3. Existing Conditions & Physical Setting

3.1 Setting

The City is located in southern Santa Barbara County. The 2010 U.S. Census reports that the City had a population of 13,040 and a total area of 7.3 square miles. The City is located almost entirely on a coastal plain between the Santa Ynez Mountains and the Pacific Ocean. In general, the area's topography slopes from the foothills of the Santa Ynez Mountains in the north towards the Pacific Ocean to the south. Between the foothills and the populated area of the City is an agricultural zone. Transportation corridors running east-west, including U.S. Highway 101 (U.S. 101) and the Union Pacific Railroad (UPRR), bisect the City. The urban core of the City is located primarily along Carpinteria Avenue. The entire City is located within the designated California Coastal Zone.

The Carpinteria coastline faces south and is generally aligned in a northwest-southeast direction and transitions from sandy beaches in the northwest to uplifted cliffs in the southeast. The Channel Islands, located offshore and to the south, protect the coast from southerly waves.

The sandy public beaches are maintained by the City and the California Department of Parks and Recreation (State Parks) and are heavily used; State Parks estimates these beaches get over 1,000,000 visitors annually. To the northwest is Carpinteria City Beach, which extends 0.3 miles from the south end of Ash Avenue to Linden Avenue and is owned and maintained by the City. The neighborhood behind Carpinteria City Beach is largely residential and is known as the Beach Neighborhood. Moving southeastward, Carpinteria State Beach stretches 0.7 miles and is operated by State Parks. Combined with the Carpinteria City Beach, this 1-mile stretch of beach is known for its gentle sandy slope and relatively calm conditions, earning the acclaim as the "World's Safest Beach". Eastward, beyond Carpinteria State Beach, the land rises rapidly in the form of marine terraces known as the Carpinteria Bluffs, which host a variety of different industrial oil and gas facilities and infrastructure, commercial research facilities, and parks and open space. Beaches below the bluff are owned by the City and run another 1.5 miles to the City limits near Rincon County Beach Park.

Three main creeks transect the study area, including Carpinteria Creek, Santa Monica Creek, and Franklin Creek, along with other smaller drainages and tributaries. Santa Monica Creek and Franklin Creek within the City boundary are concrete-lined drainage channels that both terminate at the Carpinteria Salt Marsh, one of the area's prominent hydrologic features. Carpinteria Creek remains unlined and has been identified as a target for restoration to improve habitat for threatened and endangered southern steelhead trout and tidewater goby. The City's Wastewater Treatment Plant (WWTP) is located adjacent to the lower reach of Carpinteria Creek.

Several key habitat features are found in and adjacent to the City which influence the local ecology and coastal processes. Offshore, Carpinteria Reef provides wave dissipation and helps protect Carpinteria from large waves. The Carpinteria Salt Marsh, part of the University of California Natural Reserve System, is home to several threatened and endangered plant and animal species. Finally, the coastal bluffs and beach in the easternmost part of the City provide a harbor seal haul out area on the beach as well as sensitive upland habitats on the cliff tops.

3.2 Climate

The climate in the study area is Mediterranean, characterized by dry summers and moderately wet winters. Based on data from 1985 to 2016, the annual average precipitation in the Santa Barbara region is approximately 18 inches. However, it is not uncommon to see significant annual variation from this average, with especially wet years attributed to El Niño conditions. Most of the precipitation occurs between the months of November and March. Average monthly temperatures range from a low of approximately 63 degrees Fahrenheit (°F) in January to a high of approximately 75°F in August and September. During the fall, hot dry Santa Ana winds blow from east to west and can substantially raise the risk of wildfires.

This region has historically experienced substantial droughts with multiple consecutive low precipitation years. The most recent drought began in 2011 and to date a Stage II Drought Condition remains in effect in the area served by the Carpinteria Valley Water District. Significant storm events have occurred in the past two years, which could lift the current drought status. Two severe storm events occurred during this time, which triggered mudslides and debris flows at El Capitan Ranch in February 2017 and in Montecito and Carpinteria in January 2018. Both debris flow events resulted from a combination of large fires in the watershed followed by short, intense rains. Mudslides and debris flow in Montecito resulted in the loss of life and property.

3.3 Geology

Carpinteria is a seismically active region in southern California located on the Western Transverse Mountain Ranges, which are related to a bend in the San Andreas Fault. Offshore faults include the Red Mountain and Pitas Point/Ventura Faults that separate the Santa Barbara mainland from the Channel Islands. Within the City, the Carpinteria and Rincon Faults run east-west through the City and are largely responsible for the elevational differences across the City, including the formation of the Carpinteria Salt Marsh and Carpinteria Bluffs (Figure 3-1).

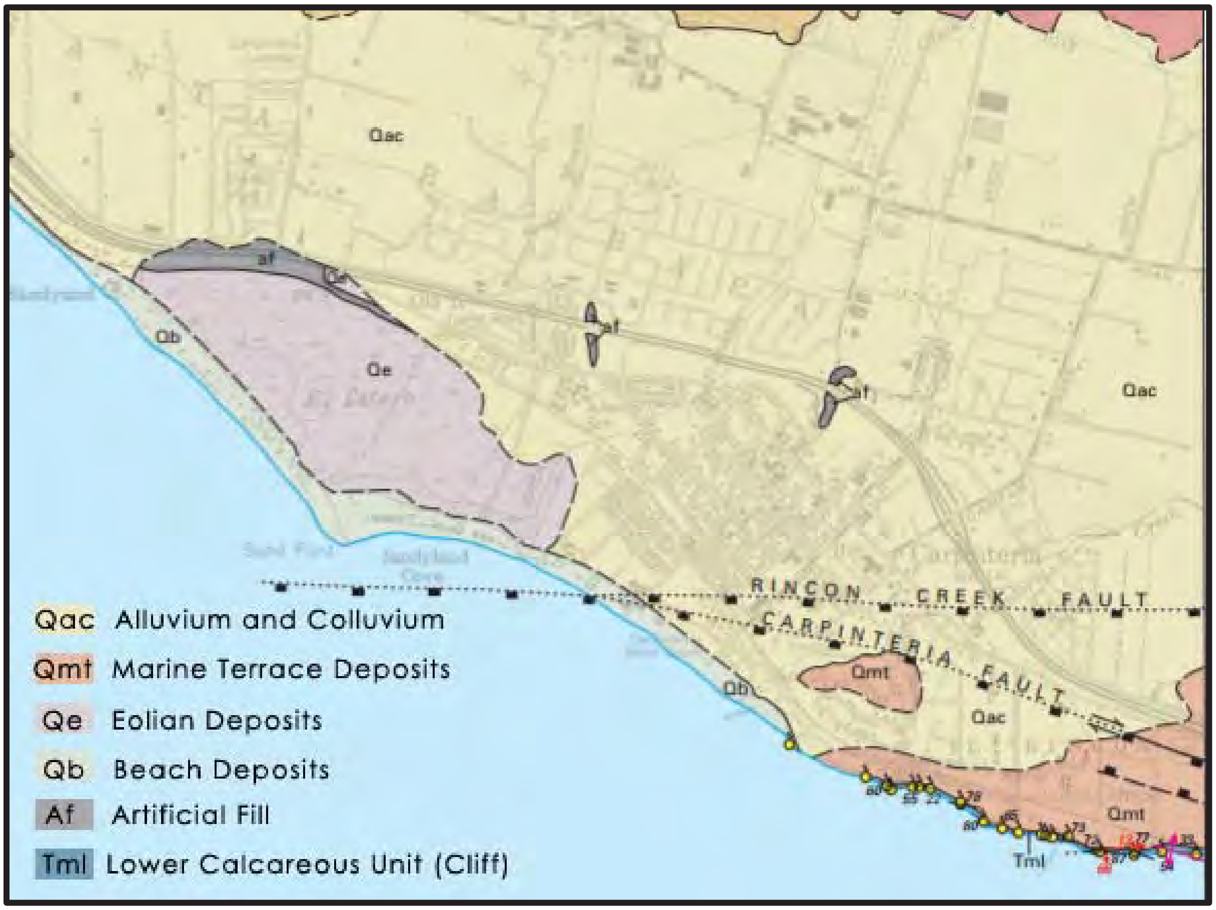


Figure 3-1. *Fault Map of Carpinteria. Source: USGS.*

Carpinteria Tar Pits Park plays a role in the shape of beaches in the City and is one of only five natural asphalt tar pits in the world. The tar pits are an area where oil deposits seep to the ground surface along various fault fractures. Deposits from this tar pit date back to the Pleistocene Age (2.6 million to 11,700 years ago). The tar has hardened portions of the shoreline provides geologic evidence of now extinct species including mastodons and saber tooth tigers. The tar also hardened surrounding marine terrace deposits near or above the delineated Carpinteria and Rincon Creek Faults. As a result, the tar created a small headland, which serves to trap sand that nourishes City beaches. According to State Parks, the area was at one point used as a local dump site (State Parks 2011).

3.4 Historic Ecology and Habitats

Based on historic mapping completed by the United States Coast and Geodetic Survey in the 1860s (T-1127), Carpinteria used to have a much more extensive wetland and dune system (Figure 3-2). Sand dunes used to extend from the mouth of Carpinteria Salt Marsh to the tar

Figure 3-2. *Historic Extent of Coastal-Dependent Habitat in Carpinteria c. 1869. Source Grossinger et al 2011.*

pits in Carpinteria State Beach. These dune systems allowed the formation of more extensive vegetated wetlands and intertidal sand and mud flats. Much of the low-lying neighborhoods and Carpinteria State Beach were once wetland. Based on recent sea level rise flood and inundation maps, many of these historic wetland areas are likely to be subject to future coastal flooding and tidal inundation as sea levels rise.

In the 1870s, a large dune field was present upcoast from the entrance to the Carpinteria Salt Marsh. As a result of this historic dune field, the neighborhood adjacent to Carpinteria was named Sandyland and the mouth to the salt marsh was named Sand Point. Discussion of shoreline change is provided below in Section 3.8, *Historic Shoreline Changes and Erosion*.

Although physical processes and human alterations have affected these historic habitats, they have evolved into the habitat areas of value that are currently proactively managed. Additionally, some of these habitats are now identified as Environmentally Sensitive Habitat Areas (ESHA).

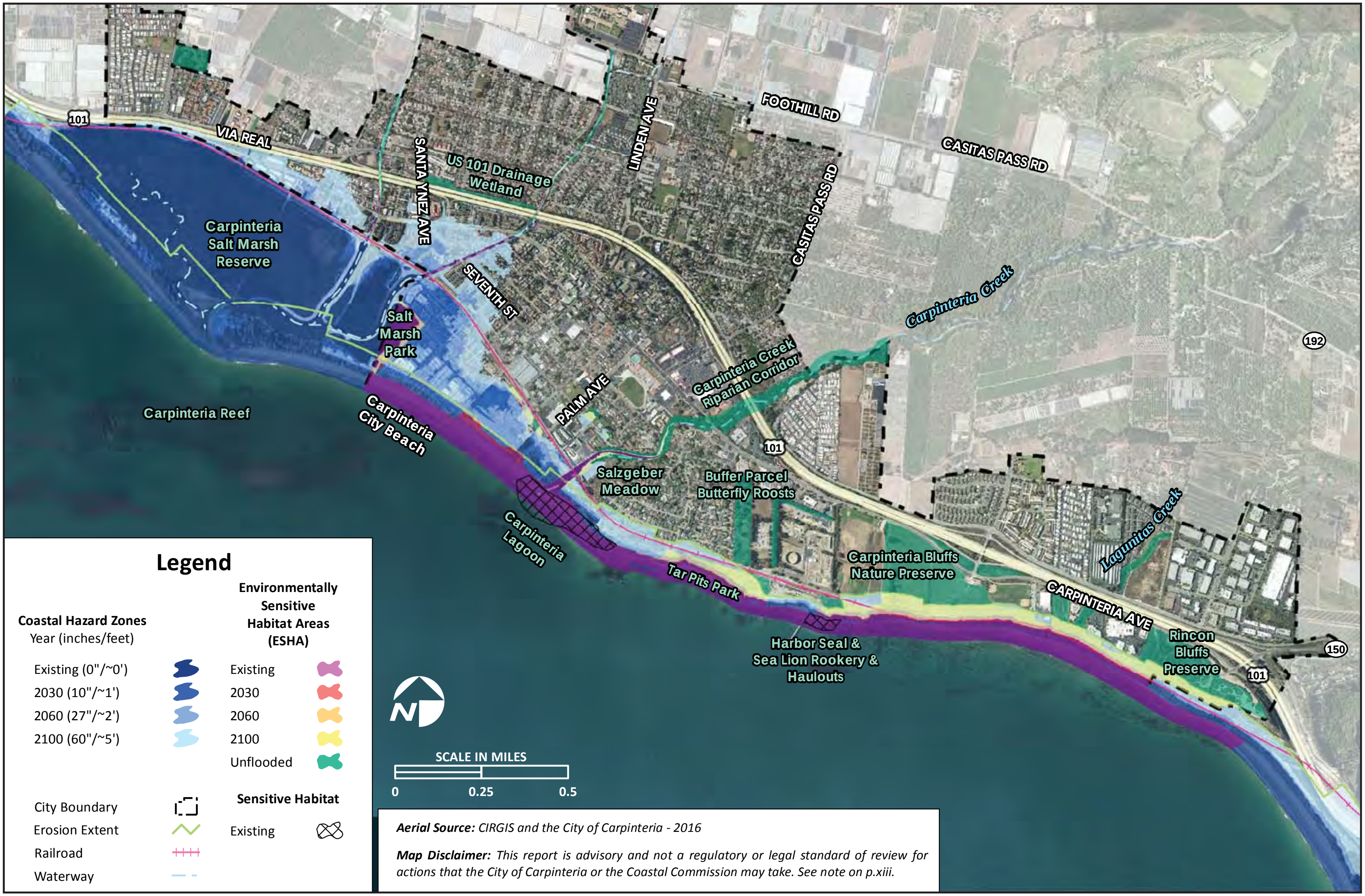
3.5 Environmentally Sensitive Habitat Area (ESHA)

Habitats evolve as a result of physical processes over time. In Carpinteria there are a wide range of habitats ranging from offshore reefs, an intertidal shoreline zone, and the upland areas. An Environmentally Sensitive Habitat Area (ESHA) is a type of habitat that has been specially designated by the City and the CCC to have special status (Table 3-1). ESHAs are presently found throughout the City. The ESHA overlay designation is depicted on the City's land use plan and resource habitat maps and is intended to be representative of general locations of known sensitive habitats. Although these ESHA overlay designations have not been updated since 1999, they meet the Local Coastal Program (LCP) and CCC definitions for ESHA and remain the standard of review for habitats in the City's existing CLUP/GP. As acknowledged in the CLUP/GP, all sensitive communities may not be known, or may migrate or otherwise change over time. Therefore, the maps are intended to identify the existence but not the full extent of sensitive habitat areas, and supplemental investigations may be required for land use activities.

The location of existing mapped ESHA are shown below (Figure 3-3), and potential future impacts to these habitats caused by climate change are described in Section 6.8, *Environmentally Sensitive Habitat Area*. Additionally, these habitats are required to be analyzed for impacts prior to any permit approval.

Table 3-1. Environmentally Sensitive Habitat Areas in Carpinteria

Habitat Type	Area
Wetlands	Carpinteria “El Estero” Salt Marsh, Lower Carpinteria Creek, Higgins Spring at Tar Pits Park, Ellinwood Parcel, U.S. Highway 101 Drainage between Santa Ynez Ave and Linden Ave
Butterfly Habitat	Salzgeber Meadow, Carpinteria Oil and Gas Plant buffer parcels, Carpinteria Bluffs
Marine Mammal Rookeries and Hauling Grounds	Carpinteria Harbor Seal Rookery, sandy pocket near Carpinteria Oil and Gas Plant pier near Carpinteria Bluffs
Rocky Points and Intertidal Areas	Carpinteria Bluffs
Subtidal Reef	Carpinteria Reef, reefs below Carpinteria Bluffs
Beaches and Dunes	Carpinteria City Beach, Carpinteria State Park
Kelp Beds	Carpinteria Reef, reefs below Carpinteria Bluffs
Creeks and Riparian Habitat	Santa Monica Creek, Franklin Creek, Carpinteria Creek, Lagunitas Creek
Significant Native Plant Communities such as: Coastal Sage Scrub, Riparian Scrub, Coastal Bluff Scrub, and Native Oak Woodlands	Carpinteria “El Estero” Salt Marsh, Carpinteria Bluffs, Carpinteria Creek, Tar Pits Park, Farmer Parcel
Significant Native Trees or Specimen Trees	Ellinwood Parcel, Portola Sycamore, Woodholme Torrey Pine
Sensitive, Rare, Threatened or Endangered Species Habitat	Carpinteria Bluffs, Carpinteria Creek, Carpinteria Salt Marsh



Environmentally Sensitive Habitat Areas in the Carpinteria Planning Area

FIGURE 3-3

3.6 Littoral Cell and Sediment Budget

The Carpinteria coast is located in the Santa Barbara Sandshed, a combination of the watershed and littoral cell, which contains a complete cycle of offshore sedimentation, including a sediment source, transport path, and area of deposition. This sandshed extends 145 miles from the Santa Maria River in the north and around Point Conception, where the north-south trending western U.S. coast abruptly changes to a west-east trending shoreline orientation in the Southern California Bight (Figure 3-4). The Santa Barbara Littoral Cell extends from the Santa Maria River in San Luis Obispo County to the north, through Santa Barbara and Ventura Counties to the Mugu Submarine Canyon to the south. The Mugu Submarine Canyon is the ultimate sediment sink for the littoral cell, where sand is transported offshore beyond the depth of closure (a beach profile where sediment transport becomes minimal or non-existent) into the deep Santa Barbara Basin (Figure 3-4; Beach Erosion Authority for Clean Oceans and Nourishment [BEACON] 2009).

Beach sediments primarily come from stream delivery of watershed-derived sediments and some cliff erosion. Numerous steep watersheds drain the sandstone dominant Western Transverse Ranges, which serve to nourish local beaches. The shoreline characteristics and natural supply of sediment within this region primarily result from sediment from upcoast beaches and contributions from small coastal watersheds. Cobbles and bedrock are often seasonally exposed in the wintertime, particularly at the base of the Carpinteria Bluffs or on local beaches after large storm events. In the summer beaches are naturally replenished with sand and sediments that are transported from upcoast sources.

Point Conception to the northwest and the Channel Islands to the south create a narrow swell window into the Santa Barbara Channel that shelters much of the Carpinteria's coast from extreme wave events and creates a nearly unidirectional sand transport from west to east. Within the littoral cell, four manmade harbors (Santa Barbara, Ventura, Channel Islands, and Port Hueneme Harbors) require annual sand bypassing to maintain safe navigational bathymetry/depths. However, these harbors are sand traps, and regular dredging is required to maintain sand supply to the downcoast beaches. The annual average volumes of sand dredged from each harbor indicate the increasing gradient of sand (sediment budget) movement along the littoral cell shoreline from west to east:

- Santa Barbara Harbor – 315,000 cubic yards per year
- Ventura Harbor – 597,000 cubic yards per year
- Channel Islands and Port Hueneme Harbor – 1,010,000 cubic yards per year

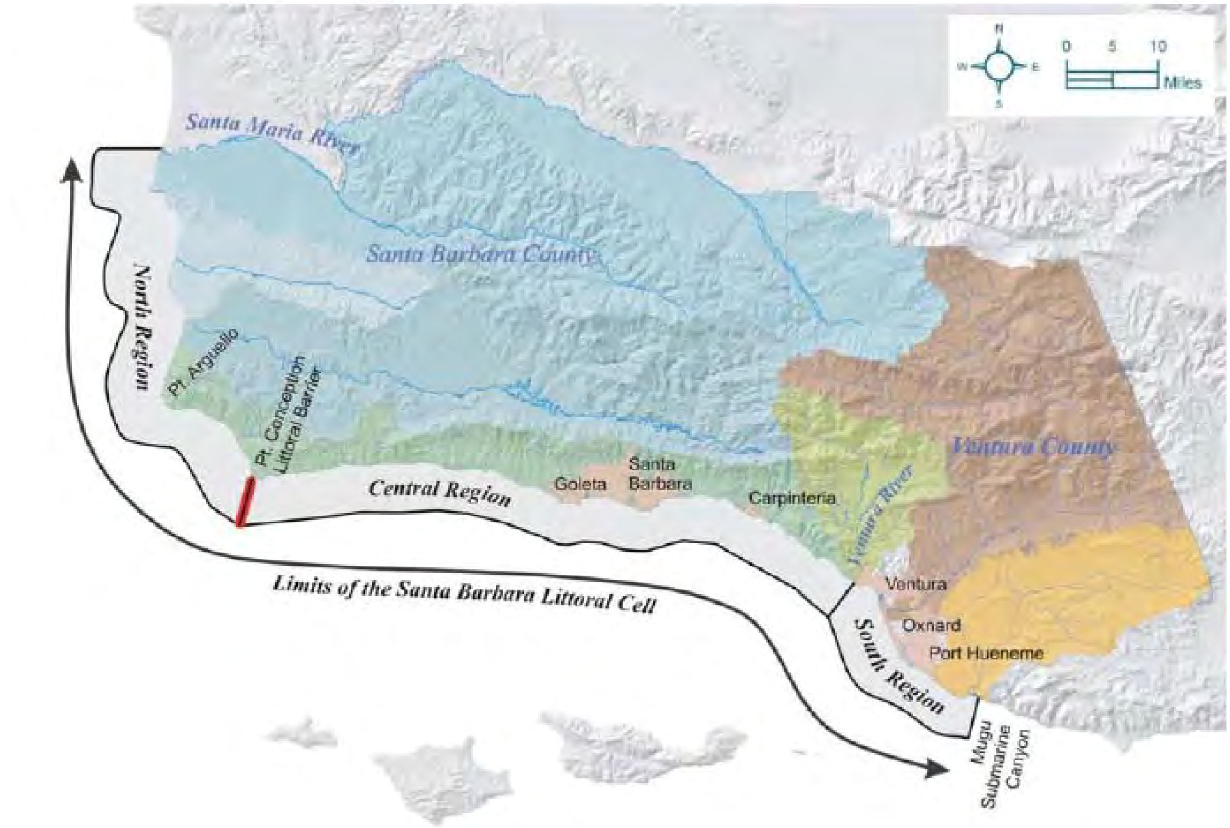


Figure 3-4. *The Santa Barbara Sandshed (Littoral Cell and Watersheds). BEACON 2009.*

3.7 Coastal Processes

The coastal processes of tides, waves, and longshore currents shape the coastline of Carpinteria. Winds and wave heights vary seasonally.

Tides

The tides in Carpinteria are mixed, predominantly semi-diurnal, and are composed of two low and two high water levels of unequal heights per 24.8-hour tidal cycle. Typical tide heights range from 5.4 feet during full and new moon spring tides and 3.6 feet during the neap (1/4 and 3/4 moon) tides. Maximum tide elevations are due to astronomical tides associated primarily with gravitational pull from the sun and the moon, wind surge, wave set-up, density anomalies, long waves (including tsunamis), climate-related El Niño events, and Pacific Decadal Oscillation events. The maximum tidal water level elevation recorded at the nearby Santa Barbara tide station was 10.79 feet above mean lower low water (MLLW) on December 13, 2012. On longer time scales, sea level rise becomes increasingly important, as extreme high tide elevations become more common.

The largest tide ranges in a year typically occur from late December to early January and are known as “king tides”. In Carpinteria, king tides can reach up to 7.2 feet in elevation above MLLW. The tidal inundation projections used in this study assume Extreme Monthly High Water (EMHW) levels, calculated by averaging the maximum monthly water level for every month recorded at the Santa Barbara tide gauge. The elevation of this tide level is 6.5 feet above MLLW and can be expected to be the area that gets inundated once a month. This elevation was modeled and mapped as part of the County’s 2016 Coastal Resilience efforts and approved by involved public agency stakeholders.

Waves

Two dominant types of waves approach Carpinteria’s shoreline, characterized by wave source and direction. First, northern hemisphere waves are typically generated by cyclones in the north Pacific during the winter and bring the largest waves (up to 25 feet). Second, the southern hemisphere waves are generated in the Southern Ocean during summer months and produce smaller waves with longer wave periods (> 20 seconds). However, due to the presence of the offshore Channel Islands, these long period southern swells/waves are generally much smaller when they reach Carpinteria, supporting the City’s claim as the “World’s Safest Beach.” Additionally, local wind waves are generated throughout the year either as a result of winter storms coming ashore, or strong sea breezes in the spring and summer.

There remains some uncertainty about the influence of climate change on wave heights, frequency of large events and intensity. Presently, work by the U.S. Geological Survey (USGS) indicates that there may be additional southern hemisphere wave energy (not likely to affect Carpinteria), a northerly shift in the average northern hemisphere wave direction (which may diminish the average winter wave heights), and more intense storms (Erikson et al 2015).

Longshore Currents and Sediment Transport

Currents in the Santa Barbara Channel drive a nearly unidirectional longshore sediment transport from west to east which cause beaches to narrow during the winter and spring (November to April) and widen during the summer and fall (May to October). The sand on the beaches of Carpinteria moves along the coast of southern Santa Barbara and Ventura Counties to the Point Mugu Submarine Canyon in the south.

3.8 Historic Shoreline Changes and Erosion

Shoreline changes (accretion and erosion) result from a change in sediment supply, coastal processes including large storms, and human activities. When sediment supply exceeds the gross longshore sediment transport rates then the coast will accrete seaward; when more sediment is removed than supplied, the coast will erode. Long-term changes in the shoreline are caused by sediment supply and sea level rise, whereas short-term or event-based erosion is caused by large storm events.

Carpinteria beaches experience seasonal cycles in which winter storms move significant amounts of sand offshore, creating steep, narrow beaches. In the summer, gentle waves return the sand onshore, widening beaches and creating gentle slopes. Sandy beach widths along Carpinteria City beach range between 65 and 200 feet, although width varies seasonally and along the coast. Because many factors influence coastal erosion, including human activity, sea level rise, seasonal fluctuations, and climate change, sand movement will generally be locally variable.

Coastal and creek flood hazards have historically occurred throughout Carpinteria. Significant wave events in 1938, 1943, 1958, 1982–83, 1988, 1997–1998, 2002, 2007, and 2015-2016 demonstrate the dynamic and hazardous coastal environment. While many of these storm events and creek flooding hazards are associated with El Niño, other causes can threaten the environment including storm events post-wildfire. In such situations, due to an absence of vegetation and resultant soil erosion, large fluxes of sediment can be rapidly transported to the coast (e.g., January 2018 mud and debris flows in Montecito and Carpinteria).

The Carpinteria and Sandyland shoreline has changed dramatically since the late 1800s when a large dune field was present (refer to Figure 3-2). These changes are mostly due to indirect or direct human impact or influences, including the downcoast erosion and loss of sediment supply as a result of construction of the Santa Barbara Harbor approximately 10 miles to the west, and loss of dune and wetland habitat due to development along the Carpinteria shoreline. The installation of the Santa Monica Creek debris basins in 1970 has interrupted the migration of natural course sediments that to the shoreline, reducing the amount of cobble transported to Carpinteria's beaches. Lack of cobble significantly reduces the shoreline's natural resilience to wave attack during high energy events. In localized spots adjacent to Carpinteria City Beach, shoreline protection in the form of coastal armoring structures also causes seasonal impacts to the sandy beach width, including a narrowing of the beach, an acceleration of sand transport, and a seasonal erosion hotspot at the end of Ash Avenue near the lifeguard tower (Revell et al 2008). Armoring of the coastline upcoast from Carpinteria significantly reduces sediment input to the shoreline. Armored shoreline structures do not allow sediment to migrate offshore during storm events and thereby prevent sand bars from forming. The Sandyland Revetment has had significant "end effects" of reducing the sandy beach width on Carpinteria City Beach, as well as the Santa Barbara Harbor, upcoast armored coastline structures and watershed debris basins, with the unintended consequence of starving the Carpinteria shoreline of natural sediments that are critical to provide shoreline resiliency.

Erosion wave en route to Carpinteria in 1936.
Photo source: Spence Collection – UCLA

Updrift erosion at Sandyland circa late 1930s.
Photo source: Santa Barbara Independent

Breakwater construction at the Santa Barbara Harbor began in 1927 and was completed by 1930, during which approximately 2.6 million cubic yards of sand were impounded updrift of the Santa Barbara Harbor at Ledbetter Beach. Sand impoundment led to a well-documented erosion wave[1] that migrated downcoast at a pace of approximately 1 mile per year. The arrival of the erosion wave to Sandyland and Carpinteria, combined with storm waves arriving from a hurricane that made landfall in Long Beach in 1938, resulted in the erosion of the historic dune field at Sandyland and the beach at Carpinteria in the late 1930s. (Bailard 1982; Komar 1998; Weigel et. al 2002). In addition, the natural underwater sand peninsula (tombolo) between the sand dunes and Carpinteria Reef was eroded.

The effect of this erosion changed the longshore currents in Carpinteria and likely allowed more swell energy to rotate Carpinteria beaches in a slightly clockwise direction. The long-term shoreline and beach responses to this erosion event were to erode the beach in front of Sandyland Cove and accrete the beach in front of Tar Pits Park, effectively rotating the beach slightly to the southeast. Photogrammetric analysis of 16 historic aerial photographs show long-term changes along the Carpinteria shoreline since the 1869 shoreline position was documented at Sandyland Cove Beach, Ash Avenue, Linden Avenue, and Tar Pits Park. Sandyland Cove Beach saw the largest changes, eroding by approximately 100 feet, and Ash Avenue narrowed by approximately 50 feet (Figure 3-5). Meanwhile, accretion occurred on the beach at Linden Avenue (approximately 30 feet) and Tar Pits Park (approximately 60 feet) (Revell et. al 2008).

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1 Erosion wave is an area of sand deficit that travels along the coast.

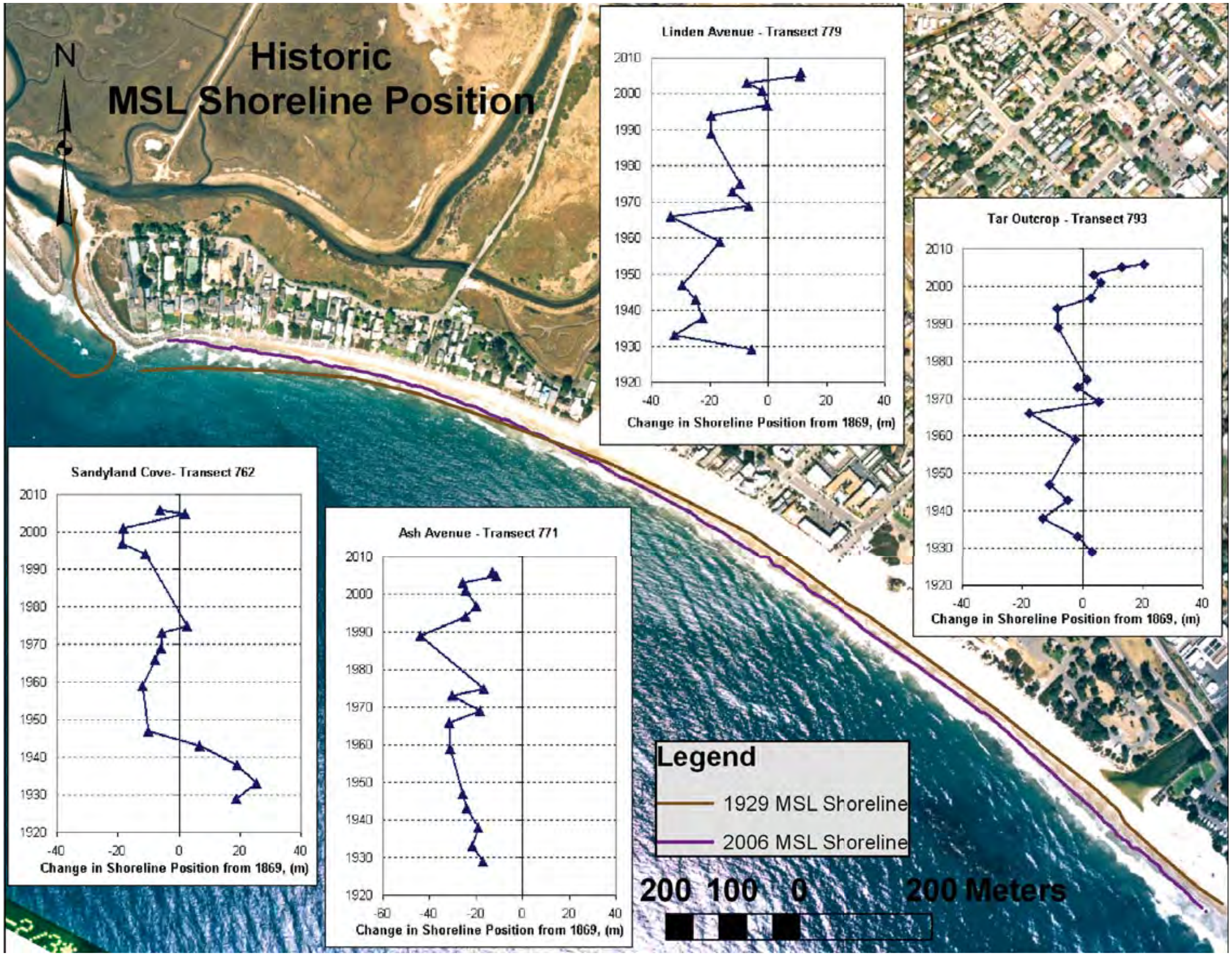


Figure 3-5. *Changes in Mean Sea Level (MSL) shoreline position relative to the 1869 shoreline at four locations. The 1929 and 2006 MSL shorelines also show updrift erosion and downdrift accretion*

As a result of these shoreline changes, Sandyland Cove residents built a revetment in the mid-1980s under an emergency permit issued by the County of Santa Barbara that partially encroached on the public beach seaward of the homes and resulted in burial of the beach due to the footprint of the structure. Additionally, active erosion caused by an increase in the longshore currents moves sand along the revetment and scours sand near the Ash Avenue access to the City Beach (Revell et al 2008).

Placement loss of the beach in front of Sandyland Cove has resulted in a narrowing of the beach width. Photo courtesy of California Coastal Records Project.

These active erosion processes create a seasonal erosion hotspot which is shown in seasonal beach changes and a coarsening of the sediment grain size (Revell et al 2008). This erosion hotspot resulted in damage to the City lifeguard facility at the terminus of Ash Avenue in 1987 (Figure 3-6).This storm also caused significant damage to the property located at the end of Ash Avenue; subsequent development was therefore raised on pier piles to make the structure more resilient to future storms.

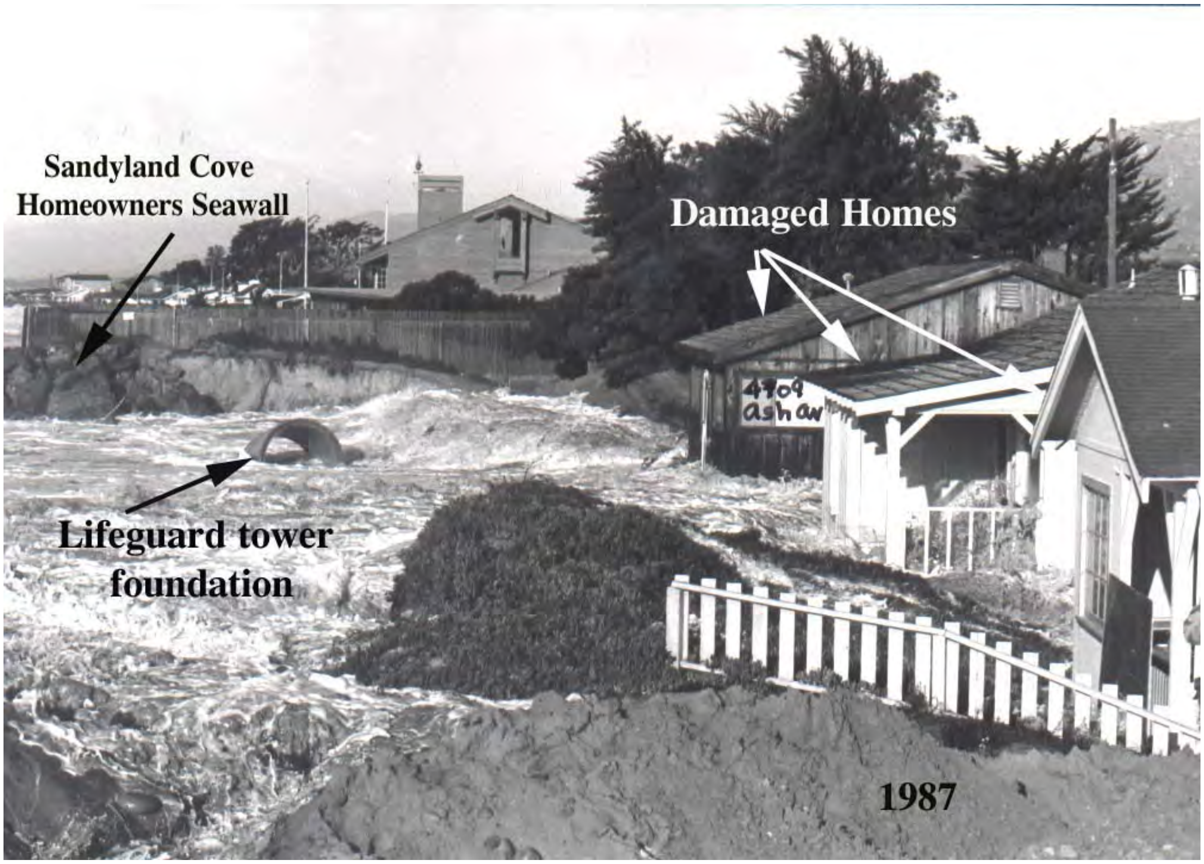


Figure 3-6. *Storm damages at Ash Avenue at the end of the Sandyland Cove Revetment in 1987.*

As discussed in Chapter 2.4, *Other Regional Sea Level Rise Planning Efforts*, and Chapter 8, *Adaptation and Resiliency Building Strategies*, the U.S. Army Corps of Engineers (USACE)is currently studying the Carpinteria shoreline and potential strategies for restoration. A reconnaissance study was partially completed by USGS and the University of California, Santa Cruz in order to evaluate the physical processes as well as the long-term and seasonal changes to the beach (Barnard et. al 2007). This information has been included in the ongoing USACE study.

Cobbles and Storm Berm Changes

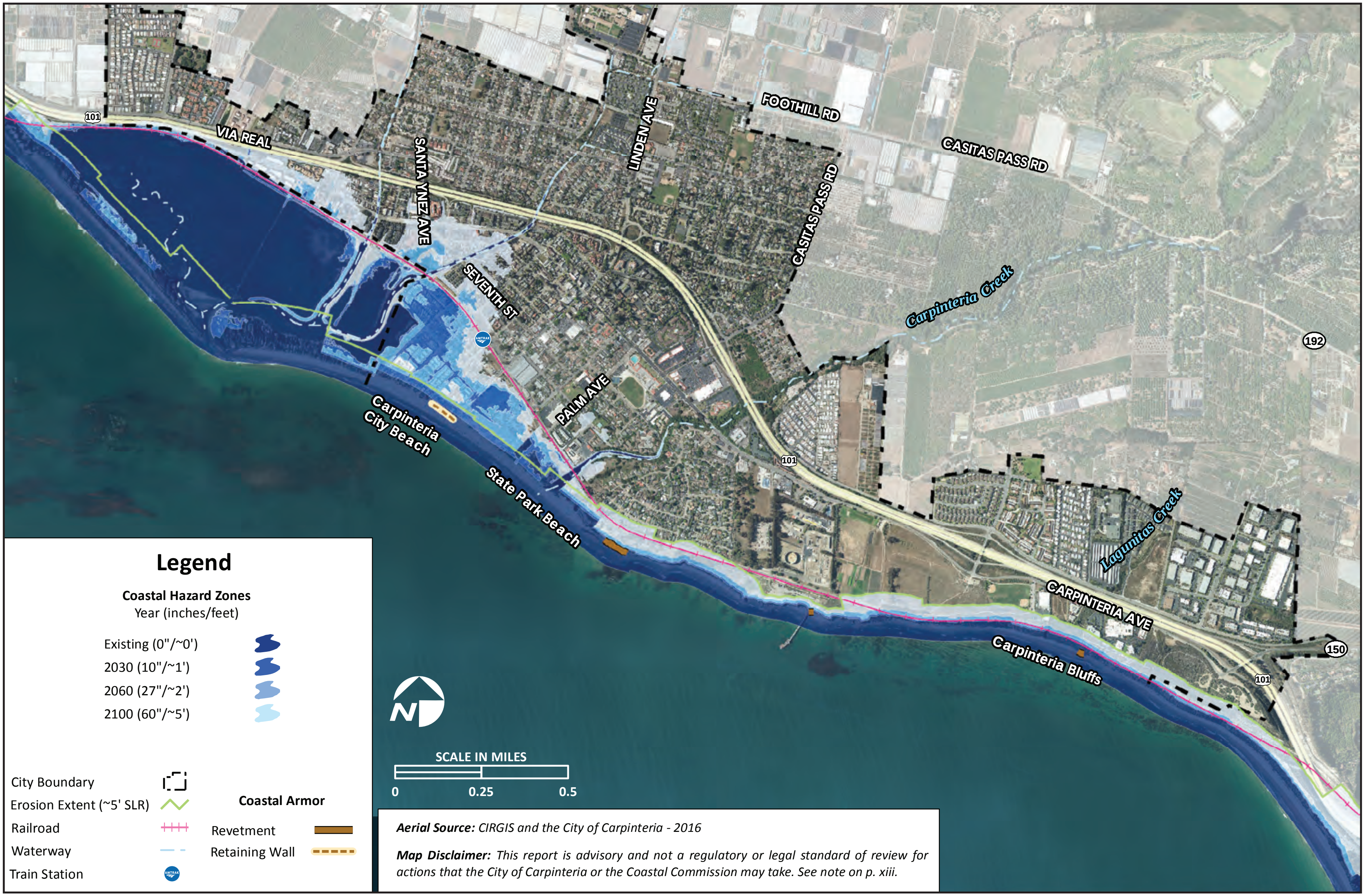
Cobbles were once plentiful under the Carpinteria beaches, and typically visible during the winter storm season. Cobbles enabled the beaches to dissipate large destructive wave energy. However, large El Niño storms in 1982-1983 and 1997-1998 removed most of the cobbles. While no definitive studies have identified the exact cause, it is possible that factors include a decline in the supply of cobbles due to changes in the watersheds, construction of sediment debris basins, and upcoast coastal armoring that protects cliffs from erosion.

Each year, the City installs an approximately 1,300-foot-long seasonal storm berm out of sand along Carpinteria City Beach in the fall and winter to buffer against large wave events. When the storm wave season passes in the spring, the City pushes the sand back onto the beach.

Existing Shoreline Protection

Winter Storm Berm along the City Beach. Photo Source: Matt Roberts

Existing shoreline protection in the City is relatively minimal (Figure 3-7). This Report does not include detailed cost estimates to maintain existing shoreline protection devices, although summary information may be found in Chapter 8, *Adaptation and Resiliency Building Strategies*. A sand retention wall originally constructed in 1977 is located along the Carpinteria Shores apartments, and small portions of revetment are located at the base of Casitas Pier and under the Carpinteria Bluffs. Tar Pits Park, Carpinteria State Beach, and a portion of San Miguel Campground also have a small amount of shoreline protection. The protective features at San Miguel Campground consist of materials used as part of the former burn dump site and were installed in fall 2013 under a Development Plan and Coastal Development Permits (CDP) issued by the City. Given the age of some of the other existing shoreline protection devices within the City and Carpinteria State Beach, current permitting status is unclear, and some structures may precede applicable permitting requirements.



Aerial Source: *CIRGIS and the City of Carpinteria - 2016*

Map Disclaimer: *This report is advisory and not a regulatory or legal standard of review for actions that the City of Carpinteria or the Coastal Commission may take. See note on p. xiii.*

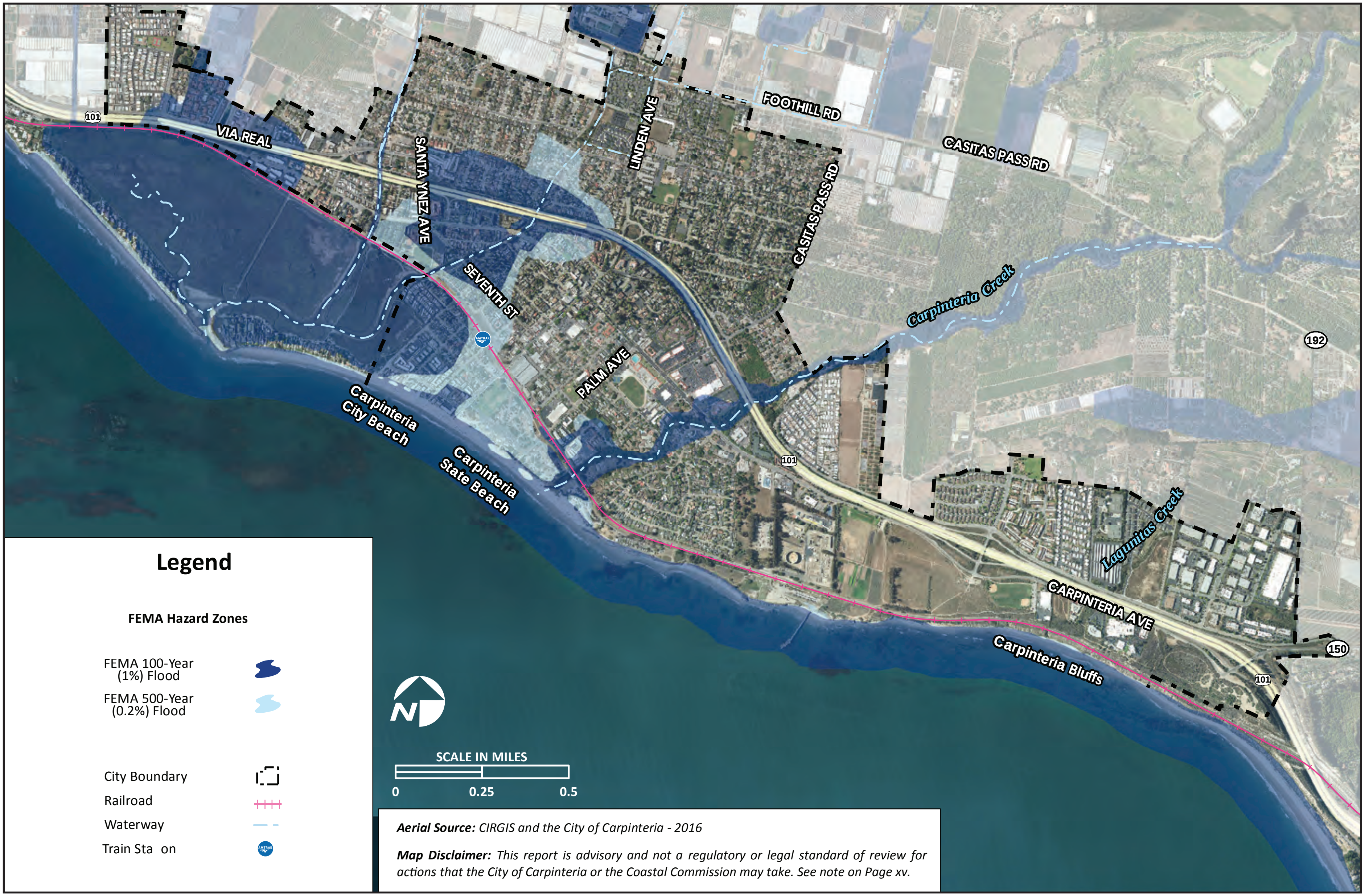
Extent of Shoreline Protection in the City of Carpinteria

FIGURE 3-7

3.9 Existing Coastal Hazards

FEMA Flood Insurance Rate Maps (FIRMs) delineate coastal flood hazards as part of the National Flood Insurance Program (NFIP). This program requires highly specific technical analysis of watershed characteristics, topography, channel morphology, hydrology, and hydraulic modeling to map the extent of existing wave run-up-related flood hazards. These maps represent the existing 100-year and 500-year FEMA flood events (1 percent and 0.2 percent annual chance of flooding, respectively) and determine the flood extents and flood elevations across the landscape. FEMA flood maps are based on existing flood hazards and do not account for coastal processes, sea level rise, or climate change.

Shoreline Protection at Tar Pits Park.



Aerial Source: *CIRGIS and the City of Carpinteria - 2016*

Map Disclaimer: *This report is advisory and not a regulatory or legal standard of review for actions that the City of Carpinteria or the Coastal Commission may take. See note on Page xv.*

Adopted FEMA Flood Insurance Rate Map

FIGURE 3-8

Coastal flooding extents are caused by large storm waves coupled with high tides. FEMA does not include coastal erosion or sea level rise in the mapping of coastal hazards. FEMA is currently remapping the Pacific Coast FIRMs with an emphasis on the high wave velocity (VE zone); the Santa Barbara County Preliminary FIRMs were released in December 2016; however, final regulatory maps are not yet adopted. The preliminary FEMA flood maps have not integrated storm erosion into the mapping of coastal hazards for existing conditions; however, the results of the preliminary analysis generally show an increase of 4 feet in the base flood elevation along Carpinteria City Beach between Ash Avenue and Linden Avenue and a 6-foot increase along the State Beach (Table 3-2). Carpinteria regulatory flood hazard zones are covered in FEMA Preliminary Panels No. 06083C1419H and 06083C1438H.

Table 3-2. Preliminary Proposed and Effective FEMA Coastal Base Flood Elevations (VE Zones) for Carpinteria Shoreline

FIRM Map Version	Base Flood Elevations (NAVD 88)
Effective FIRMs	11 feet
Preliminary FIRMs (2016)	15-17 feet

Repetitive Flooding Related Losses

FEMA repetitive loss data shows that there have been 18 properties in Carpinteria with multiple claims against the NFIP. Four (4) of these properties have had more than three (3) insurance claims, and one (1) of them has had a total of six (6) claims.