highway with scattered intersections. Free road shoulder parking is available on the ocean side of PCH along its Zuma Beach frontage.*



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Beach Nourishment Sand Sources

FIGURE 3.7-2

Table 3.7-14. Current LOS of Intersections in Broad Beach Vicinity

Intersection	Peak Hour	Delay or Volume/Capacity (V/C) Ratio	LOS
Decker Road/PCH	AM	13.1 seconds	B
	PM	20.1 seconds	C
Trancas Canyon Road-Broad Beach Road/PCH	AM	0.508	A
	PM	0.527	A
Guernsey Avenue/PCH	AM	20.6 seconds	C
	PM	21.6 seconds	C
Heathercliff Road/PCH	AM	0.544	A
	PM	0.565	A
Kanan Dume Road/PCH	AM	0.813	D
	PM	0.950	E

PCH provides access to multiple state and county parks and local beaches along the coast from Point Mugu east to Zuma and Broad Beaches. Substantial amounts of public coastal access parking are provided in developed lots along this section of shoreline with access driveways off PCH. Onroad and road shoulder parking along both the north and southbound lanes also occur throughout this reach of PCH, particularly at heavily used locations, such as Leo Carrillo State Beach. Beachgoers unload surfboards, kayaks and other beach equipment adjacent to travel lanes cross PCH at uncontrolled locations (i.e., jaywalking) throughout such areas, creating potential traffic hazards.

Broad Beach Road

Broad Beach Road is a two-lane public residential roadway that provides the primary access to homes along the coast in the area (Illustration 3.7-2). Broad Beach Road extends easterly for 1.5 miles from the PCH/Broad Beach Road intersection along the coast to a signalized intersection at PCH/Trancas Canyon Road. Two public coastal access ways are located along central and western Broad Beach. These access points lead from on-street, road-shoulder parking opposite residential parcels and over the existing emergency revetment to the beach. Free parking along Broad Beach Road is generally located on the unpaved road shoulder in un-marked spaces. Availability is dependent on the number of beachgoers at any given time; however, open parking is generally available within walking distance of these access points. Parking is not specified for beach use, and is used by the residents living along Broad Beach Road as well as by contractors and construction workers.

Illustration 3.7-2. *Broad Beach Road is a quiet, two-lane, residential street with informal parking available for coastal access on the road shoulder. In places, private encroachments for landscaping or retaining walls displace parking spaces. Construction worker parking for ongoing remodels can also occupy parking spaces.*

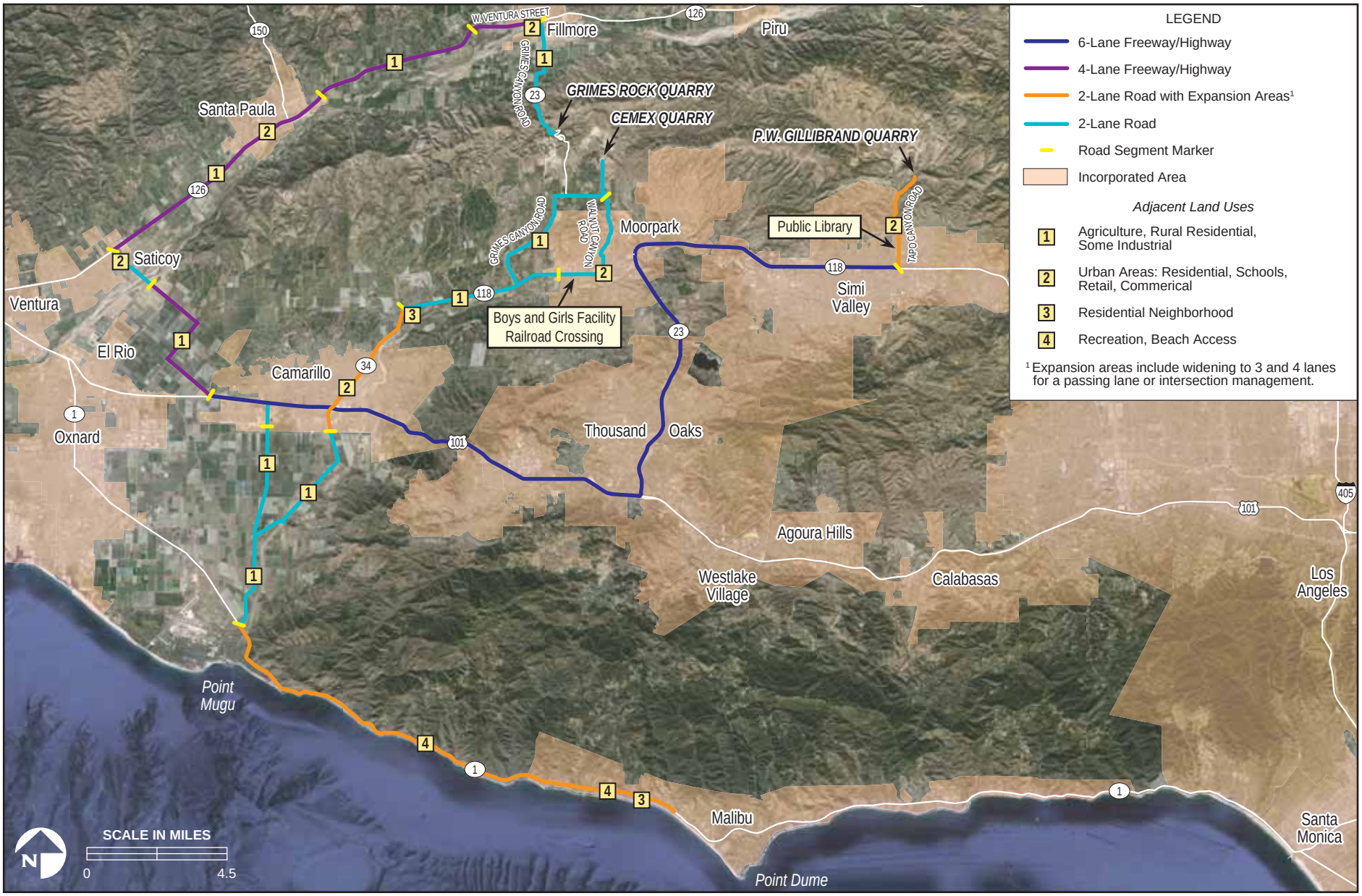
Zuma Beach Parking Lot 12 and Staging Area

Zuma Beach is a Los Angeles County-owned and operated park that extends for approximately 1.5 miles along the coast east of Broad Beach, with public parking lots situated between PCH and the beach for almost its entire reach. Primary park access is located at the eastern end of Zuma Beach at the park entrance intersection with Busch Drive. Access to these parking lots is via the Zuma Beach Access Road, a frontage road located just seaward of PCH. Off-street parking at Zuma Beach totals approximately 2,025 spaces in 12 separate lots. Parking counts for September 2012 through May 2013 were used to evaluate parking use and demand. During this period parking ticket sales exceeded the number of spaces available only three times, which corresponded to major holiday weekends. During the rest of the non-summer months, parking supply exceeded ticket sales by an average of 1,587 spaces (Linscott, Law & Greenspan, 2013). The public uses Zuma Beach parking lots to access public trust lands along the shoreline, including Broad Beach to the west. The westernmost Zuma Beach parking lot, Parking Lot 12, is located 700 feet east of the eastern end of Broad Beach. Approximately 260 designated parking stalls are available in Parking Lot 12 of Zuma Beach County Park. Parking is also available on the oceanside frontage of PCH along Zuma Beach and on the shoulder of PCH, adjacent to Zuma Beach.

BBGHAD Inland Project Area

Three primary transportation routes would be used to haul sand as part of the Project (Figure 3.7-2). Each route originates at one of three quarries in Ventura County—CEMEX Moorpark Quarry, Rock Grimes Quarry, and P.W. Gillibrand Quarry—and continues to Broad Beach. All three routes include the portion of PCH between Las Posas Road and Broad Beach. Descriptions of the routes are presented below.

- **CEMEX Quarry** (9035 Roseland Avenue, Moorpark). The proposed haul route in Moorpark would include Roseland Avenue, Happy Camp Road, Walnut Canyon Road, Grimes Canyon Road (also known as State Route [SR]-23), and SR 118 to Somis Road/SR-34. The route south of SR-34 includes S. Lewis Road and Hueneme Road in Camarillo and Las Posas Road from Hueneme Road to PCH.
- **Grimes Rock Quarry** (3500 Grimes Canyon Road, Fillmore). As proposed, haul trucks would travel on SR-23 and SR-126 from this quarry to Fillmore on to Saticoy. The route includes SR-118 near Saticoy, sections of Santa Clara and Central Avenues near Camarillo, and US-101 between Camarillo and Thousand Oaks. Las Posas Road in Camarillo would be used between Camarillo and PCH.
- **P.W. Gillibrand Quarry** (5000-5599 Bennett Road, Simi Valley). The proposed haul route includes Bennett Road and Tapo Canyon Road in Simi Valley, SR-118 between Simi Valley and Moorpark, SR-23 between Moorpark and Thousand Oaks, US-101 between Thousand Oaks and Camarillo, and Las Posas Road in Camarillo to PCH.



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Truck Route Road Types and Adjacent Uses

FIGURE 3.7-3

Table 3.7-15 below details adjacent land uses to segments along the sand transportation routes. Sensitive land uses include residential neighborhoods in Fillmore, Somis, Moorpark and Camarillo, and schools, such as Walnut Canyon Elementary and Union High in Moorkpark, Camarillo Montessori School, and Ventura County Community College. Other sensitive land uses include the Boys and Girls Club and senior center in Moorpark, and Moorpark Library.

Table 3.7-15. Land Uses Adjacent to Segments of Truck Haul Routes

Route Segment	Adjacent Land uses
SR-23/Grimes Canyon Road	Agriculture, industrial, rural residential, mobile home park, Elkins Ranch Golf Course, horse stables
SR-126 (between Fillmore and Saticoy)	Suburban neighborhoods in Santa Paula, Fillmore and Saticoy, rural single-family homes, agriculture, commercial, Santa Clara School House, 2 community parks
Central Ave and Santa Clara Ave	Agriculture, retail and residential in Saticoy, industrial, golf course, chaparral open space
Walnut Canyon Road, Moorpark	Residential neighborhoods, Moorpark Library, senior center, Walnut Canyon Elementary School, Union High School, Boys and Girls facility, railroad crossing, commercial offices, retail
SR-118 (between Moorpark and Somis)	Residential neighborhoods in Moorpark, agriculture, rural residences, industrial uses
SR-34	Single-family residences in Somis, residential neighborhood in Camarillo, Camarillo Montessori School, business park, agriculture, industrial
S Lewis Road	Rural residential, mobile home park, agriculture, industrial
Las Posas Road	Retail centers in Camarillo, agriculture, Ventura County Community College
Tapo Canyon Road, Simi Valley	Agriculture, Four Oaks Farm, Retail Centers in Simi Valley, commercial offices, residential areas, Township Elementary School
PCH	Scenic lookout points, beaches and beach access parking, residential areas in Malibu, Neptune Net restaurant, North Beach Campground, recreational trails and natural parks

3.7.2.2 Regulations Pertaining to the Public Trust

State and other statutes related to traffic and parking are listed in Table 3.3 in Section 3.0, *Issue Area Analysis*. Pursuant to a consolidated CDP, the CCC will address the Project's consistency with the Coastal Act and city of Malibu LCP. The city of Malibu LCP contains general goals and policies intended to improve access and use of coastal resources. The provision regarding traffic is geared toward "protecting existing and improving future parking availability near shoreline and trail access ways throughout the city" (city of Malibu 2012). In addition, the city of Malibu's Traffic Impact Analysis Guidelines (August 2012) include criteria for the assessment of traffic impacts.

City of Malibu Intersection Impact Threshold Criteria	Pre-Project *V/C*	LOS	Project Related Increase in *V/C*
Signalized	0.71 - 0.80	C	≥ 0.040
	0.81 - 0.90	D	≥ 0.020
	0.91 or more	E or F	≥ 0.010
Unsignalized	**Project Related Increase in *V/C***	**Final LOS**	
	5 or more seconds	Degrades to LOS D or worse	

LOS = Level of Service; V/C = Volume/Capacity

3.7.2.3 Public Trust Impact Criteria

Impact criteria are adapted from the city of Malibu LCP. A major adverse impact to the public trust resources would occur if the Project results in:

- Reduced access to public parking;
- New obstacles to vehicular access to public trust resources (e.g., construction of a gate, substantial new traffic congestion, damage to roadways); or
- An increase of traffic that exceed thresholds as stated in the city of Malibu's Traffic Impact Analysis Guidelines.

3.7.2.4 Public Trust Impact Analysis

This section describes direct and indirect impacts that may potentially result from Project implementation. Impacts discussed below may occur in the CSLC Lease Area and the Public Trust Impact Area.

Impact TR-1: Construction-Generated Impacts in the Vicinity of Broad Beach

Traffic along Pacific Coast Highway generated from construction activities would have a short-term, unsubstantial impact on public use of roadways to access the shoreline (Minor Adverse Effect, Class Mi).

<u>Impact Discussion (TR-1)</u>

Based on the Linscott, Law & Greenspan (2013, 2014) Traffic and Parking Assessment (see Appendix H):

- traffic generated from construction activities would primarily consist of hauling sand along PCH using 30 six-axle, 14-cy capacity haul trucks arriving at and departing from the staging area (Parking Lot 12 of Zuma Beach) for approximately 6.5 months (depending on weather and other factors), 5 days a week, 14 hours per day (from 7:00 AM to 9:00 PM); and
- the Project would require 840 haul truck trips per day (420 inbound and 420 outbound), or about 60 inbound and outbound trucks per minute (based on the assumption that each truck would haul 14 cy of sand).

Construction employees would generate an additional estimated 30 vehicle trips per day (based on a conservative estimate of 15 employee trips during both the AM and PM peak hours). Additional trips could be generated by material delivery trucks, equipment repair, and fuel and water delivery trucks.

To accommodate construction operations, several traffic alterations are proposed (refer to Section 2.3.2). Parking Lot 12 would be temporarily closed to the public and used for Project staging. Two temporary driveways would allow access to the staging area for haul trucks, materials, and construction workers. The inbound driveway would be located on the south side of PCH, directly across from the PCH/Guernsey Avenue intersection. The inbound driveway would accommodate only right-turn ingress turning movements, and no outbound turning would be permitted. The outbound driveway would also be located on the south side of PCH, on the west end of Parking Lot 12. Inbound turning would be prohibited on this driveway. Both left and right turn egress access would be permitted. For safety reasons, a temporary eastbound right-turn/deceleration lane would be installed at the existing PCH/Guernsey Avenue intersection to reduce truck-related traffic cause. Additionally, a temporary traffic signal would be installed at the Project's outbound driveway to ensure the safety and efficiency of movement for the haul trucks. Figure 2-15 (in Section 2) depicts the various planned traffic improvements and the layout of the Project site and staging area. Despite these measures, the Project may still result in indirect impacts to both the Broad Beach Road and nearby intersections on the PCH over the 6.5-month Project construction timeline.

Impacts to Pacific Coast Highway

The Project could create potential access and safety issues during initial mobilization, periodic equipment deliveries, haul truck activity, and daily construction activities. Initial mobilization would last several days and would involve delivery of heavy equipment, fencing, and other materials via tractor-trailer trucks. It would also involve the installation and organization of the temporary traffic-related improvements to the Project staging area. Ongoing daily construction activities would add an average of 30 daily trips from employees during the 6.5-month construction period. Assuming a passenger car equivalency factor of two car trips per truck trip, it is estimated that haul trucks would add approximately 1,640 passenger car equivalent (PCE) trips. Thus, the total Project-related traffic increase would consist of approximately 1,640 PCE vehicle trips per day. It is estimated that 135 PCE vehicle trips (75 inbound trips and 60 outbound trips) would be generated during the weekday AM peak hour. The same number is assumed for the PM peak hour (60 inbound trips and 75 outbound trips). Therefore, the Project would add 270 trips to the estimated 1,173 existing AM/PM peak hour trips on this segment of the PCH, making an estimated total of 1,443 peak hour trips.

The city of Malibu has specific thresholds related to increases in delay time and Volume/Capacity (V/C) Ratio. Table 3.7-16 illustrates the changes in LOS at the various intersections associated with the project. The anticipated temporary changes expected to result from the project would not surpass any of the city's thresholds.

Table 3.7-16. Changes to LOS at Intersections in Project Vicinity

Intersection	Peak Hour	Existing 2014 Delay or Volume/Capacity (V/C) Ratio	LOS	Existing 2014 w/ Project Delay or Volume/Capacity (V/C) Ratio	LOS	Change in Delay or V/C
Decker Road/PCH	AM	13.1 seconds	B	14.3 seconds	B	2 seconds
	PM	20.1 seconds	C	22.9 seconds	C	3 seconds
Trancas Canyon Road- Broad Beach Road/PCH	AM	0.508	A	0.527	A	0.019
	PM	0.527	A	0.546	A	0.019
Guernsey Avenue/PCH	AM	20.6 seconds	C	20.8 seconds	C	1 second
	PM	21.6 seconds	C	21.6 seconds	C	0 second
Heathercliff Road/PCH	AM	0.544	A	0.544	A	0.000
	PM	0.565	A	0.568	A	0.003
Kanan Dume Road/PCH	AM	0.813	D	0.815	D	0.002
	PM	0.950	E	0.950	E	0.000

Although no thresholds would be surpassed, the potential for unanticipated disruption of automobile, bike and pedestrian flows and safety along the PCH still exists. For example, 840 heavy truck trips per day would incrementally increase traffic hazards to beachgoers parking their cars or crossing PCH to reach the beach. Further, the high rate of inbound trucks (one every 2 minutes) and limited size of the staging area would create the potential for queuing of trucks along PCH which may exceed storage capacity, particularly if equipment breakdowns occur. Such impacts would be short-term. Once Project construction is complete, roadways in the Broad Beach vicinity would return to normal configurations and construction-related impacts would cease.

The temporary transportation improvements included as part of the Project would minimize traffic impacts for the duration of Project construction; however; the improvements in the immediate Broad Beach vicinity would also have the potential to include various traffic and safety impacts. AMM TR-1 requires that a traffic management plan be prepared in order to minimize these potential impacts. According to the traffic study prepared by Linscott, Law & Greenspan (Appendix H), appropriate signage for vehicles, pedestrians, and bicyclists would be posted to inform the public of the changes to the traffic configuration and of new constraints. Pedestrian crossing at the temporary signalized intersection would be prohibited at all times in order to improve public safety. During nights, weekends, and all other times when construction activities are not taking place, fences and proper signage would be used to inform the public and prohibit access to the site. Additionally, all traffic improvements, including those to Parking Lot

12, would be removed upon completion of the Project, thereby restoring original conditions. All signage and other vehicular, pedestrian, and bicycle safety measures in the Broad Beach vicinity would be detailed in a Project Traffic Management Plan. Therefore, these impacts are considered minor with implementation of AMMs.

The renourishment event is expected to include impacts that are very similar to the main nourishment, but reduced in scope by approximately 25 percent. Traffic impacts from backpassing events would also be expected to be similar to the nourishment and renourishment with a reduced scope. The Traffic Management Plan would also consider traffic impacts resulting from the renourishment event and from backpassing events. Therefore, the renourishment and backpassing events would also be minimized and would result in a minor adverse effect.

Impacts to Parking at Zuma Beach

Construction employees associated with the Project would park in the staging area, in Parking Lot 12 of Zuma Beach, in order to prevent parking impacts to coastal access parking on Broad Beach Road. The construction staging area and construction employee parking would collectively occupy the approximately 260 spaces of Parking Lot 12. Although construction would deprive the public of access to parking at the east end of Zuma Beach, this are tends to be more lightly used than parking lots to the east and impacts to parking would be minor as they would be short-term and would occur primarily in winter, outside the peak summer period for beach visitation (Illustration 3.7-3). During Project construction, approximately 1,765 parking spaces in the Zuma Beach Parking lots would remain. According to parking data provided by the county of Los Angeles Department of Beaches and Harbors, this number would be sufficient to support visitors of Zuma Beach for the Project duration. September would be expected to have the highest number of visitors. Surplus parking during this month would nonetheless be expected to reach more than 200 spaces.

Illustration 3.7.3. *Parking at the west end of Zuma Beach where construction staging activities would be located is often underutilized, even in the late spring and early summer (photo taken Saturday, June 16, 2012, mid-day). Free road shoulder parking is also available on PCH.*

Approximately 42 spaces of shoulder parking along PCH adjacent to Parking Lot 12 would also be temporarily eliminated to accommodate the Project. These spaces would be located in two places: between the inbound and outbound project driveways and a

segment west of the inbound project driveway to the PCH bridge over Trancas Creek. The first segment would include approximately 33 parking spaces, while the second can accommodate approximately nine parked cars. The loss of these spaces could be absorbed by the remaining spaces in the Zuma Beach parking lots, unrestricted roadside parking along Broad Beach Road and along other areas of the shoulder of PCH (Linscott, Law & Greenspan, 2013). Further, all parking impacts would be temporary, and would not occur during busy summer months. Therefore, impacts related to parking in the Project vicinity would be negligible.

Parking impacts resulting from the renourishment event are expected to be very similar to those of the main nourishment, but reduced by approximately 25 percent. Traffic impacts from backpassing events would also be expected to be similar to the nourishment and renourishment, and have an even more reduced scope. These impacts would be minimized in a way similar to those of the main nourishment event. Therefore, the renourishment and backpassing events would not be expected to include any major parking impacts.

<u>Avoidance and Minimization Measure(s)</u>

AMM TR-1. Traffic Management Plan. The Project Applicant shall provide proof that a traffic management plan has been submitted for review and approval by the California State Lands Commission, California Department of Transportation (Caltrans), and the Los Angeles County Department of Beaches and Harbors. The plan shall include the following elements, considering the initial nourishment, the renourishment event, and backpassing events:

- **Notification Posts**. The Applicant shall post signage to notify beach users of construction areas and the presence and use of construction equipment.
- **Notification of Agencies**. The plan shall identify concerned agencies and include procedures for notification of and coordination with such agencies.
- **Safety Cordoning**. The Applicant shall cordon off construction areas where heavy equipment is being used, as necessary, to ensure safety of beach users.
- **Roadway Signage**. The Applicant shall post adequate signage to notify motorists of the closure of Parking Lot 12, heavy truck traffic along constrained road segments (e.g., rural road intersections) and changes to the traffic configuration in the Broad Beach vicinity as well as locations of coastal access parking in the area.
- **Construction Manager**. A construction manager shall be designated with authority over truck transportation with the authority to redirect or halt trucking as needed. The manager shall be provided with communication equipment (e.g., radios) to manage the trucking operation.

- **Truck Communications**. All trucks shall be equipment with radios or other communication equipment to permit contact and coordination with the construction manager.
- **Truck Idling Locations**. The plan shall identify acceptable truck idling and pull over locations along Pacific Coast Highway (PCH) and other segments of the haul route. These areas shall be designated for use by trucks in case of equipment failures and excessive queuing occurring at the staging areas.
- **Driver Safety Briefing**. All truck drivers shall receive a safety briefing on existing uses along the truck haul routes, particularly areas with significant pedestrian activity.
- **Control Access to Parking Lot 12**. The Applicant shall ensure that appropriate measures are employed to prevent access (especially vehicular) to the staging area and parking lot 12 during periods when construction is not occurring in order to improve public safety. This could include signage and barriers. When safety is not an issue, public access shall otherwise be maintained to the maximum extent feasible.
- **Pedestrian and Bicycle Accommodations**. The Applicant shall provide appropriate accommodations for bicyclists and pedestrians to ensure their safety within the modified traffic configuration and in the Broad Beach vicinity.
- **Damage Repair**. The Applicant shall repair any damage to the PCH/Site Access connection or the construction staging area caused during the construction phase of the Project.

Rationale for Avoidance and Minimization Measure(s)

Implementation of AMM TR-1 would ensure that short- and long-term impacts to the transportation and circulation network in the vicinity of Broad Beach and the heavily used Zuma Beach would be minimized to the extent feasible. Following implementation of AMM TR-1, adverse impacts to transportation would be negligible.

Impact TR-2: Increased Parking Demand along Broad Beach Road

A wider dry sandy beach at Broad Beach following renourishment may attract more users which would increase parking demand on Broad Beach Road (Negligible Effect, Class N).

Impact Discussion (TR-2)

The restoration and renourishment of Broad Beach is expected to attract more beachgoers to Broad Beach. The increased number of beachgoers would result in an increased number of vehicles parking along Broad Beach Road, which currently has an estimated 320 spaces along its 1.5-mile-long shoulder. When combined with ongoing remodel projects and loss of some parking due to private encroachment into the road shoulder, future recreationists seeking access to public trust resources along the beach

may experience occasional difficulty locating parking near existing access points. This impact is expected to be unsubstantial given the 320 spaces along Broad Beach Road and with the continued availability of safe and accessible parking along PCH and at Zuma Beach parking lot. The impact to parking demand resulting from the renourishment event would be 25 percent less than that of the main nourishment. Traffic impacts from backpassing events would also be expected to be similar to the nourishment and renourishment, and have an even more reduced scope. Therefore, impacts from the renourishment and backpassing events would be negligible.

Impact TR-3: Increased Safety Risk in the Vicinity of Broad Beach

43,000 truck trips along Pacific Coast Highway portion of the sand transportation routes to the Project site would create an increased traffic safety risk (Minor Adverse Effect, Class Mi).

Impact Discussion (TR-3)

Large, heavy vehicles associated with sand transport along PCH and local roads may obstruct views of nearby motorists, bicyclists and pedestrians, creating a more hazardous traffic environment. Construction materials or debris could also potentially fall out of the haul trucks and present a roadway hazard. Finally, the increased level of complication of traffic management mechanisms near the Broad Beach site for the Project duration would also add additional risk to the roadways near the Broad Beach site. Although these additional risks have the potential to have a major adverse impact, implementation of AMM TR-1 would ensure that this impact would remain minor. As AMM TR-1 also applies to the renourishment event and backpassing events, impacts resulting from these portions of the Project would also have a minor adverse effect.

Avoidance and Minimization Measure(s)

AMM TR-1 (Traffic Management Plan) would apply to this impact.

Rationale for Avoidance and Minimization Measure(s)

Implementation of AMM TR-1 would ensure that the potential increased safety risk for vehicles, pedestrians, and bicyclists is minimized through appropriately restricting movements, and providing adequate signage and warning.

3.7.2.5 BBGHAD Inland Project Area Truck Routes (Inland Quarries to PCH)

This section describes direct and indirect impacts of transportation routes in the BBGHAD Inland Project Area that may potentially result from Project implementation.

Impact TR-4: Impacts of Inland Truck Hauling Routes from the Inland Quarries to Pacific Coast Highway

Traffic generated from construction activities would have a short-term, impact on public use of roadways to access Broad Beach (Increased Intensity, Class - I).

Impact Discussion (TR-4)

The following impact discussion provides a qualitative assessment of the truck routes from the three inland quarries to PCH in Ventura County. The assessment was conducted using aerial photo interpretation through Google Earth Pro software and the Google map layers identifying points of interest and other features (e.g., schools, community facilities).

CEMEX Quarry (north of Moorpark):

The Applicant's proposed route from CEMEX Quarry would pass through Moorpark on Walnut Canyon Road. The number of large trucks passing through Walnut Canyon Road and Moorpark Avenue may affect pedestrian access and safety of children along the route in urban and residential areas of Moorpark. In particular, potential concerns along Walnut Canyon Road include:

- Narrow segments that run through residential neighborhoods, near three schools, a library, park, and Boys & Girls Club;
- Residential driveways where cars back out onto the road;
- Lack of a sidewalk north of Casey Road, where schoolchildren may use this segment to walk to school; and,
- No emergency shoulder for pullout for vehicles, with similar constraints on Grimes Canyon Road.

Other considerations on this route include a residential neighborhood near Somis, residential areas in Camarillo, and Camarillo Montessori School. The route also passes through agricultural lands, including near Moorpark on SR-23 where many horse stables, ranches and farms are located. Other agricultural areas include SR-118 near Somis and south of Camarillo, where trucks may come into conflict with agricultural vehicles. Often agricultural vehicles have particular needs when using public roads, such as going at slower speeds and using shoulders.

An alternative route is included in the sand transportation route on Grimes Canyon Road, a mostly agricultural route that would bypass Walnut Canyon Road and relieve some truck traffic.

Grimes Rock Quarry (south of Fillmore):

The Applicant's proposed route from Grimes Rock Quarry passes through agricultural lands on N. Grimes Canyon Road, on SR-126 between Fillmore and Saticoy, and on Los Posas Road. As in other routes, safety concerns regarding conflicts with agricultural traffic may potentially be an issue. The route also passes through the cities of Fillmore, Santa Paula, Saticoy, and Camarillo; however, roads in this portion are mostly four-lane freeways or highways and currently sustain high volumes of traffic. Considerations on this route include Santa Clara Schoolhouse, which is a cultural resource along SR-126 near Santa Paula. Impacts of the sand transportation route on cultural resources are further discussed in Section 3.7.3, *Cultural and Paleontological Resources*.

P.W. Gillibrand Quarry (north of Simi Valley):

The Applicant's proposed route from P.W. Gillibrand Quarry would pass through communities in Simi Valley, Moorpark, Thousand Oaks and Camarillo. Sensitive uses on this route include residences, Township Elementary School, and a public library on Tapo Canyon Road (two- to four-lane road). Potential safety issues related to truck traffic may be of concern in this area, including the safety of pedestrians and schoolchildren walking to school. Las Posas Road south of Camarillo is a two-lane road that passes through mostly agricultural land and receives use by agricultural workers operating slow, heavy agricultural equipment. Conflicts with agricultural vehicles on this portion of the haul route may be a concern.

Inland Transportation Routes Impact Summary

Because of the potential number of truck trips needed for the Project (up to 43,000) in a short period of time (approximately 5 months), there would be an increased intensity of use of the roadways along the sand transportation route. Several of the routes are on multi-lane freeways or highways (SR-126, US-101, SR-118, and SR-23) that should be able to accommodate the truck traffic; however, each of the routes pass-through local communities such as the cities of Simi Valley, Moorpark, Fillmore, Saticoy, and Camarillo. Ventura County considered traffic-related issues associated with the quarries as part of its permitting of the quarries; because of the increased intensity of truck trips through these local communities, these cities may impose measures to lessen the impacts of increased truck traffic, such as more traffic/safety patrol units along the truck routes. Implementation of **AMM TR-1** (Traffic Management Plan), which includes measures to address truck safety, would help to reduce potential impacts.

3.7.2.6 Summary of Transportation Impacts and AMMs

Impact	Class	AMMs
TR-1: Construction-Generated Traffic in the Vicinity of Broad Beach	**Mi**	**AMM TR-1:** Traffic Management Plan
TR-2: Increased Parking Demand Along Broad Beach Road	**N**	No AMMs recommended
TR-3: Increased Safety Risk in the Vicinity of Broad Beach	**N**	**AMM TR-1:** Traffic Management Plan
TR-4: Impacts of Inland Truck Hauling Routes from the Inland Quarries to Highway 1 (Pacific Coast Highway)	**- I**	**AMM TR-1:** Traffic Management Plan

3.7.3 CULTURAL AND PALEONTOLOGICAL RESOURCES

This section of the Revised APTR identifies cultural resources and paleontological resources in the Broad Beach Restoration Project Area (Project Area), and evaluates impacts to such resources that would potentially result from the Project. Cultural resources help define human history, remind us of our interdependence with the land, and demonstrate how cultures change over time. Cultural resources can be found in locations where people lived out every-day life, leaving structures and objects as evidence of how they lived, where important events occurred, and where traditional, religious, ceremonial, and social activities took place. Protecting cultural resources preserves human tradition, culture, and history. Paleontological resources, or fossils, are the remains of ancient organisms, and provide the direct evidence of ancient life. Preserving these resources provides opportunities for greater scientific understanding of the Earth's past.

3.7.3.1 Environmental Setting Pertaining to the Public Trust

<u>Relationship of Cultural and Paleontological Resources to Public Trust Resources and Values</u>

The Project may have adverse impacts on cultural and/or paleontological resources as the beach and submerged lands offshore from Broad Beach have the potential to contain cultural resources. The CSLC has jurisdiction over certain cultural resources and considers impacts to such resources under its statutory authority and when exercising its public trust responsibilities (Pub. Resources Code, §§ 6309, 6313, and 6314). Additionally, the Governor's Executive Order W-26-92 states: "all state agencies shall recognize and, to the extent prudent and feasible within existing budget and personnel resources, preserve and maintain the significant heritage resources of the State," and "administer the cultural and heritage properties under its control in a spirit of stewardship and trusteeship for future generations…."

Although cultural and paleontological resources are not generally considered public trust resources under the common law Public Trust Doctrine, they are important resources that maintain a link to the State's heritage and provide opportunities to gain scientific knowledge of the earth's past. As indicated above, the CSLC has jurisdiction and stewardship responsibilities for cultural resources on lands it administers. Taking into account the protection of cultural resources is, therefore, an appropriate factor for the CSLC when exercising its public trust responsibilities.

The city of Malibu's past includes a long record of Native American Chumash occupation, including an active community today, as well as potential historic ranching and maritime activity. The city's civic center is located near the historic Chumash village of Humaliwo at the mouth of Malibu Creek. The potential also exists for archeological

remains from Chumash occupation to occur within the greater Project area, particularly given the proximity of Trancas Creek.

Definition of Cultural and Paleontological Resources

Cultural Resources

Cultural resources are defined as the collective evidence of the past activities and accomplishments of people. These resources include any object, building, structure, site, area, place, record, or manuscript determined to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California. Cultural resources are finite, non-renewable resources that cannot be returned to their original state if they are disturbed or destroyed.

A cultural resource may be considered significant if it meets one or more criteria for listing on the California Register of Historical Resources, as defined in Public Resources Code section 5024.1:

- Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;
- Is associated with the lives of persons important in our past;
- 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; or
- Has yielded, or may be likely to yield, information important in prehistory or history.

A resource that is listed on the National Register of Historic Places is automatically included in the California Register of Historical Resources. Additionally, under State law, any submerged archaeological site or submerged historic resource remaining in State waters for more than 50 years is presumed to be archaeologically or historically significant. (Pub. Resources Code, § 6313 subd. (c).)

Cultural resources associated with the Project may include both historic and prehistoric resources. Historic resources may include, but not be limited to, historic ranch buildings or other early homes, shipwrecks, discarded debris, or materials intentionally placed to provide artificial reefs. Prehistoric resources may include, but not be limited to, submerged artifacts, such as cobble mortars, pestles, net weights, metates (stone mortars), flaked stone tools, or other items (Masters 1983; Masters and Gallegos 1997). Prehistoric resources may include, but not be limited to, preserved deposits of prehistoric habitation debris on the continental shelf that were inundated during marine

transgression beginning approximately 11,000 years ago near the start of the current Holocene epoch.

Paleontological Resources

Paleontological resources are fossilized remains of ancient plants and animals, and associated deposits. Protection of these resources is important because they provide the only direct evidence of ancient life. For the purpose of this analysis, scientifically significant paleontological resources are defined as vertebrate fossils that are identifiable to taxon and/or element, noteworthy occurrences of invertebrate and plant fossils, and vertebrate trackways.

<u>Historical Context of the Broad Beach Vicinity</u>

The early prehistory of coastal Southern California remains vaguely understood. The archaeological record reveals the presence of humans beginning about 12,000 years ago on the Channel Islands (Johnson et al. 2002). In Santa Monica Bay, the Malaga Cove site (LAN-138) is also purported to have an early occupation, perhaps beginning at about 10,000 to 9,000 years ago (Moratto 1984). Early coastal sites (those dating more than 9,000 years old) have been characterized as being part of Moratto's proposed Paleo-Coastal Tradition (Glassow 1996). Coastal cultures in existence during the last 9,000 years are better documented. The Malibu area was historically occupied by two Native American tribes: the Ventureño Chumash and the Tongva/Gabrielino. The Chumash tribe was one of the more advanced native societies in California because of its emphasis on manufacturing and trade, development of maritime fishing, and complex bead money system (City of Malibu 1995). Tongva/Gabrielino culture was similar to the Chumash, and also was based on a maritime environment and economy.

There are approximately 120 archaeological sites in the city of Malibu. Sites in the Santa Monica Mountains include village sites, burial grounds, camps or food processing areas, quarries and rock art sites. Many sites have already been destroyed or disturbed. Currently, only a small percentage of the area has been surveyed, indicating that additional archaeologically significant sites may exist in the Malibu area. The east-west trend of the Malibu area resulted in the formation of many places well suited to boat launching and up-welling of nutrients, which provided abundant marine wildlife. These conditions contributed to a high density of population along the coast. The Chumash village that was closest to the Project area was Sumo, situated approximately one mile to the southeast. Ethnographic information indicates that Point Dume was an important shrine for many native cultures throughout southern California (City of Malibu 1995).

In the Malibu area, the prehistoric occupation represents a period of over 9,000 years and ended with the beginning of the Spanish colonization of California at Mission San Gabriel in 1771 on the San Gabriel River, and Mission San Buenaventura in 1782, in what is now Ventura. The Mission Period, during which Native Californians were largely

relocated to missions and nearby rancherias, extended to approximately 1834, when the Mexican government secularized the missions (City of Malibu 1995).

The Malibu Pier, a historic site, was constructed in 1905 to support the operations of Frederick Hastings Rindge's Malibu Rancho. Hides, grains, fruit, and other agricultural products were shipped from the pier either directly or by transfer to larger vessels. Building materials and other Rancho necessities arrived at the pier. In 1934, the pier was opened to the public for pier and charter fishing. Fishermen were also shuttled back and forth from the pier and the barge anchored by Minnie A. Caine a mile offshore. During World War II, the end of the pier also served as a U.S. Coast Guard daylight lookout station. Sports fishing boats operated from the Pier until the early 1960s. The pier is approximately 10 miles east of Broad Beach; however, the pier supported local maritime activity that could have resulted in shipwrecks near Project area.

<u>CSLC Lease Area Overview</u>

Historic Resources

There are seven officially recognized historic sites in the city of Malibu, four of which include structures. The only historic resource located within 9 miles of the CSLC Lease Area is Point Dume, which is listed as a California State Landmark (CSL 965) as the western terminus of Santa Monica Bay and an important landmark for navigators since Vancouver's voyage in 1793. It is recognized as a California State Historical Landmark (City of Malibu 1995, California 2012, National Park Service 2011).

Cultural Resources

No resources listed on the National Register of Historic Places or the California Register of Historical Resources occur within the vicinity of Broad Beach. Further, there is a low potential for cultural resources within the area overlying the existing dune and beach. Broad Beach is a sandy beach with continual disruptions from wave activity. Episodes of coastal erosion and deposition, along with development of the entire back dune area with single family homes, reduce the likelihood of intact prehistoric or historic deposits. In addition, the western end of the beach is often scoured to rocky intertidal and bedrock layers, limiting potential for undiscovered buried cultural remains. A review of archaeological studies performed in accordance with development requirements along Broad Beach revealed one archeological assessment that was performed for 30980 Broad Beach Road as part of the Initial Study/Negative Declaration. This assessment found that according to the city of Malibu's Cultural Resource Sensitivity Map, the property is in a low-sensitivity area for cultural resources, and therefore the site has low potential of containing prehistoric or historic archaeological resources.

Paleontological Resources

Los Angeles County is one of the richest areas in the world for both fossil marine vertebrates and land vertebrates, from sediments deposited over the last 25 million years. Many fossilized remains are found in sedimentary rocks of the Santa Monica Mountains that have been tilted and uplifted. Invertebrate fossils found in the area are from the Miocene period. Some of the larger sites containing these fossils include Old Topanga Canyon Road near Calabasas Peak and Dry Canyon (City of Malibu 1995).

There are three significant paleontological resources in the Santa Monica Mountains in the vicinity of the Malibu area; however, only one of these sites is located near the city boundary (City of Malibu 1995). No significant paleontological resources are located within a mile of the CSLC Lease Area (City of Malibu 1995). Because known paleontological sites and resources are generally confined to uplifted portions of the Santa Monica Mountains, there is a low potential for paleontological resources to exist within the CSLC Lease Area. Broad Beach is a sandy beach with continual disruptions from wave activity. These conditions dramatically reduce the likelihood of intact paleontological deposits.

<u>Public Trust Impact Area Overview</u>

This analysis also considers public trust lands and resources down coast from Broad Beach. These generally submerged marine areas may harbor cultural resources similar to those described within the CSLC Lease Area, including a very low potential for historic, prehistoric, or paleontological remains within submerged lands or existing beaches. Similarly, if there were cultural or paleontological materials in the area immediately offshore in these down coast areas, these resources are likely buried and may continue to be buried deeper in sand over time.

<u>BBGHAD Inland Project Area Overview</u>

A search of the National Register of Historic Places, California Register of Historic Places, and Ventura County Planning website revealed nine cultural historic resources adjacent to or along the sand transportation routes outside the public trust impact area (see Table 3.7-17).

3.7.3.2 Regulations Pertaining to Cultural and Paleontological Resources

State regulatory law and other statutes related to cultural and paleontological resources are listed in Table 3.3 in Section 3.0, *Issue Area Analysis*. Pursuant to a consolidated coastal development permit (CDP), the California Coastal Commission (CCC) will address the Project's consistency with the Coastal Act and city of Malibu LCP.

Table 3.7-17. Cultural Resources along the Sand Transportation Routes

Name	Address	Year Built
Tanner Homestead	18492 Telegraph Road	1885
Santa Clara Schoolhouse	20030 Telegraph Road	1896
Fillmore Sign	City of Fillmore	1940
King Home/ Agnes Winkler Harris Home	1420 Grimes Canyon Road	1929
Pulkerson Hardware Store	2403 Somis Road	1925
Somis Thursday Clubhouse	5380 Bell Street	1895
St. Mary Magdalen Church	2532 Ventura Boulevard	1913
Point Mugu Recreation Area/State Park	Point Mugu/Highway 1	1846
Eucalyptus Tree Stand	Highway 101/Camarillo	1892

3.7.3.3 Public Trust Impact Criteria

The Project could have a major adverse effect to cultural and/or paleontological resources if it resulted in:

- Physical destruction, relocation, or alteration of a significant cultural resource or its immediate surroundings, such that the significance of the resource would be materially impaired.
- Direct or indirect destruction of a significant paleontological resource or site or unique geologic feature.

This impact analysis considers Broad Beach in its existing setting, following the 2010 emergency rock and sand bag revetments installation, and in its historical setting without the emergency revetments, characterized by a narrow beach and dune without the rock and sand bag revetment.

3.7.3.4 Public Trust Impact Analysis

Cultural resources impacts to the public trust resource prior to the construction of the 2010 revetment are consistent with the current resources concerns described above with the exception of the potential cultural resources that may have been covered or destroyed as a result of installation of the existing rock and sand bag revetment. Prior to construction of the 2010 emergency rock revetment, sand bag revetments were constructed for protection from coastal processes. These sand bag revetments were located in the same general area as the existing 2010 emergency revetment. This potential impact is discussed as part of this analysis.

Impacts to cultural and paleontological resources can occur either directly or indirectly. Direct impacts can result from ground disturbances directly and indirectly caused by Project activities. For example, if there were cultural or paleontological resources buried

on the beach, placement of additional sand and operation of heavy machinery could remove, crush, or otherwise destroy these resources. If there were cultural or paleontological materials in the area immediately offshore from Broad Beach or within areas down coast from Broad Beach, these resources may get buried deeper in sand, but would be otherwise unaffected. Cultural and paleontological resources could also face indirect impacts due to increased access to historical sites (i.e., construction employees or new site visitors participating in unauthorized artifact collecting).

Potential for impacts to subsurface cultural and paleontological resources is limited since Broad Beach is a sandy beach regularly disturbed by wave activity, which reduces the likelihood of intact historic or prehistoric cultural deposits and significant paleontological resources. In addition, the entire back beach area has been developed with single family homes and associated secondary structures, septic systems, patios and landscaping. There are no known prehistoric or historic archeological sites in the vicinity of Broad Beach. Reviews of cultural resources in the CSLC Lease Area and the Public Trust Impact Area have not identified significant cultural resources that could be disturbed by Project activities. Additionally, there are no known, significant paleontological sites on Broad Beach or nearby areas.

Impact CR-1: Disturbance of a Significant Cultural or Significant Paleontological Resource due to Construction of the Emergency Revetment

Construction of the emergency revetment may have disturbed cultural or paleontological resources or their surroundings on Broad Beach (Negligible Effect, Class N).

<u>Impact Discussion (CR-1)</u>

Construction of the emergency revetment is unlikely to have impacted subsurface cultural or paleontological resources because the disturbance was limited to a dune area and sandy beach regularly disturbed by wind and ocean current activity. This environment reduces the likelihood of intact prehistoric or historic cultural deposit or intact paleontological deposits. There are no officially recognized historic resources within nine miles of Broad Beach except for Point Dume, a formally listed State Landmark and local beach area one mile north from Broad Beach that is not impacted by the revetment. There are no formally listed cultural resource sites on Broad Beach and there is a low potential for cultural resources within the CSLC Lease Area.

A review of past archaeological studies prepared for houses along Broad Beach revealed that an archaeological assessment was performed on one property. The assessment found that the property is in a low-sensitivity area for cultural resources and has low potential of containing prehistoric or historic archaeological resources (City of Malibu 2009). Also, there are no known, significant paleontological sites on Broad Beach, and no cultural or paleontological resources were discovered during the construction of the revetment. Given the low likelihood of cultural and paleontological

material occurring at Broad Beach, construction of the revetment is not likely to have affected cultural resources.

Impact CR-2: Disturbance of a Significant Cultural or Significant Paleontological Resource or its Surroundings due to Beach Nourishment

Beach nourishment activities may disturb cultural or paleontological resources or their surroundings in the Broad Beach Restoration area (Negligible Effect, Class N).

Impact Discussion (CR-2)

An assessment of Broad Beach and areas down coast from Broad Beach indicates that the potential for Project impacts on cultural resources is limited due to (1) the low potential for cultural resources within Broad Beach, and (2) the low potential for the placement of sand to affect existing cultural resources that have not been previously identified. Broad Beach is a sandy beach with continual disruptions from wave activity. These conditions reduce the likelihood of intact prehistoric or historic deposits. A review of archaeological studies prepared for residential homes along Broad Beach revealed that an archaeological assessment was performed in 2012 for one property (City of Malibu 2009). The assessment found that the property is in a low-sensitivity area for cultural resources and has low potential of containing prehistoric or historic archaeological resources. Additionally, no officially recognized historic resources are within 9 miles of Broad Beach except for Point Dume, a formally listed State Landmark, and a local beach area 1 mile away from Broad Beach that would not be impacted by beach nourishment. Due to the low potential for cultural resources in the site, operation of heavy machinery at Broad Beach has low potential to disturb cultural resources. In the event that historic or prehistoric resources are present in the existing sand on Broad Beach, these resources would be further buried by sand after the Project is completed. Therefore, this activity would not constitute a substantial impact.

There are no known cultural resources or significant paleontological sites on Broad Beach or along the portion of the sand transportation route along PCH. Therefore, the Project is expected not to have a major adverse impact on cultural or paleontological resources.

3.7.3.5 BBGHAD Inland Project Area Impact Analysis

This section describes direct and indirect impacts of the inland transportation routes that may potentially result from Project implementation.

Impact CR-3: Disturbance of a Significant Cultural Resource along Sand Transportation Routes

Hauling activities may disturb cultural resources in the BBGHAD Inland Project Area (Negligible Effect, Class N).

Impact Discussion (CR-3)

Nine cultural resources were identified outside public trust lands along the sand transportation route by the National Register of Historic Places, California Register of Historic Places, and Ventura County Planning website. These cultural resources are listed in Table 3.7-17 and are located within 0.25 mile of a roadway.

Sand hauling activities will take place over 5 months and will include a total of 43,000 trips. Because of the potential number of truck trips needed for the Project in a short period of time, there would be an increased intensity of use of the roadways along the three primary sand transportation routes. Several sections of the routes are on freeways or highways (SR-126, US-101, SR-118, and SR-23) that currently sustain a high to moderate volume of traffic and can easily accommodate the truck traffic. Routes that already experience high traffic volumes would experience a negligible increase in traffic-related vibration, air quality and noise due to the Project

Given the existing setting of the nine identified cultural resources along the sand transportation route, and given the temporary nature of the hauling activities, the Project's contribution would result in a negligible impact to cultural resources.

3.7.3.6 Summary of Cultural/Paleontological Resource Impacts and AMMs

Impact	Class	AMMs
CR-1: Disturbance of a Significant Cultural or Significant Paleontological Resource due to Construction of the Emergency Revetment	N	No AMMs recommended
CR-2: Disturbance of a Significant Cultural or Significant Paleontological Resource or its Surroundings due to Beach Nourishment	N	No AMMs recommended
CR-3: Disturbance of a Significant Cultural Resource along Sand Transportation Routes	N	No AMMs recommended

3.7.4 NOISE

This section of the Revised APTR describes the noise environment in the Public Trust Impact Area and analyzes the potential effects of Project-generated noise on the public's use and enjoyment of public trust resources and values. The information in this section is based on the Analysis of Noise Impacts from Extended Trucking Schedule (2014) prepared by Moffatt and Nichol, provided in Appendix O, and the Traffic and Parking Assessment for the Project, prepared by Linscott, Law & Greenspan (2013, 2014) provided in Appendix H. This section also provides a qualitative assessment of the inland transportation routes from the three inland sand sources (CEMEX Quarry, Grimes Rock Quarry and P.W. Gillibrand Quarry) to PCH.

3.7.4.1 Environmental Setting Pertaining to the Public Trust

<u>Relationship between Noise and Public Trust Resources and Values</u>

Noise has the potential to impair the public's use and enjoyment of public trust resources at and adjacent to Broad Beach. Noise also has the potential to disturb marine mammals, birds, and other public trust resources (effects of noise on wildlife are discussed in Sections 3.3, *Marine Biological Resources*, and 3.43, *Terrestrial Biological Resources*). Existing sources of noise in the Project vicinity include:

- Breaking waves along the beach;
- Onshore and offshore public recreational activities including, jogging, dog-walking, surfing, swimming, paddle boarding, and boating;
- Noise generated at private residences, particularly from ongoing remodeling projects, loud music, and outdoor patio parties; and
- Traffic noise along PCH.

Noise is defined as unwanted sound that is heard by people or wildlife and that interferes with normal activities or otherwise diminishes the quality of the environment. Noise is usually measured as sound level on a logarithmic decibel (dB) scale, with the frequency spectrum adjusted by the A-weighting network. The dB is a unit division on a logarithmic scale that represents the intensity of sound relative to a referenced intensity near the threshold of normal human hearing. The A-weighting network is a filter that approximates the response of the human ear at moderate sound levels. The resulting unit of measure is the A-weighted decibel (dBA). To analyze the noise levels in an area, noise events are combined for an instantaneous value or averaged over a specific time period (e.g., one hour, multiple hours, 24 hours). The time-weighted measure is referred to as Equivalent Sound Level (L_{eq}). The equivalent sound level is defined as the same amount of sound energy averaged over a given time period. The percentage of time that a given sound level is exceeded can also be represented. For example, L_{10} is a sound level that is exceeded 10 percent of the time over a specified period.

Human response to noise is dependent on the magnitude, characteristic, and frequency distribution of the sound. Generally, the human ear is more susceptible to higher frequency sounds than lower frequency sounds. Human response to noise is also dependent on the time of day and expectations based on location and other factors. For example, a person sleeping at home may react differently to the sound of a car horn than to the same sound while driving during the day. The regulatory process has attempted to account for these factors by developing noise ratings such as Community Noise Equivalent Level (CNEL) and the Day-Night Average Noise Level (Ldn). The Ldn rating is an average of noise over a 24-hour period in which noises occurring between 10:00 PM and 7:00 AM are increased by 10 dBA. The CNEL is similar, but also adds a weighting of 3 dBA to noises that occur between 7:00 PM and 10:00 PM. Average noise levels over daytime hours only (7:00 AM to 7:00 PM) are represented as Ld and nighttime noises (7:00 PM to 7:00 AM) as Ln.

Effects of noise can be evaluated based on how a project may increase existing noise levels for individuals in the project's vicinity. When a new noise source is introduced, most people begin to notice a change in environmental noise levels at approximately 5 dBA. (See Table 3.7-18 for a scale showing typical noise levels encountered in common daily activities.) Typically, average changes in noise levels of less than 5 dBA cannot be definitely considered as producing an adverse impact.

Table 3.7-18. Common Environmental Noise Levels

Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
	110	Rock band
Jet flyover at 1,000 feet		
	100	
Gas lawnmower at 3 feet		
	90	
Diesel truck at 50 feet at 50 mph		Food blender at 3 feet
	80	Garbage disposal at 3 feet
Noisy urban area, daytime		
Gas lawnmower, 100 feet	**70**	Vacuum cleaner at 10 feet
Commercial area		Normal speech at 3 feet
Heavy traffic at 300 feet	**60**	
		Large business office
Quiet urban daytime	**50**	Dishwasher in next room
Quiet urban nighttime	**40**	Theater, large conference room (background)
Quiet suburban nighttime		
	30	Library
Quiet rural nighttime		Bedroom at night, concert hall (background)
	20	
		Broadcast/recording studio
	10	
	0	

Source: California Department of Transportation (Caltrans) 2013.

In community noise impact analysis, long-term noise increases of 5 to 10 dBA are considered to have "some impact." Noise level increases of more than 10 dBA are generally considered severe. In the case of short-term noise increases, such as those from construction activities, the 10 dBA threshold between "some" and "severe" is replaced with a criterion of 15 dBA. These noise-averaged thresholds are lowered when the noise level fluctuates, when the noise has an irritating character (e.g., considerable high frequency energy), or if it is accompanied by subsonic vibration. In these cases the impact must be individually estimated.

City of Malibu Noise Ordinances

Malibu Municipal Code (M.M.C.), Title 8, Chapter 8.24 (Noise), Section 8.24.050 (Prohibited Acts), limits construction noise by placing restriction on the hours of construction operations, and regulates noise from construction activities. Construction activities are not permitted outside the hours of 7:00 AM and 7:00 PM. Monday through Friday, or 8:00 AM and 5:00 PM on Saturday. No construction activities would be permitted to take place at any time on Sundays or City-designated holidays, except for emergency work permitted by the City (M.M.C. Sections 8.24.050(G) and 8.24.060(D)).

The city of Malibu's General Plan Noise (N) Element (1995) applies the state's Community Noise and Land Use Compatibility standards, and sets conditionally acceptable standards for land uses for interior noise levels. For example, the maximum allowable noise level for outdoor activity areas of new hotel uses (transient housing) exposed to transportation noise sources is 60-dBA[3] Day Night Sound Level (Ldn).[4] A maximum noise exposure to transportation noise sources for indoor spaces for such transient housing is not to exceed 45 dBA Ldn. The Noise Element also establishes maximum noise exposure limit (Lmax) standards for noise-sensitive land uses for both non-transportation and transportation-related noise sources (Tables 3.7-19 and 3.7-20).

3.7.4.2 Regulations Pertaining to the Public Trust

State regulatory law and other statutes related to noise are listed in Table 3.3 in Section 3.0, *Issue Area Analysis*. Pursuant to a consolidated CDP, the CCC will address the Project's consistency with the Coastal Act and city of Malibu LCP.

[3] Noise levels are measured and expressed in decibels (dB). Noise levels weighted to the A noise scale to filter out frequencies not audible to the human ear are written dBA. (Ocean SCOUP MND, 2005).

[4] The Ldn measurement is one 24-hour average sound level where 10 dB is added to all the readings that occur between 10 PM and 7 AM. This is primarily used in community noise regulations where there is a 10dB "Penalty" for night time noise. Typically Ldns are measured using A weighting.

Table 3.7-19. Maximum Exterior Noise Limits from Non-Transportation Sources

Receiving Land Use Category	General Plan Land Use Districts	Time Period	Noise Level (dBA)	
			L_{eq}	L_{max}
Rural	All RR Zones and PRF, CR, MH, OS	7:00 AM - 7:00 PM 7:00 PM – 10:00 PM 10:00 PM – 7:00 AM	55 50 40	75 65 55
Other Residential	All SFR, MFR and MFBF Zones	7:00 AM - 7:00 PM 7:00 PM – 10:00 PM 10:00 PM – 7:00 AM	55 50 45	75 65 60
Commercial, Industrial	CN, CC, CV, CG and I Zones	7:00 AM - 7:00 PM 7:00 PM – 7:00 PM	65 60	85 70

Source: City of Malibu 1995; note that schools are considered sensitive receptors, but their institutional zoning designations allow for higher levels of noise exposure than for other sensitive receptors such as residential uses.

Notes: RR – Rural Residential; PRF – Private Recreational Facilities; CR – Commercial Recreational; MH – Mobile Home Residential; OS – Open Space; SFR – Single-Family Residential; MFR – Multi-Family Residential; MFBF – Multi-Family Beach Front CN – Commercial Neighborhood; CC – Community Commercial; CV – Commercial Visitor Serving; CG – Commercial General; I – Institutional.

Table 3.7-20. Maximum Allowable Noise Exposure Due to Transport Noise Sources

Land Use	Outdoor Activity Areas[1]	Indoor Spaces	
	L_{dn}/CNEL, dB	L_{dn}/CNEL, dB	$L_{eq/dB}$[2]
Residential	50[3]	45	-
Transient Housing (i.e., hotels)	60[3]	45	-
Churches and meeting halls	60[3]	-	40
Office buildings	60[3]	-	45
Schools, libraries and museums, and child care	60[3]	-	45
Playgrounds and neighborhood parks	70	-	-

3.7.4.3 Public Trust Impact Criteria

A major adverse noise impact would occur:

- If a person were to make, or cause or suffer, or permit to be made upon any public beach, occupied by such person, any unnecessary noises, sounds or vibrations which are physically annoying to reasonable persons of ordinary sensitivity or which are so harsh or so prolonged or unnatural or unusual in their use, time, or place as to occasion unnecessary discomfort to any persons within 500 feet of the place from which said noises emanate or which interfere with the peace and comfort of other occupants of public trust lands.
- If construction related noise were to conflict with city of Malibu noise ordinances applicable to the Zuma Beach parking lot and Broad Beach construction area.

This impact analysis considers the Broad Beach Restoration Project area in its existing setting (specifically the Public Trust Impact Area and the CSLC Lease Area), following the sand bag and 2010 emergency rock revetment installations.

3.7.4.4 Public Trust Impact Analysis

Noise impacts to the public trust resource prior to the construction of the 2010 revetment are consistent with the current noise setting described above. Prior to construction of the 2010 emergency rock revetment, sand bag revetments were constructed for protection from coastal processes. These sand bag revetments were located in the same general area as the existing 2010 emergency revetment. Installation of the rock and sand bag revetments may have generated construction-related noise, but is unrelated to this analysis.

The duration of construction and maintenance activities would be short-term. Nourishment and dune construction activities would last 6 months with hauling activities occurring in the first five of those months, sand movement and placement in proposed locations would last 1 month, and planting, fencing, irrigation, and other related activities would last 1 month, for a total initial construction timeline of 8 months. Annual or biannual backpassing may last up to 3 weeks per event, and the renourishment event would last for approximately 6 months. As proposed, construction working hours within the CSLC Lease Area would be limited to Monday through Friday, 7:00 AM to 6:00 PM. However, hauling and stockpiling of inland quarry material to Broad Beach is expected to be allowed from 6:00 pm to 9:00 pm. A total of 420 inbound and 420 outbound truck trips would occur per day, resulting in 30 round trips per hour, or one round trip every two minutes. Based on Project-proposed trucking hours, the hauling and stockpiling portion of the Project would require approximately 100 working days at 5 days per week, and is estimated to be completed after 20 weeks (5 months). No construction or sand staging would occur on weekends or city-designated holidays.

Anticipated short-term ambient noise from the Project would include noise associated with operation of heavy equipment along Broad Beach for sand deposition and movement during initial beach nourishment, backpassing events, and the renourishment event, as well as noise associated with haul trucks traveling to the staging space in the Public Trust Impact Area. For safety purposes, beach recreation would be restricted from areas undergoing sand placement, so recreational or other users would generally only experience Project noise from a distance.

Construction activities on Broad Beach would use heavy equipment, including two bulldozers, two scrapers, an excavator, two front-end loaders, flatbed delivery vehicles, dump trucks, generators, compactor, and miscellaneous power and hand tools (refer to Section 2.3.2, *Construction Staging Area and Equipment*, Table 2-4 Preliminary List of Construction Equipment for the Broad Beach Restoration Project). Backpassing would

employ three scrapers and a bulldozer while the renourishment event would require similar equipment to the initial nourishment. Temporary and periodic increases in ambient noise levels would occur during the Project's construction phase, backpassing, and the renourishment event. Additionally, 70 haul trucks would be used during the nourishment and renourishment phases for transportation of sand from the quarry sites. Additionally, the Project also contains a provision for installation of emergency sand bag revetments along the eastern 550 feet of Broad Beach that is not protected by the emergency rock revetment, only as needed to protect the dune system, thereby minimizing the noise generated by this activity to a negligible level. The potential noise impacts of the additional 43,000 truck trips associated with the Project are considered in relation to PCH in the Project vicinity where public trust resources are most likely to be affected by increased roadway noise.

Noise studies conducted in San Diego as part of a similar beach nourishment project measured beach-front baseline noise levels ranging from 62 to 69 dBA, with the major contributing noise source being wave action (San Diego Association of Governments [SANDAG] 2011). Similarly, noise studies for an Environmental Impact Report on Ellwood Beach in Santa Barbara County identified a CNEL of 64 dBA with a range of 57.7 to 63.8 dBA, with the major noise source being ocean waves (CSLC 2006, 2011)

Existing noise in the Public Trust Impact Area of the Project is generated from traffic along PCH, which is located approximately 40 to 60 feet above and 200 to 300 feet from much of the CSLC Lease Area of the Project site. A noise study conducted in 1992 for the city of Malibu General Plan identified a L_{eq} level of 70 dBA at the intersection of Trancas Canyon Road with PCH at the eastern end of the Project area (Malibu 2009). However, roadway noise is limited along the beach due to the elevation difference, distance from the road and the screening effect of houses, with daytime traffic noise primarily audible from decelerating trucks or other peak noises.

A few areas within the Public Trust Impact Area, subject to potential impacts, include various state parks, beaches, and campgrounds along PCH. Noise in the vicinity of these areas is also dominated by ocean waves and mobile sources on or directly adjacent to PCH.

Impact N-1: Construction Impacts to Recreational Users of Broad Beach

Short-term noise levels would increase during Project construction potentially affecting a public beach (Minor Adverse Effect, Class Mi).

<u>Impact Discussion (N-1)</u>

The dominant noise generated during placement of sand would result from diesel engines used to drive equipment. Equipment that is anticipated on the beach includes an excavator, two bulldozers, two front loaders, two scrapers, two backhoes, and four bobcats. Additionally, 70 haul trucks would travel to and from the staging area to deliver

sand; not all of these trucks would be within the Public Trust Impact Area of the Project at the same time. Table 3.7-21 provides a summary of noise ranges for typical construction equipment.

Table 3.7-21. Noise Ranges of Typical Construction Equipment

Maximum Noise Level (dBA) 50 feet from Source	Equipment
70	Generator (25 KVA or less)
80	Backhoe , Front End Loader
82	Generator (more than 25 KVA)
84	Dump Truck , Flat Bed Truck
85	Dozer , Excavator
88	Truck

Source: Federal Transit Authority (FTA) 2006.
HP = horsepower; KVA - kilovolt ampere

Noise related to Project activities would only occur for a fixed period of time for each activity: 8 months for initial construction, 3 weeks for backpassing events, and 6 months for the renourishment event. Project operations would exceed the city of Malibu's Noise Control Ordinance (7:00 AM to 7:00 PM) due to proposed truck trips and staging operations at Zuma Beach parking lot being extended to 9:00 PM. As proposed, construction hours would be limited to Monday through Friday, 7:00 AM to 6:00 PM. Although no construction activities would occur on the beach west of Trancas Creek after 6:00 PM, truck ingress and egress to the Zuma Beach Parking Lot 12, deposition of sand onto grizzlies, and sand moving activities in the project staging area in the parking lot and the sand stockpile areas on the beach immediately seaward of the parking lot would continue beyond 6:00 PM until 9:00 PM on weekdays.

Illustration 3.7-4. *During beach nourishment, estimated to last for up to 8 months, heavy equipment (e.g., bulldozers, excavators, or scrapers) operating on Broad Beach could generate noise levels of up to 85 dB, 50 feet from the equipment, and create other hazards to beachgoers.*

Noise from construction activities is typically considered as a point source and noise levels would drop off at a rate of 6 dBA per doubling of distance from the source over hard site surfaces, such as parking lots and water (Federal Transit Authority [FTA] 2006). For purposes of this analysis, all surfaces are considered acoustically hard. The magnitude of construction noise impacts depends on the type of construction activity, noise level generated by each piece of equipment, duration of the activity, and distance between the activity and receptor. Maximum noise levels from construction equipment range from approximately 70 to 90 dBA at 50 feet from the source (FTA 2006). However, maximum noise levels from construction

equipment anticipated to be used for the Project range from approximately 70 to 85 dBA at 50 feet from the source (Illustration 3.7-4).

Noise levels vary for each equipment type depending on equipment size, engine horsepower, activity level, and duty cycle. In a typical construction project (without pavement cutting or breaking), the loudest short-term noise levels are those of earthmoving equipment under full load, which would be approximately 85 dBA at a distance of 50 feet from the source. However, with equipment moving from one point to another, work breaks, and idle time, the long-term noise level averages are lower than louder short-term noise events. The Federal Highway Administration Road Construction Noise Model includes usage factors for converting maximum noise levels to hourly noise levels. For purposes of analysis of the Project, a maximum 1-hour average noise level of 80 dBA L_{eq} at 50 feet from the center of construction activities is assumed to occur (SANDAG 2011). Construction equipment is also equipped with mandatory backup alarms, and sand distribution requires construction equipment to back up frequently. Therefore, the diesel engine noise would be accompanied at times by the backup alarm noise.

The analysis preformed for the beach nourishment project in San Diego (SANDAG 2011) was used to obtain approximate noise levels during construction because of the similarity between the two projects. The dominant existing noise at Broad Beach is wave noise, and ambient wave noise levels are expected to range from 63 to 71 dBA. A peak construction noise event would include a diesel engine under load while sounding a backup alarm in proximity to a receptor. In these cases, construction equipment noise levels would be anticipated to occasionally exceed 85 dBA for a few minutes in a given hour. At other times, construction noise would be below 85 dBA, but still well above ambient noise levels.

As the receptor moves away from the construction activity, noise levels for the receptor would decrease with distance. At 200 feet, a decrease of 12 dBA would be anticipated. Thus, at distances greater than 200 feet, maximum construction noise levels would attenuate to 73 dBA Lmax or less, and average noise levels 68 dBA L_{eq} or less (SANDAG 2011). Given background noise levels, equipment, with the possible exception of backup alarms, is not anticipated to be highly noticeable to beachgoers who are more than 300 feet from construction activity.

Backpassing events and the single renourishment event would have potential noise impacts that are similar to those associated with the initial nourishment due to the use of similar construction equipment. Backpassing events, which are expected to occur approximately once a year and have duration of 3 weeks, would require a bulldozer, 3 scrapers, and a supervisor/foreman vehicle. The renourishment event, which is expected to occur approximately 10 years after project initiation and to have duration of 6 months, would require generally the same number and types of construction

equipment as the initial nourishment. Therefore, as with the initial beach nourishment activity, construction equipment is not anticipated to be highly noticeable to beachgoers who are more than 300 feet from construction activity.

While the Project would be technically inconsistent with the city of Malibu Noise Ordinance, as hauling and staging operations would occur past 7:00 PM, AMM N-1b would ensure that the Applicant obtains all necessary approvals from the city of Malibu for these extended operations. Additionally, this impact to recreational users of Broad Beach would be limited as the beach would generally be closed during weekday construction operations and recreational use of Broad Beach during the winter nighttime hours between 7:00 PM to 9:00 PM is typically reduced. Given that Project-related noise would be short-term during initial nourishment, backpassing events, and the renourishment event, and would not be highly disturbing nor present a major health and safety concern to beachgoers who are more than 300 feet from construction activity, noise impacts to recreational users of Broad Beach would be a minor adverse effect with implementation of AMMs.

Avoidance and Minimization Measure(s)

AMM N-1a: Use of Noise-Attenuating Devices on Construction Equipment. To the maximum extent feasible, equipment, and trucks used for Project construction shall use best available noise control techniques (e.g., improved mufflers, equipment redesign, use of intake silencers, ducts, engine enclosures and acoustically-attenuating shields or shrouds).

AMM N-1b: City of Malibu Approval for Exceedance of City Noise Ordinance. Prior to commencement of construction activities, the Applicant shall obtain and provide to CSLC staff all necessary approvals from the city of Malibu for proposed truck trips and staging activities between 7:00pm and 9:00pm at the Zuma Beach Parking Lot 12 and staging area Monday through Friday.

Rationale for Avoidance and Minimization Measure(s)

Project construction activities will occur near private residences as well as on the heavily used Zuma Beach. Implementation of these AMMs would ensure that an acceptable noise level would be experienced by the public within the vicinity of Broad Beach and during the public's use of the public trust lands, and would resolve conflicts with the City of Malibu's adopted Noise Ordinance. Further, as noted above, for safety reasons, Broad Beach would be closed during weekday construction periods, minimizing public exposure to construction-related noise.

Impact N-2: Construction and Operational Impact to Sensitive Receptors along Pacific Coast Highway (PCH)

Short-term highway noise levels would increase during sand hauling, potentially affecting visitor-serving uses and residents along PCH (Major Adverse Effect, Class Mj).

Impact Discussion (N-2)

Nuisance noise impacts from large haul trucks associated with the Project are anticipated to be larger than those from commuting workers or material delivery vehicles. An estimated 840 heavy inbound and outbound haul truck trips per day (420 round trips per day) would transit PCH and pass hundreds of homes and several State Park campgrounds 5 days a week, 14 hours per day (from approximately 7:00 AM to 9:00 PM) over the 5-month transport period during initial nourishment activities, and approximately 10 years later during renourishment.[5] Annual backpassing activities would occur only on Broad Beach and are not anticipated to generate substantial noise effects for sensitive receptors along PCH. In a noise assessment conducted by Ldn Consulting, Inc. in 2011 for a project located in the City of San Marcos, noise levels for truck drive-by noise and truck engine noise were measured at between 72.8 dBA and 74.6 dBA at a distance of 25 feet (Appendix O). For this analysis, it is assumed that the drive-by noise level of the trucks would be 75 dBA at 25 feet. Although these high noise levels would diminish by 6 dBA for every doubling of distance from the travel lane, many homes and campgrounds would likely be exposed to maximum noise levels of up to 72 dBA and 61 dBA respectively when the haul trucks pass during the haul truck hours (Table 3.7-22).

Table 3.7-22. Haul Truck Noise Levels along PCH

Receptor	Minimum Distance from Travel Lane	Maximum Noise Level at Receptor (Lmax)
Homes along PCH	35 ft	72-dBA
Sycamore Canyon Beach	130 ft	61-dBA
North Beach Campground	200 ft	57-dBA
Leo Carrillo State Park	200 ft	57-dBA
Point Mugu State Park Campground	360 ft	52-dBA
El Matador State Beach	500 ft	49-dBA

Note: The noise level for one large truck is approximately 85-dBA at a distance of 50 feet away and would attenuate by 6-dBA for each doubling of distance (FTA 2006).

Noise levels inside homes would likely be attenuated by a further 20 dBA (with windows closed), which would still exceed city of Malibu interior noise standards of 45 dBA. Campers in motor homes and tents would remain subject to higher noise levels. Hauling

[5] The estimate of 420 round trips per day is calculated by dividing the total number of truck trips (i.e., 43,000) by the number of months the hauling operations would occur (i.e., 5) and by the average number of workdays in a month (i.e., 21.7). Fewer haul trucks may be required for renourishment.

operations may have potential to result in disturbance as they would occur from 7:00 PM to 9:00 PM in violation of the city of Malibu Noise Ordinance for hours of allowable construction. While these are maximum noise levels that would occur only when each truck passes and would not be continuous, the expected 420 round truck trips per day would result in one trip each way every 2 minutes between the hours of 7:00 AM and 9:00 PM. However, PCH is a busy highway that carries large volumes of traffic and heavy trucks and is likely already subject to similar maximum noise levels at varying intervals. Still, the Project would greatly increase the prevalence of these high maximum noise level events during hours for which the city of Malibu's Noise Ordinance prohibits construction activities. Therefore, noise impacts to sensitive receptors within Malibu city limits, including residences along PCH, would result in a major adverse effect. Measures to eliminate this impact are unavailable. However, a prohibition on use of truck "jake" brakes may be advisable to help reduce this impact.

Avoidance and Minimization Measure(s)

Implementation of **AMM N-1a** and **AMM N-1b** may reduce noise impacts to sensitive receptors along PCH, but this impact may still have a major adverse effect to sensitive receptors.

3.7.4.5 BBGHAD Inland Project Area Truck Routes (Inland Quarries to PCH)

This section describes direct and indirect impacts of the inland transportation routes that may potentially result from Project implementation.

Impact N-3: Construction and Operational Impact to Sensitive Receptors along BBGHAD Inland Project Area

Short-term highway noise levels would increase during sand hauling, potentially affecting visitor-serving uses and residents along roadways within BBGHAD Inland Project Area (Increased Intensity, Class - I).

Impact Discussion (N-3)

The following discussion provides a qualitative assessment of the truck routes from the three inland quarries to PCH. The assessment was conducted using aerial photo interpretation through Google Earth Pro software and the Google map layers identifying points of interest and other features (e.g., schools, community facilities).

CEMEX Quarry (north of Moorpark). The Applicant's proposed route from CEMEX Quarry would pass through Moorpark on Walnut Canyon Road, an area that generally experiences relatively low noise levels. Large trucks driving on Walnut Canyon Road and Moorpark Avenue may affect sensitive receptors along the route in urban and residential areas of Moorpark. Potential concerns along Walnut Canyon Road include segments that run through residential neighborhoods, three schools, a library, park, and

Boys & Girls Club. An alternative route is included in the sand transportation route on Grimes Canyon Road, a mostly agricultural route that would bypass Walnut Canyon Road and relieve some truck traffic. The proposed route also passes through agricultural lands on SR-23 and SR-118, which are not considered noise-sensitive uses. Other considerations on this route include a residential neighborhood near Somis, residential areas in Camarillo and Camarillo Montessori School.

Grimes Rock Quarry (south of Fillmore)*.* The Applicant's proposed route from Grimes Rock Quarry passes through agricultural lands on N. Grimes Canyon Road, on SR-126 between Fillmore and Saticoy, and on Los Posas Road. The route also passes through the cities of Fillmore, Santa Paula, Saticoy, and Camarillo; however, roads in this portion are mostly four-lane freeways or highways and currently sustain high traffic volumes and noise levels. Thus, noise from truck traffic would not have a substantial impact in this segment. Considerations on this route include Santa Clara Schoolhouse, which is a cultural resource along SR-126 near Santa Paula (see Section 3.7.3, *Cultural and Paleontological Resources* for a discussion of impacts to cultural resources).

P.W. Gillibrand Quarry (north of Simi Valley*).* The Applicant's proposed route from P.W. Gillibrand quarry would pass through communities in Simi Valley, Moorpark, Thousand Oaks and Camarillo. Sensitive uses on this route include residences, Township Elementary School, and a public library on Tapo Canyon Road (two- to four-lane road). Increased noise levels related to truck traffic may be of concern in this area, including disturbance of homes, classroom activities, and the library noise atmosphere. Las Posas Road south of Camarillo is a two-lane road that passes through mostly agriculture land. Trucks traveling on the SR-118, SR-23 and US-101 freeways between Simi Valley and Camarillo would have little impact on nearby residences and sensitive land uses as this part of the route is composed of six-lane freeways and currently experiences high traffic volumes and noise levels.

Inland Transportation Routes Noise Impact Summary

These roadways along the three sand transportation routes from the inland quarries will experience noise disturbances. Hauling activities could expose noise sensitive land-uses located near these routes with minimal setbacks to increased noise levels throughout construction. In particular, the route segments that currently carry lighter volumes of traffic with a commensurate ambient noise level would experience a more noticeable increase in noise generated from heavy haul truck trips. However, routes along US 101 already experience high traffic volumes and the effects from the Project are likely to have a less noticeable effect.

Although not a direct impact to public trust resources, this issue would be of potential concern to residents and other sensitive uses of potential interest to local or other State agencies. Ventura County considered noise-related issues associated with the quarries

as part of its permitting of the quarries. Given the existing noise setting for these roadways, which already include high volumes of traffic and related noise, the Project's contribution would result in increased intensity to noise. A prohibition on use of truck "jake" brakes may be advisable to help reduce this impact.

Avoidance and Minimization Measure(s)

Implementation of AMM N-1a may reduce noise impacts to sensitive receptors along the hauling routes, but this impact may still result in an increased intensity of noise.

3.7.4.6 Summary of Noise Impacts and AMMs

Impact	Class	AMMs
N-1: Construction Impacts to Recreational Users at Broad Beach	**Mi**	**AMM N-1a:** Use of Noise-Attenuating Devices on Construction Equipment **AMM N-1b:** City of Malibu Approval for Exceedance of City Noise Ordinance
N-2: Construction and Operational Impact to Sensitive Receptors along PCH	**Mj**	**AMM N-1a:** Use of Noise-Attenuating Devices on Construction Equipment **AMM N-1b:** City of Malibu Approval for Exceedance of City Noise Ordinance
N-3: Construction and Operational Impact to Sensitive Receptors along BBGHAD Inland Project Area	**- I**	**AMM N-1a:** Use of Noise-Attenuating Devices on Construction Equipment

3.7.5 PUBLIC HEALTH AND SAFETY, HAZARDS

This section of the Revised APTR describes the potential public health and safety issues that could occur as a result of implementation of the proposed Project. The Project would include transport of sand with six-axle haul trucks and the operation of heavy construction equipment on Broad Beach. Consequently, Project implementation would result in the potential for traffic incidents and hazardous spills, during initial beach nourishment and dune construction, annual sand backpassing, and subsequent renourishment events. This section also discusses long-term safety issues associated with the existing temporary emergency rock revetment. Public trust impact criteria are used to assess the degree of the impacts and whether AMMs can be implemented to reduce impacts. Traffic issues are discussed in Section 3.7.2, *Traffic and Parking*. Safety issues relating to wastewater disposal and drainage are discussed in Section 3.7.6, *Utilities and Service Systems*.

3.7.5.1 Environmental Setting Pertaining to the Public Trust

<u>Relationship Between Public Health and Safety and Public Trust Resources and Values</u>

Public health and safety hazards have the potential to affect the public's right to use and enjoy the public trust resources on and near Broad Beach. The Project could affect public health and safety through initial dune and beach restoration activities as well as through backpassing events and the proposed renourishment event, both of which would occur in accordance with the pre-determined triggers outlined in Section 2, *Project Description*. Construction activities may present direct hazards, such as the presence of heavy machinery on the beach, or result in accidental release of hazardous materials. Public health and safety hazards could impede recreational use of public trust resources.

The environmental setting presented in this section represents the current conditions within the CSLC Lease Area and Public Trust Impact Area. These conditions include the existing configuration of the Project sites, existing operations, and present environment. Risks associated with public health and safety and a potential release of hazardous materials are evaluated in relation to the current conditions. Broad Beach is currently a low tide beach, with public use and access generally restricted to a narrow beach at moderate tides with all or most of the beach under water at higher tides. The beach is widest on the east and narrows to the west. Residences line the majority of Broad Beach up to Trancas Creek Lagoon. The beach is backed by a 4,100-foot-long temporary emergency rock revetment over the majority of its reach, with other coastal protection structures, such as seawalls and sand bags, in other segments. The beach is generally a wide wet sand beach at lower tides, but becomes increasingly rocky in the sheltered cove inside of Lechuza Point, where rocky intertidal habitat intermingles with intermittent sandy beach.

The emergency revetment currently presents a physical barrier to lateral access for beachgoers as they try to dodge wave run-up, as to a lesser extent do the geotextile revetments. The presence of the emergency revetment creates some limited threats to public safety because there is no longer a gradual transition from a lower to higher elevation along the beach. Thus, when the tide reaches the revetment at moderate to high tides, beach users are forced to climb up the revetment to avoid waves or the incoming tide, rather than walk farther up a sandy beach. Additionally, larger waves have the potential to push a recreational beach user into the rocks of the revetment.

The material composition of the sand in the vicinity of Broad Beach was tested in order to have a baseline understanding of potential chemical contaminants prior to the introduction of new material. The chemical testing of composite samples detected no contamination within the Broad Beach-Zuma Beach survey area (CFC 2011a). For more information about the material composition of Broad Beach please see Section 3.1, *Coastal Processes, Sea Level Rise, and Geological Hazards*.

Sand from the stockpiles of CEMEX, Grimes Rock, and P.W. Gillibrand Quarries, from which the BBGHAD has stated it will purchase sand for the Project, was sampled and analyzed by American Environmental Testing Laboratory in Burbank, CA, a certified analytical laboratory. The standard suite bulk chemistry analysis included, but was not limited to, testing for levels of: metals, polychromatic hydrocarbons, phenols, chlorinated pesticides, and aroclors. The results of the analysis were then compared to numeric screening guidelines provided by the USEPA and U.S. Army Corps of Engineers (USACE) to assess material compatibility determinations. No screening levels were exceeded in the results. Other sand characteristics such as grain size and relative silt and clay content also make the sand compatible as beach fill. For more detailed information about material composition in the borrow site areas, please see Appendix J or refer to Section 3.1, *Coastal Processes, Sea Level Rise, and Geological Hazards*.

<u>BBGHAD Inland Project Area Overview</u>

The sand transportation routes are comprised of a range of different roadways which include large freeways and small, winding country roads. Thousands of vehicles use these roadways on a daily basis. Safety issues associated with the sand transportation routes are analyzed separately in Section 3.7.2, *Traffic and Parking*.

3.7.5.2 Regulations Pertaining to the Public Trust

State regulatory law and other statutes related to public health and safety are listed in Table 3.3 in Section 3.0, *Issue Area Analysis*. State regulations applicable to the Project are intended to protect public safety and regulate hazardous materials and hazardous wastes are listed below. These regulations also are designed to limit the risk of upset during the use, transport, handling, storage, and disposal of hazardous materials. Pursuant to a consolidated CDP, the CCC will address the Project's consistency with

the Coastal Act and city of Malibu LCP. The Malibu LCP incorporates policies from the Coastal Act as well as defining specific policies for the city of Malibu. The policies that are relevant to the Project include:

- **Policy 2.39:** The city shall not close, abandon, or render unusable by the public any existing accessway which the city owns, operates, maintains, or is otherwise responsible for unless determined to be necessary for public safety without first obtaining a Coastal Development permit. Any accessway which the city or any other managing agency or organization determines cannot be maintained or operated in a condition suitable for public use shall be offered to another public agency or qualified private association that agrees to open and maintain the accessway for public use.
- **Policy 4.26:** Development on or near sandy beach or bluffs, including the construction of a shoreline protection device, shall include measures to insure that: (1) no machinery shall be allowed in the intertidal zone at any time to the extent feasible and (2) all construction debris shall be removed from the beach. (Resolution No. 07-04.)

3.7.5.3 Public Trust Impact Criteria

For this analysis, the significance of potential public health and safety impacts is based on the level of safety precautions that would be implemented during replenishment activities. An impact to public health and safety would be significant if it would:

- Create a health hazard or potential health hazard; or
- Expose people to potential health hazards.

3.7.5.4 Public Trust Impact Analysis

The Project would have potential impacts to public health and safety both during construction activities and throughout the life of the Project. Construction activities may present short-term hazards during initial dune and beach restoration activities, as well as during the renourishment event and ongoing backpassing. The Project would improve public safety along Broad Beach during the estimated 10- to 20-year life of the beach nourishment due to burial of the emergency revetment; however, these benefits would diminish as the revetment is re-exposed over time.

The Project would produce short-term public safety hazards at Broad Beach due to construction activities during initial dune and beach restoration activities, as part of all backpassing events, and during all renourishment events. Potential public safety hazards are related to (1) operation of heavy construction machinery and distribution of sand on Broad Beach, and (2) the potential for an accidental release of hazardous

materials. Ongoing Project operations would not result in any health risks associated with the use or generation of hazardous materials.

Beach and dune restoration would have mid-term beneficial effects on public safety at Broad Beach over its design life due to the burial of the emergency revetment, which currently presents a limited public safety hazard. The revetment and other temporary and permanent seawalls would no longer act as hazards to public beach users because they would be buried beneath the dunes. The Project would restore sandy beach conditions to Broad Beach, creating a substantial positive impact to public safety for the design-life of the nourishment Project so long as backpassing and nourishment continues.

Over the long-term, the revetment would present a public safety hazard. As nourishment sand is eroded from the beach, the revetment would be re-exposed, presenting the same adverse impacts that it currently creates.

Historical Hazards and Safety Characteristics of Broad Beach (pre-2010 revetment)

Prior to the 2010 rock revetment, conditions related to hazards and hazardous materials were very similar. Natural physical characteristics and processes were comparable to current conditions. Prior to the 2010 revetment, the majority of property-owners placed individual revetments made of rock, timber, geotextile bags, and sand bags. Hazards associated with these revetments closely mirror those presented by the large rock revetment; however, individuals would have less of a risk of injury if trapped by hide tides in between waves and softer revetments (e.g., geotextile bags). Further, while the 2010 revetment is largely continuous, individual revetments included additional breaks and spaces for individuals to shelter themselves between structures. These breaks also provided opportunities to move away from a hazardous situation.

Impact HAZ-1: Authorization of the Revetment Creates Hazards

Authorization of the emergency revetment could impact public health and safety by trapping beach users between large rocks and incoming surf and tides (Minor Adverse Effect, Class Mi).

Impact Discussion (HAZ-1)

Authorization of the emergency revetment, portions of which overlie public trust lands and Lateral Access Easements (LAEs), would create a long-term potential public health and safety hazard for recreational users on Broad Beach during moderate and high tides. Presence of the revetment compels beach users to climb up the revetment to avoid higher tides, rather than walk farther up a sandy beach. Additionally, large waves have the potential to push a recreational beach user into the rocks of the revetment, with some potential for injury. By blocking access to existing public trust land and LAEs, authorization of the revetment would force beachgoers into potentially unsafe situations.

Further, as the central and eastern regions of the revetment sustain damage to critical design features overtime, the current structure as constructed, poses an additional safety hazard to beachgoers. In the event that a portion of the revetment is structurally compromised by wave action, the sudden movement of boulders may injure the public using the sandy beach, or climbing on the exposed revetment.

The Project would offset the impacts of the revetment by burying the revetment under a restored sand dune habitat over the anticipated 10- to 20-year life of the Project. However, authorization of the revetment though a long-term lease and approval of Coastal Development Permits would create the potential for long-term impacts to public safety after nourishment activities end and natural coastal erosion causes the revetment to become exposed.

Avoidance and Minimization Measure(s)

AMMs that would address long-term impacts to public safety from the presence of the revetment are described in earlier sections of this document, including **AMM TBIO-1a**, Implementation of a Comprehensive Dune Restoration Plan, and **AMM REC-4a**, Requirement of Additional Nourishment.

Rationale for Avoidance and Minimization Measure(s)

Construction of the emergency revetment has resulted in adverse impacts to public health and safety at Broad Beach. Measures that would improve public safety at Broad Beach include continuing beach nourishment activities over the long term or removing the revetment. Continued beach nourishment as outlined in AMM TBIO-1a would remove the risk to public safety presented by the revetment by maintaining a wide sandy beach for public use and keeping the revetment buried under sand. AMM REC-4a would reduce future impacts to public health and safety due to the revetment by addressing the potential future hazards occurring when the revetment becomes exposed due to coastal and climatic processes over the Project life. The combined AMMs would reduce the potential health and safety hazards created by the presence of the emergency revetment in both the mid- and long-term.

Impact HAZ-2: Hazardous Materials Release During Construction

Hazardous material released from construction equipment on the beach during two nourishment events and backpassing could impact public safety (Minor Adverse Effect, Class Mi).

Impact Discussion (HAZ-2)

Earthmoving equipment, such as bulldozers, scrapers, and other construction equipment would be operating on Broad Beach during backpassing and nourishment events. In addition, a 20-truck fleet would be used to transport sand to the beach. Approximately 30 trucks per hour would be entering and exiting the staging area from

7:00 AM to 9:00 PM. This would create the potential for accidental release of fuels, oils, lubricants, and other hazardous materials during the relatively extended periods that such machinery is operating on and around Broad Beach. If a fuel tank or an oil line were ruptured, these hazardous materials would be released onto the public beach or roads, presenting a risk to public health and safety. Such spills are considered low probability as all equipment would be stored overnight in the staging area and all fueling would be restricted to the staging area as well. However, equipment can malfunction or suffer damage when operating in a dynamic environment like a beach. Therefore, such malfunctions or accidents that could lead to release of hazardous materials on public trust lands would be major adverse impacts.

Avoidance and Minimization Measure(s)

AMM HAZ-2: Develop Hazardous Material Spill Prevention Control and Countermeasure Plan (SPCCP). A Hazardous Material SPCCP shall be prepared prior to implementing the Project to minimize the potential for, and effects from, spills of hazardous, toxic, or petroleum substances during Project construction and shall be submitted to California State Lands Commission staff at least 2 weeks before commencement of beach restoration activities. At a minimum, the SPCCP shall:

- Describe storage procedures, construction site housekeeping practices, and other Best Management Practices (BMPs). Common BMPs may include use of containment devices for hazardous materials, training of construction staff regarding safety practices to reduce the chance for spills or accidents, and use of nontoxic substances where feasible.
- Identify processes for inspections and monitoring of BMPs to ensure minimal impacts to the environment occur.
- Describe actions required if a reportable spill occurs, such as which authorities to notify and the proper clean-up procedures.
- State procedures for containing, diverting, isolating, and cleaning up any spills that might occur, such that major adverse impacts on surface and groundwater quality would be minimized or avoided.

Rationale for Avoidance and Minimization Measure(s)

BMPs and the SPCCP required under AMM HAZ-2 will reduce the potential of a release of hazardous materials on Broad Beach, and ensure that any accidental releases are properly handled. Impacts are considered not to be substantial with implementation of the avoidance and minimization measures.

Impact HAZ-3: Hazardous Conditions During Construction at Broad Beach

Construction activities at Broad Beach during nourishment and backpassing events could impact the safety of public beach users (Minor Adverse Effect, Class Mi).

Impact Discussion (HAZ-3)

The presence and operation of large construction equipment and construction crews would pose a safety risk to recreational beach users during initial construction of the beach and dune system and during backpassing and renourishment events. Nourishment of the beach and dune system would include, but not be limited to, the use of: two backhoes, two front-end loaders, two scrapers, two bulldozers, three hopper/conveyor systems, and seven off-road 40-ton dump trucks on Broad Beach. Additional equipment such as pick-up trucks would also be used.

The total construction period for the Project is estimated to extend over 8 months, with the future renourishment event estimated to require slightly less time than the initial nourishment due to the expectation of reduced volumes of sand required. The Project would apply BMPs for the construction activities during initial nourishment, renourishment and backpassing events. These practices include:

- public notice of upcoming construction activity;
- closure of construction areas to public access;
- implementation of a construction vehicle traffic management plan; and
- fencing off of the staging area.

The areas of active work (e.g., the training dikes, areas where earthmoving equipment is being used) would be clearly delineated and access controlled by contractors. Additionally, during backpassing operations, the responsible contractor would station a flag person at each access point to control construction traffic and pedestrian foot-traffic. In addition to these measures, the following avoidance and minimization measures would further reduce public safety hazards during construction activities at Broad Beach.

Avoidance and Minimization Measure(s)

AMM HAZ-3a: Demarcation of Public Access Routes. Public access routes around construction areas shall be clearly marked.

AMM HAZ-3b: Provision of Contact for Reporting Hazards. The Applicant will provide the public with contact information in order to report immediate hazards related to the Project. This information shall be provided via public notice in a local paper and on signs at Broad Beach at least one week (7 days) prior to the commencement of any Project-related activities.

Rationale for Avoidance and Minimization Measure(s)

Because active replenishment areas would be closed to public access, no major impacts to public health or safety would result with implementation of proposed avoidance and minimization measures. The Project would result in public health and

safety benefits by adding sand to eroded areas, allowing for increased access to Broad Beach and burial of the emergency revetment.

Impact HAZ-4: Potential for Sediment Placed on Broad Beach to be Contaminated

Sediment material introduced to Broad Beach could impact public health and safety due to the chemical content of the new material (Minor Adverse Effect, Class Mi).

Impact Discussion (HAZ-4)

The sediment sources at the quarry sites were formed in pre-industrial times and have not been exposed to modern sources of pollution. Further, they are removed from potential contamination sources and are upslope/upstream of urbanization and drainage sources. The sediments also contain approximately 92.5 percent sand; therefore, contaminants would have a harder time being held within the sand. Additionally, analysis of the sediment contained in the source stockpiles confirmed that no numerical contaminant screening values set by the USEPA and USACE were surpassed, indicating that the sand would not pose a threat to public health and safety and would thus be compatible for beach nourishment uses. Please see Appendix L, or refer to Section 3.1, Coastal Processes, Sea Level Rise, and Geological Hazards, for more information regarding the source sediments and relevant evaluations.

Nevertheless, the potential remains that unforeseen wastes and materials could be discovered within the nourishment sediment at some point in the process. In the event that such unforeseen contaminants are discovered, public health and safety could potentially be impacted.

Avoidance and Minimization Measure(s)

AMM HAZ-4: Response to Sediment Contamination. Nourishment activities shall be temporarily halted In the event that construction workers, personnel, or other persons identify any indication that hazardous or dangerous materials are present in the imported sediment, or if contaminated sand is inadvertently deposited at Broad Beach, pending an evaluation by the California State Lands Commission (CSLC) staff, in consultation with the California Department of Fish and Wildlife (CDFW) Office of Spill Prevention and Response, to determine the extent of the contamination and most appropriate remediation methods before nourishment activities would be allowed to resume.

Rationale for Avoidance and Minimization Measure(s)

Although all three potential sediment sources have been sampled for the suitability of the sediment materials, there is a remote possibility that contamination may still occur.

Implementation of AMM HAZ-4 would reduce the potential for previously undetected hazardous material to be deposited onto Broad Beach during the Project.

Impact HAZ--5: Burial of the Emergency Revetment

Burial of the emergency revetment could have short- to mid-term benefits to public health and safety (Beneficial, Class B).

Impact Discussion (HAZ-5)

The Project includes burial of the emergency revetment, so it would no longer pose a public safety hazard on Broad Beach as long as it remains buried. The current exposure of the emergency revetment presents a public health and safety hazard for recreational users on Broad Beach during mid to high tide by preventing the beach from having a gradual transition from lower to higher elevation. When the tide rises, recreational users are forced inland toward the rocky revetment, rather than toward higher elevation beach and dunes. The Project would include the restoration of Broad Beach and the associated dune system, which includes burial of the existing revetment under sand. This would restore sandy beach conditions and allow for increased public access and a gradual topographic transition along Broad Beach as long as it continues to be nourished. This would result in a positive short- to mid-term impact to public health and safety at Broad Beach.

3.7.5.5 Summary of Public Safety and Hazard Impacts and AMMs

Impact	Class	AMMs
HAZ-1: Authorization of the Revetment Creates Hazards	**Mi**	**AMM TBIO-1a:** Implementation of a Comprehensive Dune Restoration Plan **AMM REC-4a:** Requirement of Additional Nourishment
HAZ-2: Hazardous Materials Release During Construction	**Mi**	**AMM HAZ-2:** Develop Hazardous Material Spill Prevention Control and Countermeasure Plan
HAZ-3: Hazardous Conditions During Construction at Broad Beach	**Mi**	**AMM HAZ-3a:** Demarcation of Public Access Routes **AMM HAZ-3b:** Provision of Contact for Reporting Hazards
HAZ-4: Potential for Sediment Placed on Broad Beach to be Contaminated	**Mi**	**AMM HAZ-4:** Response to Dredged Sand Contamination
HAZ-5: Burial of the Emergency Revetment	**B**	No AMMs recommended

3.7.6 UTILITIES AND SERVICE SYSTEMS

This section of the Revised APTR describes wastewater disposal and storm water drainage along Broad Beach and potential Project impacts on public trust resources and values. The Public Trust Impact Area adjacent to the CSLC Lease Area includes 109 residences and the Malibu West Beach Club, associated Onsite Wastewater Treatment Systems (OWTS), 11 public storm drains, and an unknown number of private drainage systems. Primary sources of information for this section include:

- Shore Protection As-Built Plan Historic Permit Status per SLC 2010 MHTL (BBGHAD 2013a);
- Broad Beach Restoration Onsite Wastewater Feasibility Study. Prepared by Ensitu Engineering (BBGHAD 2013b);
- Response to comments RE: Coastal Development Permit Application 4-12-043 (Broad Beach), Prepared by Ensitu Engineering (BBGHAD 2014);
- Clean Water Program (City of Malibu 2006) ;
- Limited Engineering Geologic Report 070109 (City of Malibu 2007);
- Council Agenda Report: Item 3.B.10. State Water Resource Control Board (SWRCB) Proposition 84 Area of Special Biological Significant Broad Beach Road Bioinfiltration Project (City of Malibu 2010);
- City of Malibu and County of Los Angeles (LA County) staff; and
- Malibu Water Pollution Control Plant Fourth Quarter and Annual 2008 Monitoring Report Order No. 98-088, CI 6473, File No. 64-049 (LA County 2009).

3.7.6.1 Environmental Setting Pertaining to the Public Trust

<u>Relationship between Utilities and Service Systems Public Trust Resources and Values</u>

Existing residences along Broad Beach Road depend upon individual OWTS for the treatment and disposal of sewage effluent generated at these homes. The majority of these residences rely on conventional septic systems, featuring septic tanks and leach fields. The leach field disposal areas for these homes, where treated wastewater is deposited for percolation into underlying soil, are frequently located in sandy dune areas, often seaward of these homes (Illustration 3.7-5). This proximity to the shoreline

Illustration 3.7-5. *Onsite septic systems provide wastewater disposal for many homes along Broad Beach. Treated effluent is disposed of through discharge into leach lines buried in sandy dune soils inland of the revetment adjacent to the beach and ocean.*

creates a potential for OWTS-related sewage effluent to come into contact with the high groundwater table present near the coast or for the OWTS to be exposed to damage by wave action and erosion. Additionally, drainage along Broad Beach Road directs storm water runoff out to the beach where it can infiltrate into the sand and run off to the ocean. Such drainage can carry contaminants into intertidal lands, offshore waters, and other public trust resource areas, and may also cause erosion of public beaches during periods of high flows. The potential for contaminated drainage or effluent contact with and pollution of ground or ocean waters may impact the quality of public trust waters, have adverse effects on public trust resources (e.g., marine life), and impair the public's use and enjoyment of such resources.

Existing Municipal Wastewater Disposal Systems:

The Los Angeles County Department of Public Works (LACDPW) and Las Virgenes Municipal Water District (LVMWD) provide municipal wastewater treatment for incorporated and unincorporated areas of western Los Angeles County. The LVMWD provides service to areas south of the Ventura County line, including Westlake Village, Agoura Hills, Hidden Hills, Calabasas, and unincorporated areas within the Santa Monica National Recreation Area. Water from these areas is treated at the Tapia Water Reclamation Facility located in Calabasas. Service does not extend into the Malibu city limits. The LACDPW provides service to 40 consolidated sewer districts throughout the county, including areas within the city of Malibu. Parcels west and northeast of Broad Beach and the CSLC Lease Area are within service district No. 27; however, the majority of parcels along Broad Beach are not within an established service district. LACDPW provides wastewater treatment for limited areas within the city of Malibu from three separate wastewater treatment plants providing secondary and tertiary treatment of effluent (LA County 2011a):[6]

- **Malibu Mesa Wastewater Reclamation Plant** is a tertiary wastewater treatment plant located on land owned by Pepperdine University (Malibu Times 2009). This facility is located approximately 8 miles east of Broad Beach (Google Earth 2014). The capacity of the treatment plant is 200,000 gallons per day (gpd) of domestic wastewater. The reclaimed water is primarily used for irrigation on the Pepperdine University campus (LA County 2011a).
- **Malibu Water Pollution Control Plant** is a secondary wastewater treatment facility located at 3620 Vista Pacifica (LA County 2009). This facility is located approximately 9 miles east of Broad Beach (Google Earth 2014). The capacity of the plant is 51,000 gpd of domestic wastewater. Treated wastewater is discharged from the facility into seepage pits for disposal (LA County 2011a).

[6] Municipal wastewater treatment typically consists of three stages of treatment: Primary treatment removes suspended solids from raw sewage through mechanical separation; Secondary treatment removes dissolved organic materials using microbes; and Tertiary treatment is any additional treatment beyond secondary processes to further improve effluent quality.

- **Trancas Water Pollution Control Plant** is a secondary wastewater treatment facility located at 6338 Paseo Canyon Drive, inland of PCH. This facility is located approximately 0.5 mile north of Broad Beach. The capacity of the plant is 75,000 gpd of domestic wastewater (LA County 2012). Treated wastewater from the plant is discharged into leach fields for disposal (LA County 2011a).

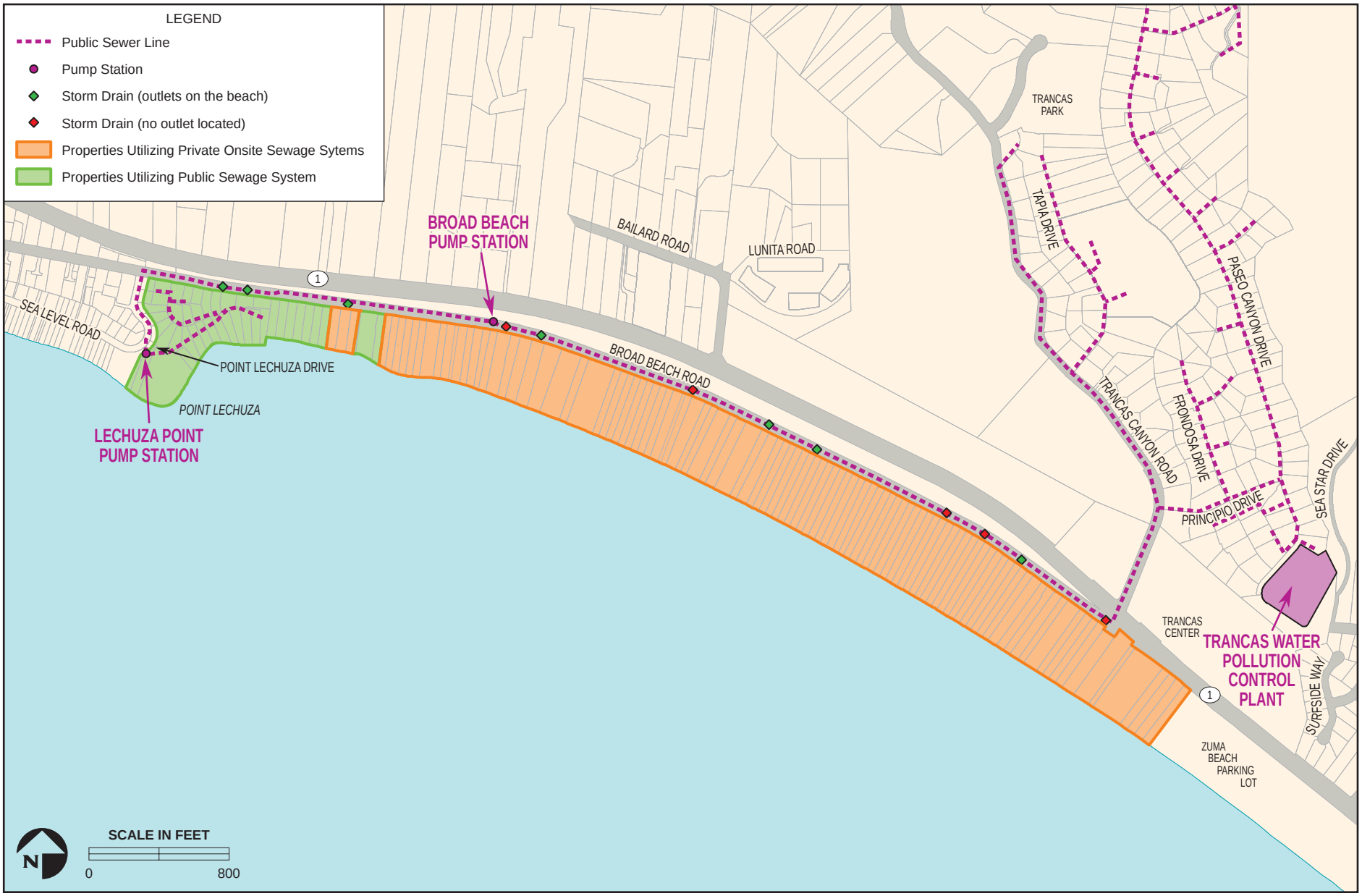
Water and Wastewater Disposal in the Malibu Area

The city of Malibu is a semi-rural community with no centralized wastewater treatment system. The majority of homes and business in the community rely upon OWTS for disposal of sewage effluent, including septic systems, drywells, and more advanced systems, such as aerobic treatment units (ATUs), or “package plants.” The use of OWTS for a relatively large number of homes and businesses proximate to the Pacific Ocean and local creeks and estuaries has raised concerns from citizen groups, such as Heal the Bay, regarding potential water quality impacts associated with current wastewater disposal practices. Such concerns have spurred the SWRCB and Los Angeles Regional Water Quality Control Board (LARWQCB) to phase out OWTS in some areas of the community. For example, the city of Malibu is working with interested organizations and the State to address such concerns through pursuing construction of an area-wide wastewater collection treatment system within the Malibu Civic Center.

Approximately 6,400 OWTS are in the city of Malibu (City of Malibu 2006). Conventional OWTS consist of a septic tank and a subsurface wastewater infiltration system. Wastewater is conveyed out of the home via a pipe to the septic tank. Within the septic tank, wastewater undergoes natural, physical, chemical, and biological treatment through microbial processes. Wastewater leaves the septic tank through a separate pipe that leads to a leach field and perforated pipes or a seepage pit to allow the treated wastewater to infiltrate into the surrounding soil. Once in the soil, microbes continue to treat the water and remove excess nutrients that may remain (USEPA 2011).

Wastewater Disposal in the Broad Beach Area

Wastewater disposal along the 1.5-mile-long reach of Broad Beach Road is provided by a mix of public and private wastewater disposal systems (Figure 3.7-4). Wastewater from residences along Broad Beach west of Lechuza Point is collected through a public sewer line located beneath Broad Beach Road and treated at the LACDPW-operated Trancas Water Pollution Control Plant located across PCH, approximately 0.5 mile north of Broad Beach. Existing public wastewater collection infrastructure along Broad Beach Road consists of a 4-inch-diameter ductile iron pipe (DIP) force main that runs from the Lechuza Point Pump Station located at Point Lechuza Drive and east along Broad Beach Road to Trancas Canyon Road. This sewer line turns north along Trancas Canyon Road across the PCH and connects to the Trancas Water Pollution Control Plant (LA County 2006, 2011b).



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Wastewater Treatment in the Vicinity of Broad Beach

FIGURE 3.7-4

The majority of Broad Beach is not a part of the Trancas Zone of the LACDWP Consolidated Sewer Maintenance District, though 19 residences within the Project and the Consolidated Sewer Maintenance District receive wastewater treatment through the Trancas Water Pollution Control Plant (LA County 2011c). When this sewer system was established in the 1960s, property owners along west Broad Beach Road opted to receive public wastewater disposal service, while the remaining property owners along east Broad Beach (i.e., majority of the BBGHAD) opted out of receiving public wastewater disposal services (City of Malibu 2012). Wastewater from properties located east of Lechuza Point is treated by individual private OWTS. In order to connect to this system and receive public wastewater services, property owners would need authorization, including accordance from the 177 homeowners within the Malibu West subdivision; approval by the Los Angeles County Board of Supervisors and the Local Agency Formation Commission; and a LARWQCB review (Yi 2012). Additionally, there is limited wastewater treatment capacity at the Trancas Wastewater Treatment Plant, which is currently operating at 75 percent of capacity (Yi 2012). Given this high level of complexity, connecting to this sewer system may not be a viable option for residences currently served only by OWTS.

Private OWTS are maintained by the homeowner, although city regulations provide guidelines for maintenance and inspections. OWTS installed on Broad Beach include effluent infiltration designs of both leach fields and seepage pits. As seen in Figures 2-2 through 2-6, the locations of leach and drain fields within the Public Trust Impact Area on Broad Beach Road vary from parcel to parcel, with some systems located landward of existing homes, some located in centralized courtyards or the homes, some located seaward of the homes, and some with OTWS elements spread throughout the property. Most leach or drain fields are located seaward of existing homes (Table 3.7-23).

Table 3.7-23. Location of OWTSs along Broad Beach

Total residences with an OWTS[1]	Residences with Multiple OWTS locations	OWTS Location in Parcel[2]		
		Landward	Middle	Seaward
95	13	40	25	45

Source: BBGHAD 2013a.

[1] Four undeveloped parcels not within the Trancas Zone are included in the total count of residences with an OWTS.

[2] The location of the OWTS for undeveloped parcels was determined based on previous development or personal communication with the city of Malibu (4/3/14 via email).

In all OWTS locations, the soil within the area of the leach field or seepage pit is sandy and effluent discharge migrates vertically through the sand to reach groundwater sources or bedrock material (City of Malibu 2007). In exploratory studies, standing groundwater has been found above the sand/bedrock contact, which occurs at a depth of 16.0 feet (City of Malibu 2007).

A number of homes located at the west end of Broad Beach dispose of wastewater through onsite ATUs, or "package plants." These systems are modular sewage-treatment units that treat effluent using natural processes that require oxygen. The system consists of an aeration chamber, a mechanical agitator, and a sludge settling compartment. Secondary treatment takes place in the aeration chamber. Some units also include a disinfection device (Virginia State University 2009). Effluent from a package plant can be discharged into a leach field or diverted into another receiving stream for disposal. Discharge in the Public Trust Impact Area would likely be through a leach field.

In 2013 and 2014, Ensitu Engineering conducted studies of wastewater disposal in the Public Trust Impact Area for the BBGHAD (BBGHAD 2013b, 2014; see Appendix I). These studies evaluated the status of OWTS along Broad Beach, including the locations of existing leach fields, lot size, availability of leach field or waste water system expansion or relocation areas, and the relationship of the existing revetment to these systems. Ensitu also reviewed and interpreted City Code Section 15.14.030, *On-site wastewater treatment system operating permit requirement*, which requires inspection and evaluation of such systems to obtain an operating permit for the OWTS prior to change in ownership, major remodel, or plumbing expansion. Based on this review, Figure 3.12-2 shows a sample of homes along Broad Beach where, according to Applicant-prepared studies, relocation of the OWTS landward of the home is potentially infeasible under city code due to revetment location where leach field expansion would be necessary, as evaluated and identified by Ensitu (BBGHAD 2014). Ensitu also opined that constraints are posed to OWTS expansion or relocation based on city ordinance interpretation and concluded that many OWTS would need to be upgraded to meet city code requirements prior to resale, repair or expansion of the homes.

However, the city code allows some flexibility to obtain an operating permit for the OWTS. Under constrained circumstances, the city would work with individual property owners on such issues and evaluate "alternative on-site wastewater treatment systems" that could be used to meet Malibu Plumbing Code requirements (City of Malibu, 2014).[7] Based on review of city ordinances and contact with city officials, wastewater disposal constraints would not necessarily constrain options for revetment location or relocation. (See Section 4, *Project Alternatives.*) While many of these homes may not have the ability to expand their leach fields to meet city codes to serve a major remodel or home expansion, past home construction or remodels were approved by the city based on these systems which appear adequate to serve existing development.

[7] Pursuant to Malibu Municipal Code, an Alternative OWTS provides enhanced wastewater treatment that meets or exceeds secondary treatment standards as defined by Section 221 of the Malibu Plumbing Code. It is not limited to a specific type of system (e.g., package plant or modified conventional system).

Package plants differ from conventional OWTS in several ways. A primary difference is that package plants treat effluent through aerobic processes while OWTS use anaerobic processes. This leads to differences in energy consumption, biomass production, nutrient demand, and nutrient removal (Table 3.7-24). OWTS require less energy consumption, have a lower nutrient demand to facilitate biochemical processes, and produce a lower amount of biomass as a result of the process. Package plants result in higher nutrient removal from effluent, which may be beneficial if effluent is discharged into the environment. They may also require more pumping than OWTS since biomass production is higher (Gasparikova et al. 2004).

Table 3.7-24. Anaerobic and Aerobic Treatments Compared

Parameter	Anaerobic OWTS	Aerobic Package Plants
Energy consumption	Low	High
Biomass production	Low	High
Nutrient demand	Low	High
Nutrient removal	Low	High

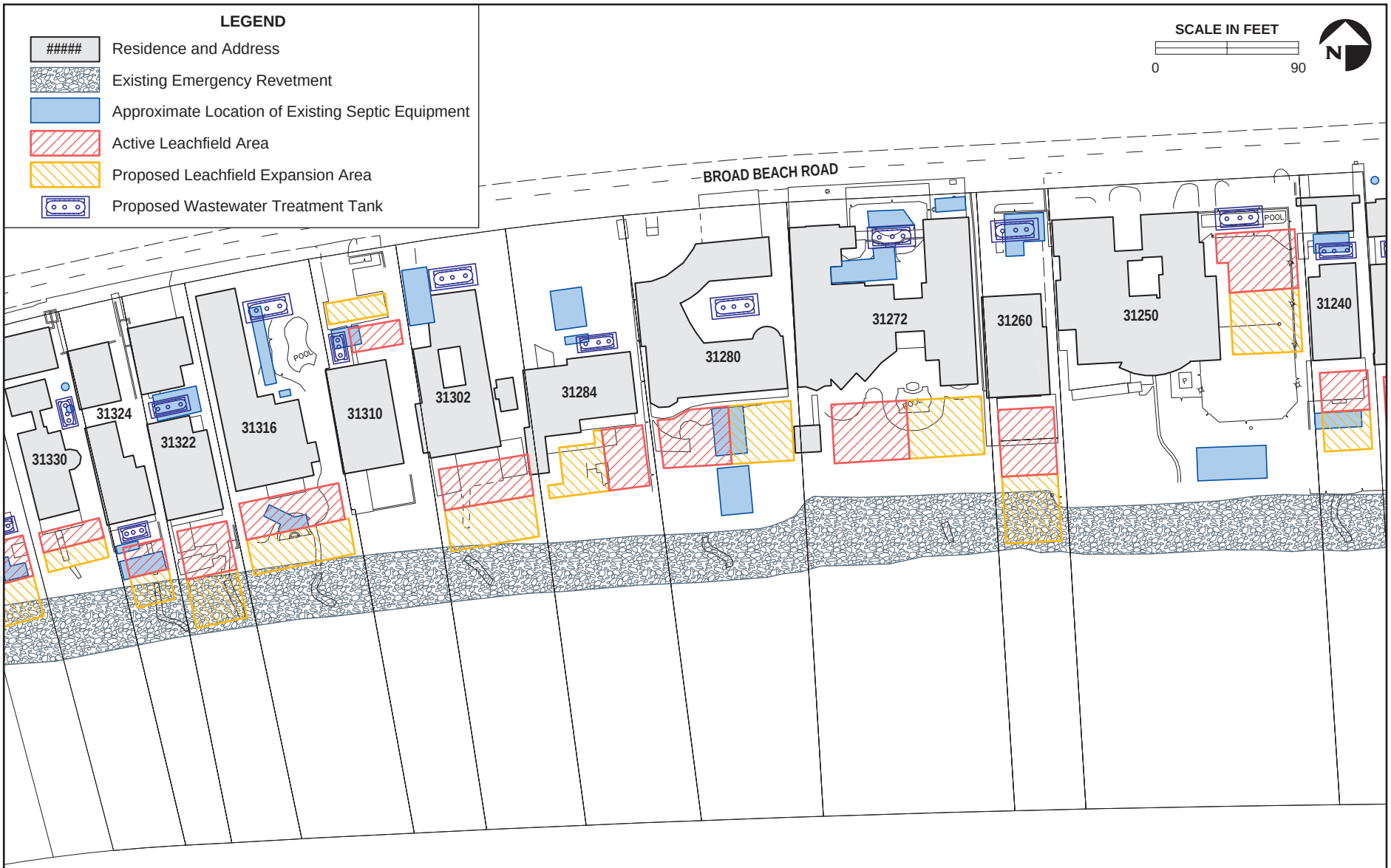
Source: Gasparikova et al. 2004.

Storm Water Drainage on Broad Beach

Eleven existing public storm drains along Broad Beach Road collect runoff from Broad Beach Road, PCH, and adjacent areas. These storm drains channel flows across Broad Beach Road and under existing private parcels to outlets at the beach. Of these 11 drains, six have visible outlets at the beach. The remaining five storm drains appear to have outlet or inlets along Broad Beach Road, but their outlets are not visible on the beach (Illustration 3.7-6).

***Illustration 3.7-6**. Six public storm drains currently empty onto Broad Beach; five others may be buried under the revetment or disabled.*

Management of these drainage systems is the responsibility of the city of Malibu and private homeowners; the city manages elements of these systems inland of existing homes and homeowners manage elements of the system on the ocean side of their homes. The city does not own, hold easements for, or manage these storm drains where these drains pass under private parcels along Broad Beach Road, or their outlets onto Broad Beach; the homeowners are responsible for maintenance or improvements to the seaward end of these drains, including the outlets (City of Malibu 2012). Los Angeles County also maintains two drains to the west of the Public Trust Impact Area along Victoria Point Road and Point Lechuza Drive, though no county drains were identified within the Public Trust Impact Area adjacent to the CSLC Lease Area. In addition to the 11 large drains in the Public Trust Impact Area and the two at Lechuza Point, there are many private drainage systems that range in design from outlets in private sea walls to drainage channels constructed under private beach access stairways.



Source: BBGHAD. 2014. Response to comments RE: Coastal Development Permit Application 4-12-043 (Broad Beach), Prepared by Ensitu Engineering. February.

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Existing Septic System and Leach Field Locations and Proposed Septic System Locations and Leach Field Expansions

FIGURE 3.7-5

Eight of the existing city drains would be modified upstream of the Public Trust Impact Area as part of the proposed construction of a pending Biofiltration Project, designed to improve local water quality. The city of Malibu received two grants in 2009 from the SWRCB through the State's Proposition 84, Areas of Special Biological Significance (ASBS) Grant Program, which is dedicated to improving water quality. Of the total $3.1 million awarded, $2.5 million is dedicated to the biofiltration project that will be located on Broad Beach Road. The biofiltration system will collect dry weather and storm water flows from eight existing drain catch basins and one newly constructed storm drain catch basin along a 1-mile stretch of Broad Beach Road (along the Public Trust Impact Area). The system would allow the flow to percolate through the ground and reduce contaminated road runoff from reaching the ocean untreated (City of Malibu 2011a). Through infiltration, evapotranspiration, and biofiltration, pollutants in the runoff would be substantially reduced before reaching the ocean (City of Malibu 2010). Construction for the biofiltration project is anticipated to begin in 2014, with construction lasting approximately 4 months (City of Malibu 2014).

3.7.6.2 Regulations Pertaining to the Public Trust

State and other statutes related to utilities and service systems are listed in Table 3.3 in Section 3.0, *Issue Area Analysis*. Pursuant to a consolidated CDP, the CCC will address the Project's consistency with the Coastal Act and city of Malibu LCP.

3.7.6.3 Public Trust Impact Criteria

Impact criteria were adapted from the Malibu General Plan. Impacts to public services would be a major adverse effect if the Project would:

- Expose existing wastewater treatment systems to damage from coastal processes or other natural/man-made events with resultant pollutant releases; or
- Obstruct or inhibit drainage from existing storm drain systems

Where applicable, this impact analysis considers the CSLC Lease Area and Public Trust Impact Area both in their existing setting, following the 2010 emergency rock and sand bag revetments installation, and in its historical setting without the emergency revetments, characterized by a narrow beach and dune habitat.

3.7.6.4 Public Trust Impact Analysis

<u>Historical Utility Characteristics of Broad Beach (pre-2010 revetment)</u>

The pre-revetment description of the CSLC Lease Area and Public Trust Impact Area is consistent with existing description with the exception of exposure and protection of the OWTS associated with the residences adjacent to the CSLC Lease Area. A total of 121 legally assessed parcels are within the Public Trust Impact Area and adjacent to the

CSLC Lease Area (Table 3.7-25). Five of these parcels are developed in conjunction with a neighboring parcel to result in 114 "functioning" parcels. Of the 114 functioning parcels, 110 have buildings (109 homes and one beach club) on them, and 95 of those 110 buildings treat their wastewater though an OWTS. Four of the parcels included in the count of OWTS are currently undeveloped or vacant (BBGHAD 2013a).

Table 3.7-25. Parcel Summary

Description	Quantity
Legally Assessed Parcels	121
Functioning Parcels	114
Developed Parcels	110
Undeveloped Parcels	4
OWTS	95*
Parcels included in Trancas Wastewater District	19

Source: BBGHAD 2013a.

* Includes four undeveloped parcels that lie outside of the Trancas Zone.

As described in Section 2, *Project Description*, prior to construction of the emergency rock revetment on the beach, private property owners installed permitted and unpermitted sand bag revetments, rock revetments, and sea wall barriers to protect their property and all OWTS infrastructure. As-built plans show 72 sand bag barriers, 21 owner installed rock revetments, and eight sea walls constructed for protection from wave damage (Table 3.7-26). Public and private drainage through the sand bag revetments was achieved through engineering drainage pipes into the construction of the revetment. Illustration 3.7-7 shows different drain outlets along the beach.

Table 3.7-26. Existing Protection Structures Installed by Property Owners.

	Parcels	Permitted	Unpermitted
Sand bags	72	49	23
Owner installed rock revetment	21	11	10
Sea wall	8	8	0
Total	101	68	33

Source: BBGHAD 2013a

OWTS that would be most at risk of exposure are those with leach fields or other OWTS elements located seaward of the residences with no coastal protection structures installed. The next most at risk parcels would be those with leach fields or other OWTS elements seaward of the residences that have some kind of protection structure between the OWTS and the beach. Two parcels fall into the first category of having OWTS elements seaward side of the residence with no protection structure along the boundary of the property; 45 parcels have all or some part of the OWTS seaward of the residence and also have an owner installed protection structure along the boundary of the property.

Sand bag protection structures are by far the most common owner installed type of protection. These structures were efficient to construct and effective at slowing erosion caused by the continual washing of waves. Over time, these sand bags deteriorate, reducing their effectiveness, adding debris to the beach and requiring either replacement or a new type of structure (Illustration 3.7-8).

Illustration 3.7-7. *Examples of pipes through the revetment. Top row: Storm water drains protruding through sand bag revetment along Broad Beach to drain Broad Beach Road and upland watershed. Bottom row: Construction of a storm drain through the sand bag revetment. Some drains were designed with contained outfalls while others remained as plain pipes draining directly on to the beach.*

Illustration 3.7-8. *Examples from left to right of sand bag revetments in increasingly degraded states due to time, exposure to the elements, and continual impact from wave action.*

Impacts to Wastewater Disposal

While the Project does not involve installation or removal of wastewater infrastructure, impacts to wastewater disposal in the Public Trust Impact Area and CSLC Lease Area may potentially result from Project implementation. These impacts, both direct and indirect, are discussed below.

Impact UTL-1: Project Increases Protection of Seaside Broad Beach OWTS

Authorization of the emergency revetment, proposed supplemental sand bag installation, as needed, and creation of a wide sandy beach and new dune system would protect existing leach and drain fields from damage by wave action over the mid-term, preventing potential water pollution (Beneficial, Class B).

Impact Discussion (UTL-1)

This impact is similar to **Impact MWQ-3 - Revetment Retention Impacts Associated with Nutrient Loading of Area Waters** (see Section 3.4, *Marine Water Quality*). Because the impact is beneficial, no AMMs are identified.

Impact UTL-2: Long-Term Exposure of OWTS to Coastal Erosion

Limited nourishment events and granting permanence to substandard revetment construction would expose OWTS to damage from wave and tidal action over the long-term (e.g., 20+ years) (Major Adverse Effect, Class Mj).

Impact Discussion (UTL-2)

The Project would include authorization of a revetment that is not constructed to endure direct exposure to continual impacts by tides and waves over the long term, particularly with sea level rise. Further, the Applicant is proposing only two significant sand nourishment events (i.e., sand deposition). After these two beach nourishment events are implemented, only periodic backpassing is proposed to maintain the beach. Without additional sand deposition activities, subsequent coastal erosion would eventually expose the revetment to direct wave and tidal action.

Because the revetment is constructed of substandard-sized rock that is not keyed together, driven into bedrock or set deeply into the beach, it is not designed to resist exposure to long-term continual wave and tidal action. Therefore, after loss of the beach and dune systems, projected to occur in 10 to 20 or more years, the revetment would begin to lose integrity as smaller rocks and boulders are detached from the revetment and scattered by surf action. Well within the economic lifespan of homes along Broad Beach (an estimated 100 years, per Malibu's LCP), this process can be expected to lead to deterioration of the revetment to such an extent that high winter surf could break through gaps or overtop lowered sections, thereby damaging septic systems and leach fields with potential major adverse effects to water quality and the public's right to use and enjoy public trust resources. Further, proposed emergency sand bag revetments

would serve only as interim protection for homes and OWTS unprotected by the revetment along 550 of beach at the east end of Broad Beach. Over the long term, these sand bag revetments would be destroyed by wave action and septic systems and leach fields subject to damage or destruction. This process can be expected to accelerate with sea level rise. The process may also lead to requests for additional emergency permits to repair the revetment or to unpermitted additions to the revetment, creating enforcement issues for property owners and local and State agencies.

Avoidance and Minimization Measure(s)

Implementation of **AMM TBIO-1a** (Implementation of a Comprehensive Dune Restoration Plan) would address this impact, but it would remain a major adverse effect. Reducing this major adverse impact would require implementation of one of several alternatives to the Project that would improve longer term protection of OWTS from damage associated with waves and tides and, to a lesser extent, sea level rise or that include relocation or removal of leach fields. See Section 4, *Alternatives*.

Rationale for Avoidance and Minimization Measure(s)

Implementation of AMM TBIO-1a would restore dunes and public beach to protect OWTS from coastal erosion over the long-term life of the Project.

Impact UTL-3: Effects on Existing Public Drainage Systems

Construction of the revetment covered existing exposed public drainage pipes, and construction of the restored dunes and beach nourishment would potentially further bury or obstruct storm drains (Minor Adverse Effect, Class Mi)

Impact Discussion (UTL-3)

The Project proposes to accommodate drainage and runoff from existing public storm drains by sculpting the proposed new dune system around the outlets to allow runoff to drain onto the wide sandy beach. All of these existing drains would be below the crest of the new dunes and likely below the elevation of the landward portions of the beach. Reduced beach fill would be used along the drainage channels from the outlet to the ocean to aid with the seaward drainage of runoff.

Historically, drainage pipes that once were buried below the dunes became exposed as Broad Beach retreated through natural coastal processes. Prior to construction of the revetment, these pipes protruded from the sand-bagged property faces. Construction of the revetment reduced the length of protruding pipe, and in some cases the pipe was completely covered by the revetment rocks. Introduction of the revetment may have altered the drainage flow from the pipes. Instead of draining directly to the sand, the water now first drains onto and through the revetment rocks. This may slow the draining

water and allow it to percolate into the sand, thereby decreasing sand erosion along the path of draining water. However, any alteration of the drainage flows has not adversely affected storm water drainage to the beach. Overall, the addition of the rock revetment had a negligible effect on the public drainage pipes.

The Project would include creation of a system of restored sand dunes approximately 55 to 102 feet in width and 20 feet in height, in addition to a sandy beach of 104 to 286 feet in width and 12 to 17 feet in depth. The proposed new dunes would completely bury the existing revetment, as well as the private drain outlets. The dune system would be sculpted around the six public drains with outlets along the beach. A break in the dune system would leave the drain outlets unobstructed and free to naturally drain into and through the sand out to the ocean.

Potentially major adverse effects on drainage into the CSLC Lease Area could result from burying or obstructing storm drains. These effects may include localized drainage problems, water backup, pooling, or flooding, and possible secondary consequences associated with erosion of newly restored dunes and public beach. Because sand is highly porous, burying such drains below the restored dune system has a low potential to create drainage problems during low-flow events, which would likely be absorbed by and percolate though the new dune system. However, during moderate- to high-flow events, some potential exists for backup and obstruction of flood flows due to the thousands of tons of sand proposed to be placed over outlets.

Sculpting the proposed dunes around the six existing public drain outlets would involve leaving gaps in the dunes and using reduced amounts of beach fill in the potential runoff channels fronting these outlets. This would interrupt the continuity of the dunes, reducing their effectiveness in shielding the revetment from wave action and public views, interrupting habitat continuity within the dunes, and potentially creating a vehicle for high flows to erode newly created dunes as runoff channels meander. This could potentially damage revegetated dunes, proposed cross dune access walkways, and other dune management improvements (e.g., signs, ropes and bollards, and fencing).

The proposed drainage plan has the potential to create drainage and flood impacts, as well as beach erosion and possible damage to the proposed new dunes. These constitute potentially major adverse impacts. Implementation of the AMM outlined below would reduce this impact to a minor level.

<u>Avoidance and Minimization Measure(s)</u>

AMM UTL-3: Master Drainage Plan (MDP). The Applicant shall prepare and submit a MDP to the California State Lands Commission (CSLC) staff for review and approval. This plan shall include measures to minimize potential for water backup in storm drains, and associated drainage/flooding concerns, as well as minimizing or avoiding damage to newly created dune Environmentally

Sensitive Habitat Areas (ESHAs) and beach habitats. This MDP shall address all existing and proposed modifications to public storm drains and pipes in the lease area, including those seaward of the mean high tide line. It shall be prepared by a qualified Civil Engineer and be based upon data and analysis provided by a registered hydrologist. At a minimum, the MDP shall:

- Identify the exact location and size of all public drains along Broad Beach, including its relationship to State sovereign land and Lateral Access Easements (LAE), hydrological data on the watersheds and flow characteristics of each drain, particularly high flood flows (e.g., 100-year event) and potential for flooding or drainage problems or erosion of dune and beach areas.
- Design plans (overhead and cross-sections) for proposed modifications to public storm drains, including existing storm drains incorporated into the project design.
- Identify specific drainage proposals for each storm drain and how they would affect public trust resources.
- Identify measures to safely and adequately convey drainage through and across the proposed dune system and beach, including methods to avoid or minimize impacts to public trust resources and the ESHAs.

<u>Rationale for Avoidance and Minimization Measure(s)</u>

Implementation of AMM UTL-3 would reduce adverse effects to public drainage systems that may result from Project implementation. Specifically the master drainage plan would minimize the potential for water backup, pooling, or flooding, and possible secondary consequences associated with erosion of newly restored dunes and public beach.

3.7.6.5 Summary of Utilities and Service Systems Impacts and AMMs

Impact	Class	AMMs
UTL-1: Project Protection of Seaside Broad Beach OWTS	**B**	No AMMs recommended
UTL-2: Long Term Exposure of OWTS to Coastal Erosion	**Mj**	**AMM TBIO-1a:** Implementation of a Comprehensive Dune Restoration Plan
UTL-3: Effects on Existing Public Drainage Systems	**Mi**	**AMM UTL-3:** Master Drainage Plan (MDP)

3.7.7 ENVIRONMENTAL JUSTICE

This section of the Revised APTR analyzes whether the Project has the potential to adversely and disproportionately affect minority populations and low-income communities, thus creating a conflict with the intent of the CSLC's Environmental Justice Policy. This section focuses on the western portion of the city of Malibu, including residents in both Broad Beach and the surrounding area that could be exposed to environmental impacts as well as impacts to inland communities along the sand transportation routes. Additionally, since the beaches and submerged lands are public trust resources that are also used for economic activity, this analysis also considers sensitive industries that may be impacted through Project implementation.

3.7.7.1 Environmental Setting

Relationship to Public Trust Resources and Values

The CSLC holds title to and manages the intertidal and submerged land underlying the State's navigable and tidal waterways, including Broad Beach below the mean high tide line and the associated offshore area. These lands are held under and governed by the provisions of the Public Trust Doctrine for specific public purposes such as fishing, water-dependent commerce, navigation, ecological preservation, and scientific study, among others. These public purposes are protected for all groups, including minority populations, low-income communities, and sensitive industries.

Definition of Environmental Justice

State law defines environmental justice as "fair treatment of people of all races, cultures, and incomes with respect to the development, adoption, implementation, and enforcement of environmental laws, regulations, and policies" (Gov. Code § 65040.12, subd. (e)). This definition is consistent with the Public Trust Doctrine principle that management of trust lands is for the benefit of all people, and minority populations, low-income communities, and sensitive industries need to be considered to ensure that they do not face disproportionate adverse impacts from implementation of management activities. The concept of disproportionate environmental health impacts and burdens refers to the finding that some populations systematically experience higher levels of risks and impacts than the general population, and federal guidelines recommend that the Community of Concern selected be the smallest governmental unit that encompasses the footprint for each resource (USEPA 1998).

Demographics in the Vicinity of Broad Beach and in the BBGHAD Inland Project Area

The CSLC Lease Area and Public Trust Impact Area are located on the western coastal portion of the city of Malibu, Los Angeles County. Census Bureau (2010) designations

for the areas that include the CSLC Lease Area and Public Trust Impact Area, and their associated populations, are as follows:

- County of Los Angeles (population 9,818,605)
- County Subdivision of Agoura Hills/Malibu (population 63,824)
- City of Malibu (population 12,645)
- Western portion of the city of Malibu, comprising Census Tracts 8004.06 (population 2,644) and 8004.08 (population 7,122)

The smallest governmental unit that represents this region is the sum of census tracts 8004.06 and 8004.08. U.S. Census data from 2010 for these census tracts were used to characterize the community near Broad Beach for this analysis (Illustration 3.7-9).

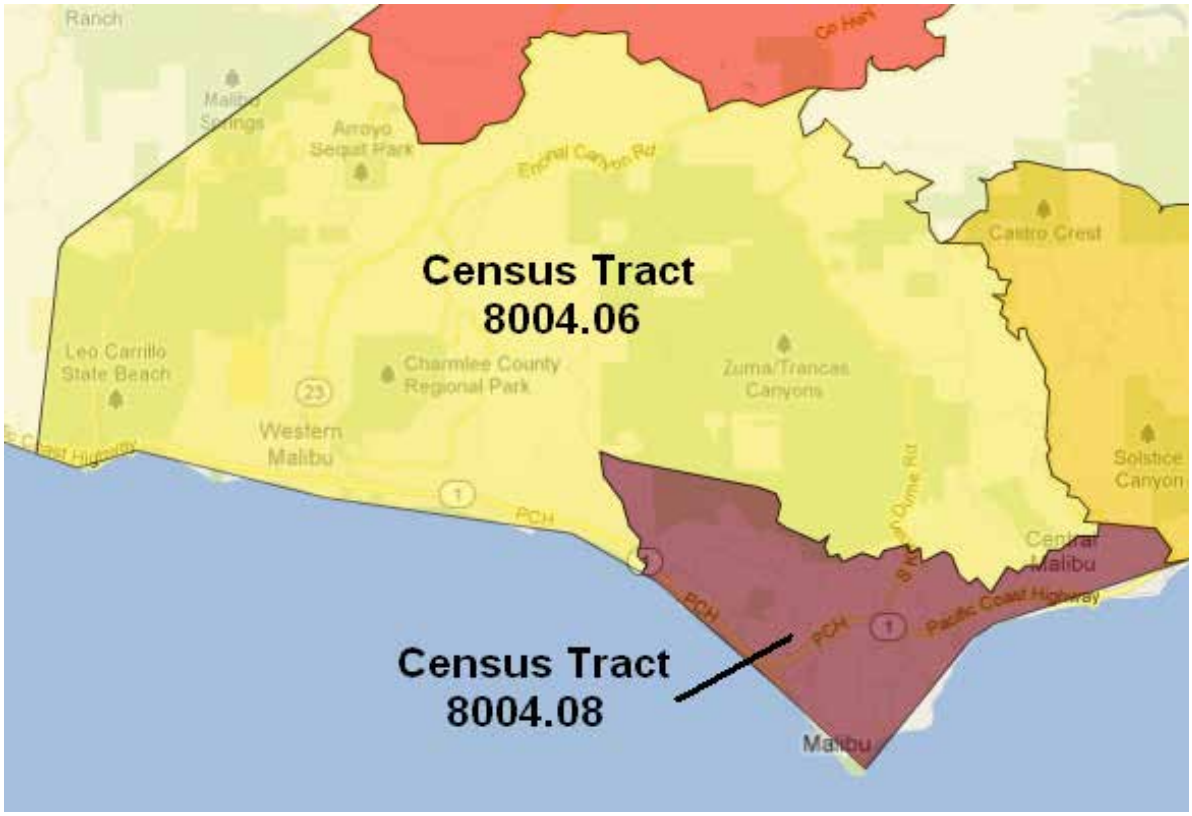

Illustration 3.7-9*: The smallest governmental unit that represents the Project area is the sum of census tracts 8004.06 and 8004.08.*

The demographic scope of the BBGHAD Inland Project Area and proposed inland sand transportation routes includes Ventura County in its entirety.

- County of Ventura (population 802,983)

Minority and Low-Income Populations

The smallest Census-designated area that includes race and ethnicity statistics is at the census tract level. Within Census tracts 8004.06 and 8004.08, Asians comprise the largest minority group (2.4 percent), while Pacific Islander and Native American groups comprise the smallest percentage of the population (0.1 percent combined). All minority groups are relatively small within Census tracts 8004.06 and 8004.08, with 10.0 percent of the population belonging to any minority group, as compared to 49.7 percent in all of Los Angeles County (Table 3.7-27). This does not represent a disproportionately high percentage of minorities in the vicinity of Broad Beach as compared to the county as a whole.

Table 3.7-27. Race and Ethnicity in 2010

	Study Area		Malibu		LA County		Ventura County	
	Population	%	Population	%	Population	%	Population	%
Total Population	9,766	100	12,645	100	9,818,605	100	802,983	100
White	8,788	90.0	11,565	91.5	4,936,599	50.3	699,465	87.1
Minority	978	10.0	1,080	8.5	4,882,006	49.7	103,518	12.9
Black	173	1.8	148	1.2	856,874	8.7	17,355	2.2
Asian	239	2.4	328	2.6	1,346,865	13.7	53,865	6.7
Native American	18	0.2	20	0.2	72,828	0.7	10,795	1.3
Pacific Islander	11	0.1	15	0.1	26,094	0.3	2,462	0.3
Other	223	2.3	182	1.4	2,140,632	21.8	0	0.0
Two or More	314	3.2	387	3.1	438,713	4.5	19,041	2.4
Hispanic*	747	7.6	769	6.1	4,687,889	47.7	309,092	38.5

Source: U.S. Census Bureau 2010.

*May be counted in one or more of the other categories as well.

Hispanic or Latino write-in respondents could potentially be categorized under any of the U.S. Census Bureau-designated classification groups including “other” in addition to the Hispanic classification (the U.S. Census Bureau considers Hispanic an origin, not a race). Within Census tracts 8004.06 and 8004.08, Hispanic/Latino write-in respondents comprised 7.6 percent of the population, as compared to 47.7 percent of the population of Los Angeles County (Table 3.7-27). This does not represent a disproportionately high percentage of people with Hispanic origin in the Project Area as compared to the county as a whole.

Ventura County has a 12.9 percent minority population, which is not substantially different from the 10.0 percent minority population in within Census tracts 8004.06 and 8004.08. Ventura County does not face a disproportionately high percentage of minorities relative to the western portion of Malibu. However, Ventura County has a disproportionately high Hispanic population relative to west Malibu with 38.5 percent in Ventura County versus 7.6 percent in west Malibu (Table 3.7-27). Therefore, the potentially impacted population along the inland sand transportation routes has a disproportionately high Hispanic population relative to the population near Broad Beach.

Census data from the 2010 Census were also analyzed to determine poverty status in the Broad Beach vicinity. As displayed in Table 3.7-28, 5.2 percent of the individuals residing near Broad Beach and 6.3 percent of residents in the city of Malibu had income

Table 3.7-28. Poverty Status in 2009

	Study Area	City of Malibu	LA County	Ventura County
Population for Whom Poverty Status was Determined	8,851	11,284	9,604,871	813,821
Income in 2009 Below Poverty Level	463	707	1,508,618	87,189
Percent with Income in 2009 Below Poverty Level	5.2%	6.3%	15.7%	10.7%

Source: U.S. Census Bureau 2010.

levels below the poverty level in 2009. In contrast, 15.7 percent of Los Angeles County residents had income levels below the poverty level in 2009. Census tracts 8004.06 and 8004.08 do not include a disproportionately high percentage of residents below the poverty line relative to the county in which the Project is taking place.

When comparing income levels in the BBGHAD Inland Project Area, there is a disproportionately high percentage of residents below the poverty line in the BBGHAD Inland Project Area (in Ventura County) (10.7%) relative to the community near Broad Beach (5.2%) (see Table 3.7-28). This represents a disproportionately high percentage of low-income residents that may face adverse impacts related to moving sand along the sand transportation routes, relative to the residents in Broad Beach that would gain benefits from nourishment of Broad Beach.

Sensitive Industries

Several industries rely on the public trust resources at Broad Beach for their economic viability. Recreational fishing and/or diving operations constitute the local social and economic sector most likely to be impacted by the Project. Additionally, commercial fisheries may be impacted. These industries are reliant on the State's coastal resources, so they are governed by State regulations regarding coastal waters. Coastal marine environments and associated species are protected by the Marine Life Protection Act (MLPA; Fish & G. Code, §§ 2850-2863), which also regulates what economic activities are allowed in designated coastal waters. Under the MLPA, some coastal areas of California are designated as Marine Protected Areas (MPAs) that have specific rules about the permitted use of the area. The South Coast MPAs went into effect in 2012. The MLPA defines the Southern California coast as the coastal area from Point Conception to the California/ Mexico border, which includes beaches within the Public Trust Impact Area.

The Public Trust Impact Area is located in the coastal area designated by the MLPA as the Point Dume State Marine Conservation Area (SMCA). The Point Dume State Marine Reserve (SMR) is east of and adjacent to the SMCA. The SMR is a no-take reserve, so all recreational and commercial fishing activity is prohibited in this area. The SMCA allows the take of specific species by both commercial and recreational fishermen. Commercial fishermen are allowed to catch finfish—defined as species of bony fish or cartilaginous fish (e.g., sharks, skates, and rays)—except pelagic finfish, including Pacific bonito and white seabass. Pelagic finfish is a subset of finfish defined by the MLPA as: northern anchovy, barracudas, billfishes, dolphinfish, Pacific herring, jack mackerel, Pacific mackerel, salmon, Pacific sardine, blue shark, salmon shark, shortfin mako shark, thresher sharks, swordfish, tunas, and yellowtail. Recreational fishermen are permitted to catch pelagic finfish, including Pacific bonito and white seabass by spearfishing. The SMCA does not allow the take of amphibians, invertebrates, plants or algae. Under Point Dume SMCA guidelines, commercial fishing for particular species is permitted in this MPA. The beach and coastal waters offshore Broad Beach are also used for recreational fishing and/or diving operations.

3.7.7.2 Regulations Pertaining to Environmental Justice

State and other statutes related to environmental justice are listed in Table 3.3 in Section 3.0, *Issue Area Analysis*.

3.7.7.3 Public Trust Impact Criteria

A conflict with the CSLC's Environmental Justice Policy would occur if the Project:

- Has the potential to disproportionately affect minority and/or low-income populations at levels exceeding the corresponding medians for the county in which the Project is located; or
- Results in a substantial, disproportionate decrease in the employment and economic base of minority and/or low-income populations residing in the county and/or immediately surrounding cities.

Impacts to public users and recreational and commercial users (e.g., commercial fishermen and recreational divers) in the immediate Broad Beach vicinity and to residents, public users, and recreational and commercial users in beaches down coast of Broad Beach are considered. This impact analysis considers Broad Beach in its existing setting subsequent to the 2010 emergency rock and sand bag revetments installation.

3.7.7.4 Public Trust Impact Analysis

The social and economic effects of the Project would be beneficial. A nourished beach at Broad Beach would cover the exposed temporary emergency revetment with a wider and larger sand area backed by a restored dune system. Expansive sandy beaches provide greater recreational opportunities and opportunity for public access, and enhance tourism in the region. Broad Beach is a public beach, so beach nourishment would provide benefits to all groups, including minority and low-income beach users. Also, private property and infrastructure would have additional protection from wave action and storm events while nourishment activities continue at Broad Beach. Potential users of Broad Beach and the waters offshore could come from any ethnicity or income level. In contrast, residents of Broad Beach are more likely to be of relatively higher income levels. The demographics of Broad Beach and the area surrounding Broad Beach do not qualify as a disadvantaged population within the CSLC's Environmental Justice Policy.

Impact EJ-1: Disproportionate Adverse Impacts to Minority and/or Low-income Populations due to the Emergency Revetment

The presence of the emergency revetment impacts public access, and has the potential to disproportionately affect minority and/or low-income populations (Negligible Effect, Class N).

<u>Impact Discussion (EJ-1)</u>

Broad Beach is a public beach that people of all races and income levels have an opportunity to visit. The emergency revetment limits public access to public trust lands and easements granted the public for coastal access (see Section 3.5, *Land Use, Recreation and Public Access*), resulting in adverse impacts to all members of the public, including minority and low-income groups. However, such impacts would not

disproportionately affect minority or low-income groups. Further, the Project would include burial of the emergency revetment, increasing public access to Broad Beach over the short- to mid-term (e.g., 10 to 20 years). This would lessen adverse impacts to public access from the presence of the revetment until such a time as nourishment ceases and the revetment becomes exposed. At that time, access impacts would occur to all members of the public, including minority and low-income groups. Therefore, this impact is negligible.

Impact EJ-2: Potential for Disproportionate Adverse Impacts to Minority and/or Low-income Populations due to Beach Nourishment at Broad Beach

Beach nourishment activities would not have impacts that could disproportionately affect minority and/or low-income populations in the Project area (Negligible Effect, Class N).

Impact Discussion (EJ-2)

No disproportionately high levels of minority or low-income residents are located in the Broad Beach vicinity. According to the 2010 Census, minorities comprise 10.0 percent of the population in the western portion of Malibu, compared to 49.7 percent in Los Angeles County. Also, 5.2 percent of the individuals residing within west Malibu had income levels below the poverty level in 2009, compared to 15.7 percent of Los Angeles County residents. Because the minority and low-income composition of west Malibu is substantially lower than the minority and low-income composition of Los Angeles County, the demographics of the most directly impacted population do not comprise a disproportionately high minority or low-income population. Therefore, the Project has a negligible environmental justice impact.

Impact EJ-3: Disproportionate Decrease in the Employment and Economic Base of Minority and/or Low-income Populations Residing in the County and/or Immediately Surrounding Cities

Beach nourishment activities would not decrease the employment or economic base of minority and/or low-income populations (Negligible Effect, Class N).

Impact Discussion (EJ-3)

The Project would place sand on the existing beach where the only structures are the emergency rock and sand bag revetment. Beach nourishment activities would improve access to the public sandy beach environment and would not have major adverse effects on commercial marine sea life; therefore, commercial fishing and recreational fishing and/or diving operations would not be adversely impacted, and the Project would not eliminate long-term jobs in the area. Therefore, the Project would not create major adverse effects to employment and the economic base of the area surrounding Broad Beach. Sand transportation and beach nourishment will create temporary jobs in the

Broad Beach vicinity, creating positive impacts to employment in the area. No physical changes to local or regional population or housing characteristics would occur.

Impact EJ-4: Increased Area of Accessible Public Trust Lands

Beach nourishment activities would increase the access to and enjoyment of public trust lands on Broad Beach (Beneficial Effect, Class B).

Impact Discussion (EJ-4)

The Project would have beneficial effects on public access to Broad Beach (see Section 3.2, *Recreation and Public Access*), which may allow increased access for minority and low-income populations. In addition, the proposed nourishment would widen the beach, increasing the amount of space for the public to enjoy the beach and the Pacific Ocean. Since the beach consists of public trust land that is open to all members of the public, all populations from the surrounding area would benefit. Therefore, this impact is considered beneficial.

3.7.7.5 BBGHAD Inland Project Area Impact Analysis

This section describes direct and indirect impacts to communities of the inland transportation routes that may potentially result from Project implementation.

Impact EJ-5: Disproportionate Adverse Impacts to Minority and/or Low-income Populations due to the Transportation of Inland Sand to Broad Beach.

Transportation activities may have impacts that could disproportionately affect minority and/or low-income populations in the BBGHAD Inland Project Area (Increased Intensity, Class - I).

Impact Discussion (EJ-5)

The transportation of inland sand to Broad Beach would involve 43,000 truck trips along existing roadways, which include, but are not limited to: US-101, SR-126, SR-118, SR-23, and PCH. The temporary increase in the volume of heavy trucks along these roadways would incur effects related to quality of life issues, such as increased traffic congestion, traffic noise levels, localized air quality effects, and aesthetic appeal. Ventura County has a disproportionately high Hispanic population as well as a disproportionately high percentage of low-income residents compared to west Malibu. It has been noted that in particular, the neighborhood along Walnut Canyon Road in Moorpark has a large Hispanic population. Thus, these quality of life issues have the potential to disproportionately affect the Hispanic population of Ventura County.

The effects of increased truck volume would be temporary, lasting a maximum of 5 months, and would be along roadways that are already frequently traveled by heavy trucks. However, the sand transportation routes pass through communities that include

sensitive uses such as residential areas, important public spaces, and schools. Therefore, there would be an increased intensity of the use of roadways and resulting increased traffic congestion, noise, and air emissions, which could result in impacts to environmental justice communities of concern.

Avoidance and Minimization Measure(s)

Implementation of **AMM N-1a** may reduce noise impacts to minority and/or low income communities along the hauling routes, but this impact may still result in an increased intensity of noise.

Rationale for Avoidance and Minimization Measure(s)

Implementation of AMM N-1a would reduce noise associated with.

3.7.7.6 Summary of Environmental Justice Impacts and AMMs

Impact	Class	AMMs
EJ-1: Disproportionate Adverse Impacts to Minority and/or Low-income Populations due to the Emergency Revetment	N	No AMMs recommended
EJ-2: Potential for Disproportionate Adverse Impacts to Minority and/or Low-income Populations due to Beach Nourishment in the Project Area	N	No AMMs recommended
EJ-3: Disproportionate Decrease in the Employment and Economic Base of Minority and/or Low-income Populations Residing in the County and/or Immediately Surrounding Cities	N	No AMMs recommended
EJ-4: Increased Area of Accessible Public Trust Lands	B	No AMMs recommended
EJ-5: Disproportionate Adverse Impacts to Minority and/or Low-income Populations due to the Transportation of Inland Sand to Broad Beach**.**	**- I**	**AMM N-1a:** Use of Noise-Attenuating Devices on Construction Equipment