Appendix A

Final Draft Pacifica Sea-Level Rise Vulnerability Assessment June 2018

SEA LEVEL RISE VULNERABILITY ASSESSMENT Pacifica, CA

Prepared for The City of Pacifica June 2018





Near-king tides and high surf at Beach Boulevard on November 30, 2017 (J. Jackson)







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SEA LEVEL RISE VULNERABILITY ASSESSMENT Pacifica, CA

Prepared for The City of Pacifica

June 2018

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1.INTRODUCTION

1.1. Background

The City of Pacifica is updating its Local Coastal Program, a planning document that regulates development in the City's Coastal Zone and establishes a long-range vision for the community. The California Coastal Act, passed in 1976, provides for coastal jurisdictions to adopt a Local Coastal Program (LCP) to ensure local implementation of Coastal Act priorities. The City adopted its current LCP in 1980 and is currently preparing a Local Coastal Plan (LCP) update to address sea level rise (SLR) and its effects on coastal erosion and flooding. Environmental Science Associates (ESA) performed this Vulnerability Assessment to address existing conditions and future vulnerability of the City of Pacifica and its social, economic and physical coastal resources to projected sea level rise, coastal flooding and erosion. The findings of this Assessment will enable ESA to assist the City with development of adaptation strategies to prepare for future impacts. Ultimately, the City, with assistance from ESA, will develop policy language for incorporation into the City's LCP Update.

ESA's coastal hazard analysis and vulnerability assessment is a planning-level assessment of the potential exposure Pacifica could face from sea level rise, flooding and erosion. The results of this Vulnerability Assessment informing the development of an Adaptation Plan and LCP policies in the next phases of the LCP update preparation process. This assessment therefore relies on reasonable assumptions and engineering judgement to simplify the analysis where needed and utilizes available coastal hazard mapping products that are discussed in Section 1.2 and Section 2.

Please note that this document incorporates the Existing Conditions Report deliverable detailed on ESA's work plan for the sea level rise assessment and adaption planning effort, removing the need for a separate Existing Conditions Report to be prepared.

The City received a number of comments on the draft vulnerability assessment from the public and both working groups (Community and Technical). These comments are compiled with responses and included in Appendix E of this report.

1.2. Past Studies on Coastal Flooding and Erosion

To conduct the Vulnerability Assessment, ESA relied on readily available data sources. The following studies examined coastal flooding and erosion impacts in Pacifica. The hazard maps and associated data produced from these studies are utilized in this Vulnerability Assessment (described in Section 2.2).

Sea Change San Mateo County

This Sea Change San Mateo County study established and executed a risk-informed methodology to assess SLR vulnerability and flood risk in San Mateo County (SMC 2017). The assessment used data from all three sources mentioned below for evaluating the vulnerability of the County and its assets to coastal hazards. One goal of this study is to remain consistent with the County-wide study. ESA used the same hazard data sources for the Vulnerability Assessment, which are described below.

Our Coast Our Future (OCOF)

Our Coast Our Future (Ballard et al. 2016) is a collaborative project that provides online maps and tools to help users understand, visualize and anticipate vulnerabilities to sea level rise (SLR) and storms. The project maps 40 different SLR and storm scenarios that were developed by the United States Geological Survey (USGS) using their Coastal Storm Modeling System¹ (CoSMoS 2.0, North-central California (outer coast)). The hazard maps are hosted in an interactive web environment that includes layers for flooding extent, depth, duration, wave heights, current velocity, as well as various infrastructure and ecology layers. ESA used various OCOF hazard mapping products to evaluate existing and future coastal flooding hazards due to SLR (for regular tidal inundation) and storm flooding (considering a 100-year coastal event) for this Vulnerability Assessment. Details on the SLR scenarios and descriptions of each type of coastal hazard are discussed in Section 0. OCOF/CoSMoS modeling for this area does not incorporate the long-term erosion of shorelines and bluffs the same way that CoSMoS 3.0 does for southern California and thus the flood layers may underestimate flood exposure. The modeling does however use recent (2013) topography that includes existing features such as the elevation of the Beach Boulevard seawall and the SPGC levee. While potential erosion is not included in the OCOF maps, flooding shown beyond these built features essentially represent conditions for the ongoing maintenance of these elements at their current location and elevation.

Pacific Institute Study

In 2009, Philip William and Associates, Ltd. (PWA, now ESA) was funded by the Ocean Protection Council to provide the technical hazards analysis supporting the Pacific Institute report on the "Impacts of Sea Level Rise to the California Coast" (PWA 2009; Pacific Institute 2009). In the course of this work, PWA projected future coastal flooding hazards for the entire state based on a review of existing Federal Emergency Management Agency (FEMA) hazard maps and projected future coastal erosion hazard areas for the northern and central California coastline, ending at Santa Barbara. These hazard areas were used in the Pacific Institute study, which evaluated potential socio-economic impacts of SLR. In order to maintain consistency with the Sea Change SMC study, ESA used the coastal erosion hazard maps in this Vulnerability Assessment to identify potential impacts to Pacifica. The erosion hazard zones produced for this study do not consider the effects of coastal armoring structures, but rather depict the potential extent of erosion in the case that armoring fails or is not maintained. It is important to understand the potential risk that coastal erosion poses to assets without assuming any given adaptation strategy, and the Pacific Institute erosion maps are the best available resource to do so in Pacifica. The purpose of this Vulnerability Assessment is to identify all potential assets at risk and understand where adaptation actions are needed, and then move into adaptation planning to address these risks. For example, understanding the amount of property and infrastructure at risk if the Beach Boulevard seawall were to fail can make the case for maintaining the seawall into the future (an adaptation alternative).

Coastal Regional Sediment Management Plan, San Francisco Littoral Cell (Draft)

A Coastal Regional Sediment Management Plan (CRSMP) is a guidance and policy document that discusses how Regional Sediment Management (RSM) can be applied in a rapid, cost-effective, and resource-protective manner. ESA (2015) completed a Draft CRSMP for a segment of the San Francisco Littoral Cell along the San Francisco

¹ Information on OCOF can be found at: http://data.pointblue.org/apps/ocof/cms/ and https://walrus.wr.usgs.gov/coastal_processes/cosmos/norcal/index.html

and San Mateo Counties Pacific coastline for the Coastal Sediment Management Workgroup (CSMW). The CSMW was a taskforce, co-chaired by the U.S. Army Corps of Engineers and the California Natural Resources Agency, and focused on the adverse impacts of coastal erosion on coastal habitats. Along with other federal, state and local/regional entities, the CSMW worked to implement RSM to augment or restore natural processes. The Draft CRSMP is a source of information and methods for Pacifica's LCP Update, including some asset data for the vulnerability assessment and shoreline modeling inputs and methodology for the adaptation analysis. The erosion hazard maps for the Draft CRSMP were produced by ESA using updated methodology originally developed for the Pacific Institute Study and include accelerated erosion in response to SLR, projections of future beach widths, and modifications for a range of potential adaptation alternatives including allow erosion, beach nourishment, beach nourishment with reef, armor, and hybrid approaches. The methods used to produce these erosion hazard maps (not the erosion hazards themselves) will be applied in the current study to assess the implications of different shoreline management options in the upcoming Adaptation Plan task of this project.

1.3. Existing Conditions

This document is focused on vulnerabilities of property and built assets in Pacifica that are exposed to coastal flooding and erosion now or may be exposed in the future due to projected sea-level rise. Existing land use, policy and zoning are not covered in this document. Existing natural resources are described in the following sub-areas.

The Pacifica coastal community consists of nearly 40,000 residents and has six miles of beaches and bluffs along the Pacific Ocean. Built and natural resources along Pacifica's coastline are currently vulnerable to coastal flooding and erosion. Vulnerabilities, and subsequently adaptation planning, are being evaluated for Pacifica's coastal sub-areas as defined in the draft LCP (with slight modifications by ESA). Following the organization of the Vulnerability Assessment (Section 3), existing conditions for each sub-area in Pacifica are discussed below, from north to south. Pacifica's sub-areas are shown in Figure 1. Sub-area descriptions include the existing exposure to coastal and riverine hazards considering FEMA hazard maps, physical characterization of the backshore, description of coastal protective devices (flooding and erosion) and general description of natural and built assets.



SOURCE: City of Pacifica, San Mateo County

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Figure 1 Pacifica Sub-areas Existing exposure to coastal and fluvial hazards are based on past studies, observations and current FEMA flood insurance rate maps.

Observed coastal flooding and erosion events in Pacifica

Observations of coastal flooding and erosion events provide real world examples of the impacts that can be sustained by Pacifica, both in terms of the severity of a particular rain storm or wave event and the actual damages to infrastructure, property and other assets. One way to characterize the vulnerabilities that Pacifica faces with projected SLR is to estimate the return period² of observed events of flooding or erosion and predict how the frequency of these events (and damages) may increase in the future given climate change and SLR. For example, this is accomplished by choosing a flood event that is representative of impacts, estimating the return period for the event, and predicting future return periods at given times considering SLR. The following events provide examples of Pacifica's existing exposure to coastal flooding and erosion:

- Winter 1983: Large swell and precipitation
- El Nino 1997-1998: Large swell
- January 11, 2001: Wave event and overtopping at Sharp Park seawall and erosion damages to Beach Blvd seawall (photographs shown in Figure 2)
- Winter 2009-2010: Large swell and resulting bluff erosion at Pacific Manor
- January 21, 2016: Large swell (photographs in Figure 3)
- Others identified and documented by City staff (for example see account for January 2, 2006 in Figure 4)



SOURCE: B. Battalio

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Observed flooding and erosion along Beach Blvd on January 11, 2001

² Return Period is an estimate of the time between individual events (e.g. precipitation or wave event) of a given severity.



SOURCE: B. Battalio

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Figure 3

Observed flooding and erosion events at Pacifica on January 22, 2016



SOURCE: Pacifica Tribune

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Figure 4 Reported wave overtopping at Pacifica on Jan 2, 2006

Sub-Area Descriptions

Each Pacifica sub-area (shown in Figure 1) is discussed below. Existing conditions maps were created for each sub-area (Appendix A). Each map shows stormwater and wastewater infrastructure, coastal armoring structures, existing FEMA flood hazard zones, and the latest available (2016) mean higher high tide shoreline. ESA reviewed current FEMA maps (shown in Appendix A) to assess existing flooding risk in Pacifica. FEMA flood hazard maps, which are used for the National Flood Insurance Program, present coastal and fluvial flood hazards. FEMA recently released updated coastal flood hazard maps for San Mateo County (effective 8/2/2017) according to the 2005 Pacific Coast Guidelines (FEMA 2005a). The latest FEMA National Flood Hazard Layer is hosted online via an ArcGIS webmap³. In the following sub-area descriptions, we will refer to existing coastal hazards using the following FEMA terms:

- BFE Base Flood Elevation, the elevation of surface water resulting from a flood that has a 1% chance of equaling or exceeding that level in any given year.
- VE zone The flood insurance rate zone that corresponds to the 100-year coastal floodplains that have additional hazards associated with storm waves.

In this report, elevations of FEMA flood zones and the Pacifica are referenced to the North American Vertical Datum of 1988 (NAVD), the vertical control datum established for vertical control surveying in the USA. For reference, mean sea level in Pacifica is approximately 3.2 ft NAVD, mean high tide is approximately 5.3 ft NAVD. Conditions of the coastline are generally described in terms of the following areas: the beach (sand or gravel); the backshore (dunes or bluffs that rise behind the beach); the bluff top; and inland areas.

Fairmont West



SOURCE: Adelman & Adelman 2013

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Figure 5 Fairmont West Sub-area CA Coastal Records Photos

The Fairmont West sub-area includes 0.6 miles of shoreline at the northern most portion of the City of Pacifica that includes open space west of and residential development east of Palmetto Ave and Westline drive (Figure 5, Appendix A-1). Land use includes residential (single and multi-family), parks, and open space. The most seaward

³ http://fema.maps.arcgis.com/home/webmap/viewer.html?webmap=cbe088e7c8704464aa0fc34eb99e7f30

assets in this sub-area are the north end of Palmetto Avenue and Westline Drive which are beyond 300 feet from the current bluff edge, and the Dollaradio station (100 Palmetto Avenue). The shoreline is comprised of mixed sand and gravel that can give way to exposed rocky shores depending on the season. The backshore is mostly characterized with undeveloped tall coastal bluffs (140-180 feet). Bluff erosion has recently exposed concrete piles and cap seaward of the Dollaradio station. A rock revetment was constructed along the bluff toe in front of Dollaradio in 2010. As of December 19, 2017, the beach is relatively high in this sub-area and only the top of the revetment is exposed, but this is believed by ESA to be a temporary condition associated with the dynamic beach environment. Due to the tall bluff, assets in this sub-area are not currently at risk to coastal flooding but are projected to be exposed to coastal erosion. FEMA coastal base flood elevations (BFEs) in this sub-area range from 27 to 28 feet NAVD, which is well below (lower) than the bluff tops.

South of Mussel Rock in Pacifica, the coastal bluff top near the north end of Palmetto Avenue supports one of the two largest remaining old climbing dune scrub habitats stands in Pacifica, including the only one with both persistent active blowouts and coastal scrub vegetation. The bluffs here also support landslide scarps with active groundwater seeps and slope wetlands. The wetlands include a hanging scarp wall with a seasonal to perennial groundwater-fed surface flows (waterfall to seep face), and consolidated willow-dominated riparian thickets (Arroyo willow, *Salix lasiolepis*; California waxmyrtle, *Myrica californica*; twinberry, *Ledebouria involucrata*; bee-plant, *Scrophularia californica*) and peripheral slope marsh patches (slough sedge, *Carex obnupta*; rushes, *Juncus lescurii, J. effusus*; Indian thistle, *Cirsium brevistylum*; stinging nettle, *Urtica dioica*). The dune scrub stands include blowouts bordered by early-succession dune forbs and grassland including Pacific wildrye and creeping wildrye populations (*Elymus pacificus, E. triticoides*), maritime brome (*Bromus carinatus*), beach evening-primrose (*Camisoniopsis cheiranthifolia*), beach strawberry (*Fragaria chiloensis*), dune bluegrass (*Poa douglasii*), varied lupine (*Lupinus variicolor*), as well as stable dune scrub elements (coyote-brush, *Baccharis pilularis*; dune knotweed, *Polygonum paronychia*), and deerweed (*Lotus scoparius*).



SOURCE: J. Jackson, 20 Dec 2017

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Figure 6 Dollaradio Station with rock at toe and Piles at top of bluff (Left) Drainage pipes and terrestrial erosion of bluff south of Dollar Radio (Right)

West Edgemar and Pacific Manor



SOURCE: Adelman & Adelman 2013

Figure 7 West Edgemar and Pacific Manor Sub-area CA Coastal Records Photos

This West Edgemar and Pacific Manor sub-area includes all land west of Highway 1, south of Dollaradio Station to and including the San Francisco RV Resort (Figure 7, Appendix A-2). Land uses include single and multifamily residential, commercial (including Manor Plaza), auto services, office, vacant, and other public or community uses. The sub-area includes 0.8 miles of coastline that consists of rip rap and a few short (100-400

feet) stretches of sandy beach. The backshore is characterized by tall bluffs (60-120 feet) with development on or near the edge of bluff. Approximately 80 percent of the backshore is currently armored in this sub-area, which highlights the erosion hazards posed to bluff top property and infrastructure. For example, the bluffs fronting the OceanAire Apartments (formerly called "Lands End Apartments"; 100 and 101 Esplanade Avenue) have eroded up to 90 feet in the last decade, prompting the construction of a concrete seawall at the bluff toe and re-sculpting and restoration of the bluff face and access path. This seawall has since failed (Figure 8). Erosion continues beyond the structure at both ends, and the area is currently under construction with large rocks placed on the beach.



SOURCE: J Jackson, Dec 20, 2017

Pacifica LCP 170663 Figure 8



Immediately south, erosion of the bluff face has led to the removal of three multi-unit apartment buildings on Esplanade Avenue since 2015 (310, 320, 330 Esplanade Avenue) despite the presence of a rock revetment at the bluff toe. Existing coastal structures were upgraded since 2015 and expanded in the last to cover the entire bluff face at The Bluffs apartments (380 Esplanade Avenue). Erosion in northern Pacifica 2009-2016 led to a substantial expansion of coastal armoring as well as demolition of three apartment buildings and loss of public access to the beach. Figure 9 compares the progression and impacts of erosion along Esplanade Avenue in three aerial photographs taken in 2009, 2014, and 2016.



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Figure 9 Erosion of bluffs in Pacifica at Sea View buildings February 2009 (top), February 2014 (middle), November 2016 (bottom)

SOURCE: Google Earth

Just south of The Bluffs, undeveloped land along the 400 block of Esplanade Avenue atop Manor beach provides a buffer to Esplanade Avenue and sewer facilities. In 2010, an armored earth ramp connecting Esplanade Avenue to Manor beach was built to provide beach access for construction equipment.

Further south and during the 1998 El Nino storms, erosion undermined many of the single family residences along the western side of the 500 block of Esplanade Avenue, and all but two were demolished (528 and 532 Esplanade Avenue). A rock revetment was constructed under an emergency permit, and the City converted the property to open space with and bluff top trail. Erosion of the bluff has continued, and is now encroaching on the bluff-top trail (Figure 10). The last two remaining homes along the western side of the 500 block of Esplanade Avenue were acquired by the City of Pacifica and were recently demolished. The City of Pacifica is placing rock to armor the base of the bluff from erosion.



SOURCE: B. Battalio, Dec 20, 2017

Figure 10 Bluff top trail at Esplanade Ave at risk of erosion (photograph Dec 20 2017)

The San Francisco RV Resort (700 Palmetto Avenue) armored their property with a rock revetment in 2016/2017, under an emergency permit. Bluff erosion caused the closure of the San Francisco RV Resort public access trail, which traverses the property at the bluff top. FEMA coastal BFEs in this sub-area are 24 to 28 feet NAVD, compared to bluff edges of 70 to 120 feet.

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SOURCE: San Mateo County 2017

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Figure 11 Bluff toe armoring and erosion at Esplanade blufftop apartments (top) Bluff toe and face armoring at The Bluffs apartments (bottom)

A small climbing dune remnant occurs on the undeveloped blufftop parcel along Esplanade Avenue north of Manor Ave. This remnant has a distinct early succession coastal bluff scrub phase, including the only remaining natural population of silvery beach pea (*Lathyrus littoralis*) on the San Francisco peninsula, and one of the largest natural (not planted) populations of beach wildrye (*Elymus mollis*). These occur mixed with a population of Chamisso lupine (*Lupinus chamissonis*), yellow sand-verbena (*Abronia latifolia*), beach strawberry (*Fragaria chiloensis*), beach-bur (*Ambrosia chamissonis*) and iceplant (*Carpobrotus edulis x chilensis*).

Beach and dune habitats are largely absent south of Manor Ave. due to robust armoring of the bluff toe from Manor Ave. to just south of Avalon Ave. The top of the bluff is dominated by a monoculture of non-native iceplant; relict patches of native dune and scrub plants may be present in areas not covered in iceplant. South of Avalon Ave. seaward of an RV park, the bluff toe is unarmored except for the southernmost portion of the segment.

Northwest Sharp Park



SOURCE: Adelman & Adelman 2013

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Figure 12 Northwest Sharp Park Sub-area CA Coastal Records Photos

The Northwest Sharp Park sub-area includes land west of Highway 1 and between the SF RV Resort and Bella Vista Ave (Figure 12, Appendix A-3). Land uses include residential, industrial, commercial, school, mobile homes, office, auto services and mixed use. This sub-area is the northern portion of the West Sharp Park sub-area defined in the draft LCP. For this study, the West Sharp Park sub-area from the LCP was divided along the parcel boundaries between Shoreview Avenue and Paloma Avenue for two reasons. First, the backshore armoring infrastructure changes at this location from private to public. North of the divide, private homes are armored by rock revetments and gunnite covering the bluff face. South of the divide, a public walkway and Beach Boulevard runs along the bluff top which is protected by a seawall and fronting rock revetment. Secondly, flooding at the Sharp Park Golf Course (SPGC) affects residences surrounding the course. ESA and the City recognize this direct linkage and that any shoreline management strategies taken for SPGC will have implications for the neighborhood north of and adjacent to the golf course. Thus, the southern portion of West Sharp Park sub-area was combined with the Sharp Park sub-area in order to more clearly discuss existing conditions, evaluate vulnerability and develop adaptation strategies that account for this flooding linkage. The Sharp Park sub-area is discussed in the following section.

Northwest Sharp Park sub-area includes approximately 2,800 feet of shoreline from the south end of the San Francisco RV Resort to the north end of the Beach Boulevard seawall. The shoreline is almost entirely covered with rock or rubble; the beach is currently very narrow at the north end and disappears in front of the armored homes along Shoreview Avenue. Bluff top land use includes industrial, commercial, and residential uses. One of the residential uses includes The Cottages at Seaside (previously known as the Pacific Skies Estates mobile home park). The backshore is about 90 percent armored in this sub-area, owing to gaps in rubble along the northern bluffs. A damaged stormwater outfall is located at the north end of this sub-area (Figure 13). Along these areas of industrial use, scattered rubble and landfill material resulting from erosion of the bluff is present along the bluff toe. A rock revetment was built since 2010 along the private property situated in Industrial North Palmetto. The coastal armor at The Cottages at Seaside consists of rock, concrete piles and gunnite. Various rock revetments and gunnite cover the bluff along the Shoreview Avenue residences. New rock was observed on December 19, 2017 in and around the bluff notch at the south end of Shoreview Avenue. The new rock was placed in front of homes and the City stormwater outfall. The FEMA BFE in this sub-area is 32 feet NAVD, compared to bluff elevations of 34 to 68 feet NAVD.



SOURCE: J. Jackson 20 Dec 2017

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Figure 13 Damaged stormwater outfall in foreground, landfill and eroded rubble on narrow beach beyond

The bluffs in this sub-area between the RV park and 5th Ave. are partially armored and actively eroding elsewhere. There is a narrow beach in this area that provides limited habitat for beach invertebrates such as crabs, as well as foraging and roosting habitat for gulls and shorebirds. From 5th to the Shoreview neighborhood, a

robust rip-rap revetment (similar to that of the southernmost Manor segment) armors the bluff toe, with little to no beach seaward of the revetment.

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Sharp Park, West Fairway Park and Mori Point

SOURCE: Adelman & Adelman 2013

Figure 14 Sharp Park, West Fairway Park and Mori Point Sub-area CA Coastal Records Photos



SOURCE: Adelman & Adelman 2013

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Figure 15 Sharp Park, West Fairway Park and Mori Point Sub-area, continued CA Coastal Records Photos

The Sharp Park, West Fairway Park and Mori Point sub-area (Figure 14 and Figure 15, Appendix A-4) includes land west of Highway 1 and contains the Palmetto Ave business district, Beach Boulevard Promenade, Fishing Pier, multiple City-owned parcels and landmarks, the Sharp Park Golf Course, West Sharp Park and West Fairway Park neighborhoods and Mori Point. Land use is diverse in this sub-area and includes residential, commercial, auto services, office, mixed use, industrial, church, public and community uses, parks, some vacant/undeveloped parcels and beach.

The draft LCP defined the "Sharp Park Golf Course, West Fairway Park and Mori Point" sub-area containing the named areas with the northern boundary along Clarendon Rd and Lakeside Ave, while the draft LCP sub-area "West Sharp Park" continues north and contains the business district and neighborhoods that can be affected by flooding at Sharp Park Golf Course (SPGC). In order to represent the flooding connectivity of the lower Sharp Park neighborhood with the SPGC, the "West Sharp Park" sub-area was split in two (as described for Northwest Sharp Park above). The southern portion of the "West Sharp Park" sub-area was added to the "Sharp Park Golf Course, West Fairway Park and Mori Point" sub-area to create a hybrid sub-area for this study so that any adaptation alternatives that address hazards along the SPGC would also be assessed for the effects the alternatives may have on the community north of the SPGC.

The shoreline in this sub-area is comprised of rip rap at the north end along the Beach Boulevard seawall, coarse grained sand from the pier to Mori Point, and exposed wave-cut platforms in bedrock around Mori Point. At the north end of this sub-area, the backshore consists of the Beach Boulevard seawall and fronting rock revetment that extend south of the Pacifica Pier and terminates north of Clarendon Avenue. The seawall elevation ranges from 25 to 31 feet NAVD north of the pier and 22 to 24 feet NAVD south of the pier. The seawall protects the pedestrian walkway, road and residential properties from its northern terminus to Montecito Avenue. South of Montecito Avenue there is open space and parking between the seawall/walkway and development that includes City owned and private parcels. The beach is mostly absent along northern Beach Boulevard (north of the pier), and emerges south of the Pacifica Fishing Pier and widens with distance south. This broader beach provides relatively larger areas of habitat for invertebrates, shorebirds, and gulls. Multiple stormwater outfalls exist south of the pier. Current coastal hazards along the Beach Boulevard seawall include erosion, wave run-up and overtopping (as seen in Figure 2 and Figure 3 and reported in Figure 4). While the updated FEMA maps depict limited wave overtopping of the seawall, overtopping has been observed to reach as far as the residences landward of Beach Boulevard. A portion of the seawall north of the pier was recently repaired after storm damage in 2016. Beyond the south end of the seawall, the City currently manages a sand berm to limit wave run-up and overtopping at the end of Clarendon Ave. The City also has a portable pump station deployed along Clarendon Rd to pump stormwater from swales out Clarendon Road and over the beach berm to the ocean (Figure 16).



SOURCE: B. Battalio

Figure 16 Portable stormwater pump station at Clarendon Road and Lakeside Avenue (1/9/2018)

South of Clarendon, the backshore consists of an earthen berm levee that spans south to the headlands of Mori Point (Figure 14 and Figure 15). The levee was built in the 1980s to protect the Sharp Park Golf Course. The fronting beach is approximately 200 feet wide with sparse vegetation along the back of beach. Approximately 1,150 feet of the northern portion of the levee are covered with rock, while the southern approximately 250 feet are armored by a revetment where the drainage outfall is located. The levee elevation ranges from 28 to 31 feet NAVD and is managed the City of San Francisco. The CA Coastal Commission recently approved Coastal Development Permit 2-17-0702 that authorized these after the fact amendments to the berm levee and authorizes armoring of the remainder of the berm. Behind the levee sits Sharp Park Golf Course and Laguna Salada, which drains a 1,200-acre watershed. A pump station is used to manage the water level in Laguna Salada. The pumping

is restricted to maintain minimum water levels in order to protect habitat in Laguna Salada. Flooding of the golf course and adjacent public and private property can result during rain events (ESA PWA et al 2011).

At Laguna Salada (Sharp Park Golf Course), the marine terrace slopes below sea level, creating a broad coastal lowland and valley gradient associated with Sanchez Creek. This is the location of a historic barrier beach and backbarrier lagoon wetland complex (Laguna Salada), formed by impoundment of freshwater runoff from the local watershed, and intermittent marine overwash, establishing a fresh-brackish non-tidal wetland gradient (ESA-PWA 2010). Laguna Salada is the only one of the three historic lagoon ecosystems of the San Francisco Peninsula (Lake Merced, Laguna Salada, and the former San Pedro Valley lagoon) that retains both extensive native wetland plant communities and hydrologic connections to the Pacific Ocean through its barrier beach.

The beach fronting the SPGC berm (Salada Beach) is a currently steep, coarse-grained, reflective beach that lacks the wide, dissipative medium-fine grained low tide terrace characteristic of Ocean Beach. The relative lack of intertidal space and foraging time restricts its habitat value for migratory shorebirds. The prevalence of coarse sand at the beach surface strongly restricts onshore wind-transport of sand today, and there is no significant foredune or sand shadow deposition along the beach crest or berm. A narrow fringe of mixed native foredune vegetation (mostly beach-bur) and non-native beach and upland weeds (sea-rocket, iceplant) occupies the toe of the erosional earthen berm in remaining exposed segments where rock armor has not been placed. Gulls and ravens are the most frequent birds on the beach, but Caspian terns that forage on fish in the lagoon also occasionally roost on Salada Beach. Marbled godwits, willets are also present on Salada Beach, but in relatively small numbers compared with flatter, wider finer-grained Linda Mar and Ocean Beach-Daly City sandy foreshores.

The modern Laguna Salada is an artificially drained managed pond (water surface elevations normally drawn down to near or below +7.0 ft NAVD due to pump discharge of beach-impounded freshwater inflows), with nearly most storm overwash excluded by an earthen berm constructed along the barrier beach crest. The lagoon wetlands are oligohaline (fresh-brackish, 2-4 parts per thousand salinity) despite flushing of freshwater inflows, due to residual sediment salinity, beach groundwater salt seepage, and evaporation. Most of the remaining unfilled portions of Laguna Salada's historic open water bed is managed (drained) to relatively stable, shallow water depth range that have allowed extensive encroachment of tule and cattail vegetation up to the depth of their flooding tolerance (approximately between 3 to 4 ft mean water depth).

Fresh-brackish emergent nontidal fringing marsh of the lagoon is mostly dominated by native tules (*Schoenoplectus californicus*, with local stands of *S. acutus*) and cattails (native *Typha latifolia*, European T. *angustifolia*), bordered by bulrush and rush (*Schoenoplectus pungens, Juncus lescurii*) and marsh silverweed (*Potentilla anserina*). The same dominant emergent marsh species that fringe the lagoon today were present during the agricultural phase of the lagoon's development, prior to golf course construction (ESA-PWA 2010). The seaward marsh edge grades into coastal scrub and iceplant-dominated vegetation; the landward marsh vegetation edge is routinely mown to the height of turgrass, with which it intergrades. No submerged aquatic vegetation has recently been detected at Laguna Salada, but it formerly supported submersed beds of wigeongrass (*Ruppia maritima*) and sago pondweed (*Stuckenia pectinata*) as recently as mid-20th century.

The mouth of Sanchez Creek discharges to Laguna Salada at the south end (Horse Stable Pond), through a dense willow riparian thicket (*Salix lasiolepis*). Local brackish marsh (pickleweed, *Sarcocornia pacifica*; saltgrass, *Distichlis spicata*; and fleshy jaumea, *Jaumea carnosa*) occurs along the seaward edge of an old sandy washover

fan a the central western shore of the lagoon, apparently influenced by seasonal beach groundwater seepage that also causes intermittent salt efflorescence and turfgrass dieback behind the berm (ESA-PWA 2010).

The eastern fringing marsh, Horse Stable Pond, and lower Sanchez Creek and riparian wetlands of Laguna Salada support a substantial breeding population of federally listed threatened California red-legged frog (*Rana draytonii*), as well as Sierra chorus/Pacific tree frog (*Pseudacris sierra*). The federally listed endangered San Francisco garter snake (*Thamnophis sirtalis tetrataenia*) inhabits the fringing marsh and adjacent upland and riparian habitats of Laguna Salada. The California red-legged frog and San Francisco Garter snake populations extend to a series of artificially constructed freshwater ponds (fringing freshwater marsh and submerged aquatic vegetation) bordering Laguna Salada at the toe of Mori Point slopes, on GGNRA lands. In addition to the California red-legged frog and San Francisco Garter snake supports other special-status species and species of conservation concern, including the northwestern pond turtle (*Clemmys marmorata*), San Francisco forktail damselfly (*Ischnura gemina*), salt marsh common yellowthroat (Geothlypus trichas) and the dusky-footed woodrat (*Neotoma fuscipes*).

The landward end of the Laguna Salada wetland gradient (the freshwater end of the fresh-brackish lagoon wetland gradient) is occupied by an earthen fill of golf course originally constructed in the drained lagoon margins in the 1930s, and still in use. The western end of the lagoon and barrier beach has reverted to wetland and sandy beachdune habitats formed on washover fans that buried former sections of turfgrass. The remnants of the Salada Beach barrier beach (relict washover terrace and low dune mounds) occur behind the earthen berm with patchy boulder armor that serves as a public trail along the beach crest. The washover terrace supports a skeletal "forest" of mostly dead Monterey cypress (*Hesperocyparis macrocarpa*), extensive, dominant iceplant (*Carpobrotus*) mats, and patches of dune grassland (*Elymus mollis*), saltgrass (*Distichlis spicata*), and small amounts of native coastal scrub.

There are currently no data on fish assemblages in Laguna Salada, but threespine stickleback have been observed stranded in the pump outfall pool on the beach. Caspian tern foraging over the remaining open water areas of the lagoon in summer indicates the presence of substantial small forage fish populations. Great egrets, snowy egrets, and great blue herons also forage along marsh edges of the lagoon.

Laguna Salada wetland complex supports the highest concentration of special-status wetland wildlife species on the San Francisco Peninsula coast. The barrier beach and lagoon ecosystem that supports them is inherently subject to coastal geomorphic and fluvial processes (overwash, barrier narrowing and landward transgression/rollover, lagoon fluvial flooding and breaching) associated with shoreline retreat.

Mori Point (GGNRA) is a relatively resistant high rocky headland south of Laguna Salada, capped with nonresistant sediments and weak sandstones. Mori Point coastal habitats include nearshore emergent rocks, rocky intertidal habitats, coastal bluff scrub, and coastal grassland habitats. Seasonal freshwater wetland ponds have been constructed on and eastern plateau to support local foraging habitat for endangered San Francisco Garter Snakes. The coastal bluff grassland at Mori Point supports the largest populations of Nuttall's milkvetch (*Astragalus nuttallii*) and California saltbush (*Atriplex californica*) on the San Francisco Peninsula. The dynamics of coastal bluff habitats of Mori Point are relatively less sensitive to shoreline retreat processes (compared with Fort Funston and north Pacifica bluffs) because of the relatively resistant bedrock geology at the toe of the bluffs. Localized erosion and slope failure at the north end of Mori Point's unconsolidated sandy headland, however, appears to be related to the recurrent winter saturation and streamflow of the Laguna Salada pump outfall, which forms a backbeach channel that often deflects south against the bluff toe.

Rockaway Beach, Quarry and Headlands



SOURCE: Adelman & Adelman 2013

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Figure 17 Rockaway Beach, Quarry and Headlands Sub-area CA Coastal Records Photos

This sub-area includes the vacant quarry site, Rockaway Beach, and Rockaway Headlands (Figure 17, Appendix A-5). Land use includes hotels, mixed use, commercial, residential, office, public and community use, and beach. There are a few city-owned parcels in Rockaway Beach as well as the Calera Creek open space and land which houses the Calera Creek Water Recycling Plant located at the northeast end of the quarry site. The creek drains to the north end of Rockaway Beach; the 100-year floodplain is contained within the existing riparian corridor. South of the creek mouth, the backshore is armored with rock revetment and ranges from 20 to 22 feet NAVD with hotels and a restaurant situated 40 to 80 feet from the revetment. Of the 1,800 feet of shoreline at Rockaway Beach, 1,000 feet are backed by armoring structures that protect these commercial/hotel structures, parking, Rockaway Beach Avenue, promenade and pedestrian trail. South of the armored development, a small creek daylights from under the highway and flows onto the wider public beach which has parking and restrooms located at the landward side of the low terrace. There are two beach access points in this sub-area: one at the parking lot just south of Calera Creek mouth, and the other at Rockaway Beach.



SOURCE: J. Jackson 30 Nov 2017

Pacifica LCP 170663

Figure 18 Wave overtopping south at Sea Breeze Hotel parking lot (top) and at Rockaway Beach Ave and promenade (bottom)

The backshore of Rockaway Beach ranges from 21 to 24 feet NAVD and is exposed to coastal flooding via wave run-up and overtopping of the backshore (Figure 18). The FEMA VE-zone coastal BFEs along the backshore of Rockaway Beach are generally 24 feet NAVD at the north and south ends of the beach and 32 feet NAVD within the parking lot in front of the Sea Breeze motel (100 Rockaway Beach Avenue). The BFE is 49 feet NAVD

seaward of the revetment protecting Sea Breeze motel. It is not clear why this VE-zone steps down so dramatically landward of the rock revetment. The FEMA maps show overtopping of the backshore. In January of 2017, severe wave overtopping broke through the windows and damaged the building interior of Moonraker Restaurant (105 Rockaway Beach Avenue), shown bottom right photo of Figure 18 above. The Headlands (Figure 17), south of Rockaway Beach, is an undeveloped promontory that separates Rockaway Beach from Pacifica State Beach further south and is crossed by a scenic trail. Along these high bluffs, the FEMA BFEs are around 20 to 24 feet NAVD.

South of the Rockaway Quarry, Calera Creek forms a local freshwater marsh behind its narrow boulder-choked outlet to Rockaway Beach. The marsh is supplied with perennial freshwater discharges of treated wastewater. Red-sided garter snakes and San Francisco Garter snakes both occur along the marsh edge and adjacent uplands. The freshwater marsh is dominated by California tule (*Schoenoplectus californicus*), with chairmaker bulrush (*S. americanus*) and small-fruited bulrush (*Scirpus microcarpus*) and broadleaf cattail (*Typha latifolia*) abundant along the shallower edges. Horned pondweed (*Zannichellia palustris*) occurs locally in the bed of the creek. Mallard ducks frequently forage in the marsh, and the presence of ducklings some years suggests that breeding habitat is likely to recur.

Rockaway Beach is a steep, reflective, coarse-grained pocket beach between Mori Point and Rockaway Head. Like Salada Beach, it lacks a broad low tide terrace, but shorebird foraging habitat does occur, particularly in association with headland wave-sheltered extreme ends of the beach. The central portion of the beach in front of the parking lot is armored, and at high tide there is no beach exposed seaward of this revetment.

Rockaway Head is another relatively erosion-resistant headland like Mori Point, but its north-facing slope supports a well-preserved local ancient dune deposit with dune scrub remnants similar to those of Fort Funston and North Pacifica blufftop dunes. The mesa-like top of Rockaway Head also supports native species-rich coastal grassland remnants on sandstone, including an atypical and uncommon coastal bluff population of an annual paintbrush (*Castilleja densiflora*), and extensive Wight's paintbrush (*C. wightii*). Rockaway Head, like Mori Point, is similarly relatively resistant to erosional shoreline retreat compared with the soft sandy sediments of North Pacifica bluffs. The rocky intertidal zone of Rockaway Head supports intertidal and shallow subtidal surfgrass meadows (*Phyllospadix sp.*) at the extreme north end of Pacifica State Beach, similar to the meadows at the south end of the beach.

Pacifica State Beach



SOURCE: Adelman & Adelman 2013

Pacifica LCP 170663

Figure 19 Pacifica State Beach Sub-Area CA Coastal Records Photos

This sub-area spans from the northeast end of Pacifica State Beach to the mouth of San Pedro Creek and includes land west of Highway 1 North (Figure 19, Appendix A-6). Land use is mostly beach, with public use at both parking lots and commercial use at the Taco Bell (5200 Coast Highway). The beach is currently 100 to 250 feet wide. The backshore is mostly comprised of low vegetated dunes habitat in the middle and north portions, while a low seawall fronts the northern pump station and parking lot at the southwest end of the sub-area. The backshore in this sub-area is approximately 15 percent armored.

FEMA coastal BFEs in this sub-area range from 17 feet NAVD at San Pedro Creek mouth to 20 feet NAVD at the north end of the beach. The beach, scenic trail, restaurant and north pump station are within the existing 100-year FEMA V-zone (high velocity zone). Current City management indicates that Pacifica State Beach is a valuable asset to the local community and visitors alike.

The condition of the southern beach shows what is possible when applying a managed retreat strategy for shoreline adaptation. A managed retreat project was implemented by the City of Pacifica in 2005⁴. The project removed built assets and fill that encroached onto the State Beach managed by the City of Pacifica. The project was funded primarily by the State of California from a variety of sources, and was coordinated by the San Pedro Creek enhancement project supported by the US Army Corps of Engineers.

Pacifica State Beach is a fringing pocket beach in the head of a shallow embayment formed between two headlands, Pedro Point and Rockaway Head. It was formerly a barrier beach enclosing a lagoon wetland complex and floodplain of San Pedro Valley, now filled and urbanized except along the channelized creek. Pacifica State Beach varies from medium-fine to coarse grained sand, forming a distinct berm profile with a relatively steep beachface. A cobble-boulder storm berm underlies the south end of the beach, exposed as a lag surface following storms, and locally in the intertidal erosional "delta" of the San Pedro Creek mouth. Natural boulder lag armor occupies the lower foreshore of the beach at the extreme south end, bordering the headland bluffs and rocky shore. An intertidal and shallow subtidal surfgrass meadow (*Phyllospadix sp.*) occupies the boulder lag foreshore, which is occasionally subject to partial burial by beach sand. Pacifica State Beach supports shorebird foraging and resting habitat. Western snowy plovers winter in the flat, back beach areas that experience low pedestrian use.

The mouth of San Pedro Creek Lagoon forms a small freshwater lagoon and marsh where artificial beach fill has been removed as part of a floodplain and creek restoration project by USACE⁵. The lagoon wetland complex is dominated by California tule (*Schoenoplectus californicus*) and broadleaf cattail (*Typha latifolia*), with shallower edges bordering the creek channel dominated by salt-intolerant species such as small-fruited sedge (*Scirpus microcarpus*) and water-parsley (*Oenanthe sarmentosa*). Fresh-brackish tolerant emergent marsh vegetation occupies the storm overwash zone on cobble and sand substrates, including salt rush (*Juncus lescurii*), bentgrass (*Agrostis stolonifera*) and wildryes (*Elymus triticoides, E. x vancouveriensis, E. mollis*). Salt spray-flagged willow (*Salix lasiolepis*) borders landward portions of the marsh.

No data on California red-legged frogs populations are currently available for the local lagoon, but they are present in a tributary drainage along San Pedro Road, and in the San Pedro Creek watershed upstream; they are presumed to be present in suitable habitats within the lagoon wetland complex. Tree frogs occupy the lagoon wetlands. Juvenile and adult red-sided garter snakes are present in at least upland habitats (gopher burrows) around the creek mouth and lagoon wetlands. Steelhead (federally listed threatened) are present in the stream channel mouth at least seasonally as migrants and kelts. Mallards and coots are frequently present in the shallow backbeach lagoon channel. Great egrets, snowy egrets, and great blue herons also forage along marsh edges of the lagoon and stream channel.

⁴ Kershner, J. (2010). Restoration and Managed Retreat of Pacifica State Beach [Case study on a project of ESA PWA]. Product of EcoAdapt's State of Adaptation Program. Retrieved from CAKE: http://www.cakex.org/case-studies/restoration-and-managed-retreatpacifi... (Last updated December 2010) http://www.cakex.org/case-studies/restoration-and-managed-retreatpacifica-state-beach Last visited December 2016.

⁵ USACE project information can be found here: http://www.spn.usace.army.mil/Missions/Projects-and-Programs/Projects-by-Category/Projects-for-Flood-Risk-Management/San-Pedro-Creek-Pacifica-Sec-205/

West Linda Mar



SOURCE: Adelman & Adelman 2013



The West Linda Mar sub-area (Figure 20, Appendix A-7) is landward of Pacifica State Beach and reaches as far inland as the Linda Mar Blvd Fire Station and Oddstad City Park (1053 Crespi Drive). This study focuses primarily on the area west of Peralta Road as it is the most vulnerable to flooding. Land use in the area includes residential, commercial, industrial, public use, school, auto services, and hotel. The area includes the Pacifica Community Center and City-owned parcels, the Linda Mar Shopping Center and Crespi Center (580 Crespi Drive). The sub-area is not included within the coastal zone as defined in the City's LCP, but is included in this study because future conditions may further expose the neighborhood and commercial areas to flooding from both fluvial and coastal sources.

The sub-area does not currently experience direct coastal flooding, but it is low-lying and subject to local rainfall ponding as well as flooding from San Pedro Creek (Appendix A-7). The Linda Mar Shopping Center and auto services, Crespi Center, Pacifica Community Center (including the skate park and wet weather equalization basin (under construction)) and portions of the neighborhood are within the 100-year floodplain of San Pedro Creek. While not directly connected to the coastal flood source, high ocean water levels (extreme tides, storm surge or sea level rise) that occur during a rainfall event could increase flooding extents in the area. The low area was historically a lagoon subsequently filled for agriculture and then housing (ESA PWA, RSM, 2015).

Pedro Point and Shelter Cove



SOURCE: Adelman & Adelman 2013

Pacifica LCP 170663

Figure 21 Pedro Point and Shelter Cove Sub-area CA Coastal Records Photos

The Pedro Point and Shelter Cove sub-area is the southernmost in Pacifica (Figure 21, Appendix A-8), is comprised of residential, mixed use and vacant lands, office, mixed use and commercial use (including Pedro Point Shopping Center), as well as parks (most of which are south of Pedro Point outside of Pacifica City limits). The shoreline in this sub-area stretches west from San Pedro Creek out around Pedro Point and includes Shelter Cove. The backshore is low adjacent to the creek with a few homes built seaward of the former Ocean Shore Railroad berm, two of which have boat ramps into the ocean. These homes are within the 100-year coastal flood zone and subject to wave run-up. Most of the homes have been fortified with timber sea walls. The coastal BFE in this area is 17 feet NAVD, while the beach home parcels are as low as 14 feet.

Behind the beach homes and berm are the Pedro Point shopping center and an undeveloped, privately owned site (315 San Pedro Avenue) which is as low as 14 feet NAVD. Rainfall runoff that enters the undeveloped site flows through an open ditch and discharges through a flap gate near the mouth of San Pedro Creek. West of the beach homes, the previous railway berm and road to Shelter Cove rises up the bluff to over 50 feet NAVD. A 500-foot section of the road failed in 1983, rendering Shelter Cove inaccessible by motor vehicles. Upslope of the road, homes are built into the steep hillside.
The Shelter Cove community consists of a cluster of houses on a single parcel. The homes are fronted by a narrow beach and low dunes. Most of the homes are within the VE-zone of the 100-year coastal floodplain. A wooden seawall is built in front of the northernmost homes. Due to restricted vehicular access and limited utilities, the City considers Shelter Cove an at-risk community. The FEMA coastal BFE is 26 feet NAVD in the hazard zone encompassing most homes along the cove.

2.DATA COLLECTION

This study seeks to maintain consistency with the San Mateo County SeaChange Study (SMC 2017) while also following the latest state guidance on SLR for coastal planning and applying methods needed to conduct the adaptation plan. SLR scenarios were selected that reflect the County study while adhering to updated state guidance on SLR. Existing hazard data mapping products were reviewed and specific hazard maps were chosen from each data source that best represent the selected SLR scenarios. ESA relied on many of the same data sources used in the County work and added a number of additional local asset datasets that were available.

2.1. Sea Level Rise

Detailed information on past and current state guidance on SLR are discussed in a memorandum prepared for the City titled "Future Conditions Scenarios for Pacifica LCP Update" (ESA 2017a). The planning horizons and sea level rise scenarios selected for this study are discussed below.

Planning Horizons

The planning horizons proposed for this project are 2050 and 2100, selected to be consistent with SLR policy guidance documents. The SeaChange study did not consider timeframes for impacts from SLR, but it is necessary to develop adaptation alternatives and to determine the economic implications of each. The 2050 and 2100 planning horizons are recommended so that decisions about land use can be matched to the timeframe for project lifespans and to facilitate the identification of triggers for adaptation measures. These planning horizons (years) determine the amounts of SLR that are applied to assess vulnerability to coastal flooding hazards and the timeframes over which coastal erosion hazards and consequent impacts are evaluated.

Future Projections for Sea-level Rise

Amounts of SLR were selected for the study planning horizons (2050 and 2100) following updated State guidance (CalNRA & OPC 2017). For any given year (planning horizon), State guidance recommends analyzing a range of SLR projections:

Because future projections of sea-level rise along California's coastline are uncertain (due to uncertainty associated with modeling and the trajectory of global emissions), it is critical to consider a range of projections to understand the consequences of various decisions, determine the tolerance for risk associated with those decisions, and to inform adaptation strategies necessary to prepare for change in the face of uncertainty.

In general, decision makers may have a higher tolerance for risk (or lower risk aversion) when considering projects with a shorter lifespan, minimal consequences, flexibility to adapt, or low economic burden as a result of sea-level rise. However, for longer lasting projects with less adaptive capacity and medium to high consequences should sea-level rise be underestimated, we suggest that decision makers take the more precautionary, more risk-averse approach of using the medium-high sea-level rise projections across the range of emissions scenarios. We further recommend incorporating the extreme scenario in planning and adaptation strategies for projects that could result in threats to public health and safety, natural resources and critical infrastructure.

A total of six SLR amounts were selected, including existing conditions (2018: no SLR), to perform the Vulnerability Assessment and subsequent adaptation plan. The SLR amounts are selected from the staterecommended projections:

- Low SLR projection for low risk aversion projects (17% chance SLR projection is meet or exceeded), • for example,
- Medium-High SLR projection for high risk aversion projects (0.5% or 1 in 200 chance that SLR • projection is meet or exceeded)
- Extreme SLR projection for extreme risk aversion projects (probability n/a) •

Values for 2100 were selected within the range of low and high emissions. Table 1 below presents the future SLR amounts based on the State-recommended projections. Background and additional information on SLR can be found in (ESA 2017).

Table 1 Proposed future Sea level rise (SLR) amounts for various scenarios with associated probability of occurrence (CalNRA & OPC 2017)

Year	Low (17% chance)	Med-High (0.5 % chance)	Extreme (n/a)*
2050	1 ft	2 ft	2.7 ft
2100	3 ft	6 ft	10 ft

* The 2050 Extreme SLR scenario was not examined and is only provided for consistency. SLR of 6 ft at 2075 shall be considered in place of 10 ft at 2100 to assess potential impacts under the Extreme scenario. This is required because of the lack of erosion and flooding data for 10 ft of SLR.

2.2. Coastal Flooding and Erosion

Consistent with the County study, existing and future coastal flooding was evaluated using the OCOF hazard mapping products, while future coastal erosion was evaluated using the Pacific Institute (PI) erosion maps. We will also utilize methods used in the Draft San Francisco Coastal Regional Sediment Management Plan (CRSMP) (ESA 2015) to enable the analysis of alternative adaptation options in the next task of this project. Table 2 presents the SLR amounts assumed for each hazard data source for comparison against the State-recommended values in the updated guidance document. Ranges shown for the data sources correspond to low and high SLR scenarios considered (PI and OCOF). Because this study is limited to the application of existing hazard data sources, SLR amounts assumed in these data sources do not exactly match the State-recommended SLR amounts, but are reasonably close given the uncertainty of SLR modeling and emissions scenarios.

Comp	Comparison of SLR amounts assumed for guidance update and input data sources										
Year	State-guidance	PI erosion SI R amount	CRSMP erosion	OCOF flood hazard							
2050	1 and 2 ft	1.4 and 1.5 ft	1.6 ft	0.8 and 1.6 ft							
2100	3, 6 and 10* ft	3.3 and 4.6 ft	5 ft	3.3 and 5.7 ft							

Table 2

*We will analyze SLR of 6 ft at 2075 in place of 10 ft at 2100 to assess flooding impacts associated with this extreme SLR scenario. This is required because of the lack of erosion and flooding data for 10 ft of SLR.

The "PI erosion SLR amount" corresponds to SLR amounts assumed in the Pacific Institute study (PWA 2009). The "CRSMP erosion SLR amount" corresponds to the SLR amounts associated with the erosion hazard data that will be used to assess vulnerabilities for various adaptation alternatives. The "OCOF flood hazard SLR amount" corresponds to the amount of SLR assumed by OCOF data used to evaluate flooding impacts. Because the OCOF hazard data was developed for SLR increments of 25 cm, it is necessary to consider these slightly different SLR amounts in order to assess flooding impacts. In order to assess flooding impacts associated with the extreme SLR scenario of 10 feet at 2100, we apply the 6 feet OCOF flood hazards at 2075, which is when this SLR is reached under the extreme scenario.

Fluvial Flood Source

While CoSMoS flood mapping products do not include fluvial sources of flooding in Pacifica, it is important to consider these sources in the vulnerability assessment. Flooding from river sources is already a significant problem for two areas in Pacifica, as depicted in the existing FEMA flood hazard zones in Appendix A-4. San Pedro Creek is prone to flooding the Linda Mar neighborhood. Sanchez Creek drains into Laguna Salada, which can lead to flooding of the Sharp Park Golf Course and adjacent neighborhoods. Higher sea levels will exacerbate flooding in the lower portions of these creeks. Detailed hydraulic modeling to determine the effects of SLR on fluvial systems is outside the scope of work, so a simplified approach was taken to evaluate fluvial flooding potential for these two creeks. ESA reviewed available studies and FEMA maps to determine the baseline flooding potential for a 100-year event within each creek.

As mentioned in Section 1.3, current FEMA maps for Sanchez Creek were created before the levee was constructed and are out of date. A study by Kamman Hydrology & Engineering (KHE 2009) established the peak 100-year flooding elevation within Laguna Salada to be 15 feet NAVD which assumed an initial water surface elevation of 6.8 feet NAVD (this elevation must be maintained for habitat function). To determine future peak flood levels with SLR, ESA first determined the volume corresponding to the peak flood level reached. For future conditions, the initial water surface was lifted with SLR and the 100-year peak volume was redistributed in the basin to determine the future peak flood levels. These updated existing and simplified future fluvial flood elevations were mapped within the Laguna Salada basin and added to the storm flooding layers from OCOF. For San Pedro Creek, which drains through Linda Mar, a similar approach was used. ESA determined the volume associated with the FEMA mapped ponded flooding, increased the flood level by raising the minimum terrain elevation with SLR and redistributed the ponded volume to determine the future flood levels. In both creek systems, the coastal flooding source becomes dominant with SLR greater than 3.3 feet. Table 3 lists the flooding elevations determined and mapped for each creek system for both medium and high SLR projections. Flood levels did not change significantly with 2050 SLR in San Pedro Creek due to the basin's geometry.

	Sanchez Creel	k (Sharp Park)	San Pedro Creek (Linda Mar)					
Year	Med SLR	High SLR	Med SLR	High SLR				
Existing	15 ft	15 ft	14 ft	14 ft				
2050	15.2 ft	15.5 ft	14 ft	14 ft				
2100	16 ft	17.6 ft	14.1 ft	15.0 ft				

Table 3
Flood elevations for 100-year fluvial flood source for two Pacifica systems

2.3. Assets

Asset data was collected from a number of sources including the City of Pacifica, San Mateo County (SeaChange study), local utilities, Caltrans, CA Energy Commission, US Fish and Wildlife Service, SF Draft CRSMP and others. The City of Pacifica has assets in the following categories that are currently or may become vulnerable to flooding and erosion due to SLR.

Built Assets

- Residential buildings
- Hotels, Offices
- Commercial buildings
- Industrial facilities
- City-owned buildings
- Buildings with affordable rental units
- Schools and Churches
- Senior centers
- Mobile home parks
- Emergency shelter sites

Natural Assets

- Beaches
- Streams
- · Surfgrass habitat

Access and Recreation

- Vertical access to shore
- Lateral access to shore
- Viewpoints*
- Bluff top or promenade*

- Fire stations
- Police station
- Communications towers
- Hazardous material sites
- Health care facilities
- · Highway bridges
- Highways
- Levees and floodwalls
- Natural gas pipelines
- Shoreline protection devices
- Closed landfill
- Steelhead habitat
- Red-legged frog habitat
- SF garter snake habitat*
- Fishing pier
- Parks
- Trails
- Surfing areas*

- Community Services
- Roads (local)
- Storm drains
- Stormwater pump stations Outfalls
- Transmission lines
- Underground chemical storage tanks
- Wastewater pump stations
- Wastewater treatment plant
- Water distribution pipelines
- Wetlands
- Marine (whale migration)*
- Western Snowy Plover*
- Golf course
- Parking, restrooms and
 - other recreational facilities*
- Beaches

*Asterisk indicates GIS data for assets were not obtained for the study.

Data were reviewed with City asset managers for completeness and accuracy at an asset inventory meeting on 11/28/2017. More details on asset data collection can be found in a memo to the City: Revised Asset Inventory Memo for Pacifica LCP Update (ESA 2018). Additionally, feedback received during the public comment period of the Draft Vulnerability Assessment (January 12, 2018 to March 14, 2018) is incorporated into this Final Vulnerability Assessment; comments and responses are provided in Appendix E.

Data Gaps

While a large amount of asset data has been collected for the City of Pacifica, there remains a number of data gaps that shall be noted.

AT&T communications – AT&T provided electronic maps of their communications network, but not the underlying GIS data So they are not included in the assessment. Comcast infrastructure is included.

Natural gas and electricity – PG&E does not share data on their infrastructure network and remains a data gap in this assessment.

Public Access and Recreation –ESA has obtained data for parks areas, the golf course, and the fishing pier. Other recreational uses exist in Pacifica, including surfing, hang gliding, dog walking, though spatial data do not exist for these uses and cannot be explicitly included in the assessment. Additionally, spatial data on public restrooms, parking, showers, and other recreational amenities in the City do not exist.

Natural assets – ESA collected information on shoreline habitats, wetlands, and streams from the County study (SMC 2017) and the National Wetlands Inventory managed by USFWS. Critical habitat was obtained from the USFWS ECOS database, and included steelhead habitat in San Pedro Creek and CA red legged frog habitat outside of the coastal zone. It is our understanding that CA red-legged frog habitat exists in the Sharp Park golf course, but this is missing from the database. Also missing from the ECOS database is CA garter snake habitat. Where geospatial data are not available for natural assets, vulnerabilities are discussed qualitatively.

3.VULNERABILITY ASSESSMENT

This vulnerability assessment tabulates the exposure of assets to the flooding and erosion hazard scenarios under all six sea level rise scenarios chosen in this study (Table 1), including existing sea level. Consistent with the San Mateo County Sea Change project, asset exposures are grouped according to the following categories:

- Land Use (residential, commercial, etc.)
- Ecosystem
- Recreation
- Transportation
- Community
- Emergency Response
- Communication
- Water Distribution
- Hazardous Materials
- Stormwater
- Wastewater
- Coastal Structures

This vulnerability assessment focuses on asset exposures to flooding and erosion hazards while consequences are briefly discussed. Economic consequences (costs and benefits) will be further explored for various adaptation strategies in the Adaptation Plan.

3.1. Hazard Exposure Methodology

The sections below report hazard exposures for four groups: long-term erosion, long-term tidal inundation, storm wave damages and storm flooding. Long-term erosion includes both shoreline and bluff erosion. Long-term inundation is based on the OCOF SLR hazard layers that depict areas that are inundated by regular high tides. Storm wave impacts are based on the OCOF maximum inland wave run-up points for a 100-year storm that were generated along the shore at regularly spaced transects (points were interpolated along the shore to create polygons and manually edited for anomalies around headlands as needed). Storm flooding is based on the OCOF SLR hazard flooding layers that include a 100-year coastal storm as well as potential flooding extents from the fluvial sources for San Pedro Creek and Sanchez Creek (discussed in Section 2.2). These four hazards represent decreasing severity:

- Areas subject to long-term erosion would be lost entirely (employs Pacific Institute erosion layers)
- Areas experiencing long-term tidal inundation would be regularly flooded by high tides. (employs CoSMoS inundation maps)
- Areas experiencing storm wave damages are likely damaged but could be recoverable. (employs CoSMoS wave run-up maps)
- Areas experiencing storm flooding are likely to return to service when floodwaters recede. (employs CoSMoS flooding maps)

Note that erosion impacts derived from the Pacific Institute do not account for existing coastal armoring structures, and are used to identify vulnerabilities under a worst case scenario. During the adaptation alternatives analysis of this work, vulnerabilities to erosion will be assessed using updated hazard maps that include cases with coastal armoring structures.

Coastal inundation and flooding hazards derived from the OCOF mapping products are shown in Figure 22. The figure depicts the various types of flooding hazards used in this study assuming existing conditions (future SLR would increase the elevation and extents of these hazards). The dark blue ocean level represents the regular high tide elevation, which simply raises with SLR. The teal ocean level represents areas that are flooded during a 100-year storm. SLR will increase the elevation and inland extents of coastal storm flooding, especially in areas with a low backshore (such as Sharp Park, Pacifica State Beach and Linda Mar). The red line represents the maximum wave run-up zone (similar to FEMA V-zones, discussed in Section 1.3) where water velocities are great enough to knock over people, move cars and damage buildings etc. Figure 22 shows an example of low lying areas near the coast that are prone to flooding from wave overtopping and fluvial sources (see Section 2.2). Depending on ground elevations and wave exposure, these low areas may become directly connected to the ocean during storms with SLR. Note that OCOF/CoSMoS modeling for this area does not incorporate the long-term erosion of shorelines and bluffs the same way that CoSMoS 3.0 does for southern California and thus the flood layers may underestimate flood exposure.



Schematic of OCOF Coastal Inundation and Storm Flooding Impacts

In addition to the tables summarizing the intersection of the hazard and asset layers, planners may also choose to review this study's hazard and asset layers using GIS software. Within the GIS environment, planners can select their area(s) of interest along the City's coastline, choose an appropriate viewing scale, and add other information, such as an aerial photograph as a basemap. The GIS files have been transmitted to the City and are also hosted by ESA on a webmapper⁶ for the public to review and explore.

To assess the vulnerability of the City's assets, the assets in different categories were identified and intersected with each hazard layer. Point assets in each hazard zone are counted, linear assets (like roads and pipelines) are measured by feet, and planar assets (like ecosystem areas, land use types) are measured by acre. These results are reported in tables in the following sections.

 $^{^{6}}$ A link to the asset exposure webmapper is on the City's SLR webpage: http://www.cityofpacifica.org/depts/planning/sea_level_rise.asp

3.2. Regional and City-wide Asset Vulnerabilities

While asset exposures are tabulated per sub-area to facilitate more focused development of adaptation strategies and policies, some exposed assets in Pacifica serve more than one sub-area, as well as the region beyond Pacifica. These assets are summarized here from the individual sub-area vulnerabilities below.

Highway 1

Highway 1 is a critical transportation corridor for Pacifica and other coastal communities further south. Highway 1 is exposed to coastal flooding impacts with 5.7 feet (175 cm) of SLR in the two adjacent sub-areas of Pacifica State Beach and West Linda Mar (Appendix B-5). The highway is also exposed to coastal erosion impacts by 2100 in the West Edgemar and Pacific Manor sub-area and Northwest Sharp Park sub-area (Appendix B-2).

Pacifica sanitary sewer

Given the geography of Pacifica, impacts to certain elements of the sewer system would result in system failure upstream. Sewer pump stations are exposed to flooding and erosion in the Sharp Park, West Fairway Park, and Mori Point sub-area (Appendix B-3). A pump station is exposed to erosion in the Rockaway sub-area (Appendix B-4). Multiple pump stations are exposed to flooding and erosion in the Pacifica State Beach sub-area (Appendix B-5).

Beaches

Residents of Pacifica and beyond rely on the beaches for many recreational uses. Eroding beaches in Pacifica are vulnerable to sea-level rise especially if no action is taken, which will affect beach visitation and associated revenues at businesses and hotels. Beach vulnerabilities are greatest along the northern bluffs of Pacifica that are mostly armored. Pacifica beaches also serve as nesting and wintering habitat for federally listed Western Snowy Plover, and home to other species.

Sensitive species

A number of sensitive species live in Pacifica and can be vulnerable to sea-level rise and are summarized here. The **CA Red-Legged Frog** and **San Francisco Garter Snake** exist around Laguna Salada within the Sharp Park Golf Course (SPGC) and are potentially vulnerable. Laguna Salada has been largely cut off from the coastal flood source and managed into an artificially fresh water system. Sea level rise will lead to an increase in wave overtopping of the SPGC berm will introduce more saltwater into the system (as occurred historically) as will seepage of seawater through the beach. Existing inland/upland habitats are not vulnerable to sea-level rise. The **Western Snowy Plover** depends on beach habitat, where limited at northern bluffs, will diminish without nourishment in armored locations and habitat is expected to be lost without intervention. In other areas that are allowed to naturally migrate and respond to sea-level rise, such as Pacifica State Beach, snowy plover habitat is less vulnerable. **CA Steelhead** use San Pedro Creek, while sea-level rise may have an effect on flooding patterns of San Pedro Creek, access for salmonids is likely not vulnerable to sea-level rise in the near future. With higher amounts of sea-level rise, bed aggradation may occur and may possibly affect spawning habitat in the lowest reaches of the Creek, but a detailed assessment of this potential vulnerability is outside of the study scope.

3.3. Sub-area Asset Vulnerabilities

To be consistent with the organization of the City's draft LCP update, asset vulnerabilities are tallied and presented for each sub-area in Pacifica so that area-specific issues are clearly identified and suitable adaptation alternatives can be developed for each sub-area. Sub-areas are depicted in Figure 1 and described in Section 1.3. Coastal Hazards are depicted for each sub-area in Figure 23 through Figure 30 below. For reference, existing conditions for each sub-area are shown in Appendix A. The following Appendices contain maps showing each sub-area and with assets grouped in the following categories:

Appendix B – **Hazard Mitigation Assets Exposure Maps**. Includes coastal armoring structures, stormwater and wastewater infrastructure, essential/emergency services, and hazardous materials.

Appendix C – **Community and Land Use Asset Exposure Maps**. Includes existing land use, City-owned parcels, landmarks, local streets, utilities, senior centers, affordable rentals and other community assets.

Appendix D – **Public Access, Recreation and Ecology**. Includes parks and trails, public access, habitats, sensitive species.

The multiple data sources for Figure 23 through Figure 30 below include San Mateo County Imagery (2017), Pacific Institute Erosion (2009) and OCOF Coastal Flooding (2014). The sub-area of focus in each figure is highlighted in light teal, compared to the black outlines of other adjacent sub-areas.

Fairmont West



SOURCE: Multiple

Figure 23 Fairmont West Sub-area – Coastal Hazards at 2100 Due to the high bluffs in the Fairmont West sub-area, few assets are exposed to flooding alone (sub-area shown in teal on Figure 23). Asset exposure to coastal erosion and flooding under existing conditions, and for Low Medium-High SLR projections at 2050 (i.e., 1 to 2 feet of projected future sea level rise) and 2100 (i.e., 3 to 6 feet of projected future sea level rise) are reported in Table 4. Asset exposures under Extreme SLR scenario can be estimated at 2075 using the exposures under Med-High SLR at 2100. Coastal flooding and erosion exposure to coastal armoring structures, stormwater and wastewater infrastructure, essential/emergency services, and hazardous materials are shown in Appendix B-1. Exposure to existing land use, City-owned parcels, landmarks, local streets, utilities, senior centers, affordable rentals and other community assets are shown in Appendix C-1. Exposure to parks and trails, coastal access, habitats and sensitive species are shown in Appendix D-1.

Habitats, coastal armoring structures and parcels that extend onto the beach are exposed to coastal flooding under existing conditions. While coastal structures do not appear to be impacted by regular inundation with SLR, this hazard layer does not account for shoreline erosion which can lead to regular impacts to coastal structures. SLR may impact 6 to 10 parcels (open space) to coastal inundation and storm flooding, respectively. Beaches are exposed to flooding and erosion, but natural bluff erosion will help sustain a beach. Wetlands listed in Table 4 account for riverine habitats.

A total of 157 parcels are exposed to coastal erosion by 2100. Land uses include mostly undeveloped, parks, the Dollaradio station (a locally designated historic landmark), as well as single and multi-family residential. A total of 3020 feet of streets and 90 feet of Highway 1 are also exposed by 2100. Wastewater (1690 feet), water (1900 feet) and stormwater (2120 feet) pipelines are exposed by 2100. Both stormwater outfalls are exposed by 2050.

Sub-area Asse	t Exposure Table			Existing Conditions	2 (Pe Exposure Range fr	2050 Exposure Countercent of sub-area to corring and floor and floor in the sub-area to corring and floor and floor and floor sub-area to the sub-area to th	t tal) oding is for Low to	2100 Exposure Count (Percent of sub-area total) Exposure Range for inundation and flooding is for Low to			
Fairmont West	-			(% of Sub-area)	Expositio Hange R	Medium-High SLR		Exposure nange n	Medium-High SLR		
Category	Asset	Units	Total in Sub-area (% of Pacifica)	Storm Flooding	Coastal Erosion	Regular Tidal Inundation	Storm Flooding	Coastal Erosion	Regular Tidal Inundation	Storm Flooding	
Coastal Structures	Armor Structures	feet	264.56 (1.6%)	188.238 (71.2%)	264.56 (100%)	-	188.24-188.24 (71.2% - 71.2%)	264.56 (100%)	-	188.24-188.24 (71.2% - 71.2%)	
Coastal Structures	Levee	feet	0	-	-	-	-	-	-	-	
Communication	Comcast Underground	feet	0	-	-	-	-	-	-	-	
Communication	Conduit	aquint	(0.0%)								
Communication	Towers Filvate	Count	(0.0%)	-	-	-	-	-	-	-	
Community	Affordable Rentals	count	(0.0%)	-	-	-	-	-	-	-	
Community	Communities At Risk	count	(0.0%)	-	-	-	-	-	-	-	
Community	Healthcare Facility	count	0 (0.0%)	-	-	-	-	-	-	-	
Community	Landmarks	count	1 (100%)	-	1 (100%)	-	-	1 (100%)	-	-	
Community	Mobile Home Parks	count	0 (0.0%)	-	-	-	-	-	-	-	
Community	Schools	acres	0	-	-	-	-	-	-	-	
Community	Senior Centers	count	0	-	-	-	-	-	-	-	
Ecosystem	Beaches	acres	(0.0%) 5.496	5.397	5.317	1.40-1.65	5.48-5.47	5.317	2.50-3.79	5.49-5.48	
Ecosystem	CA Red Leg Frog	20103	(9.4%) 0	(98.2%)	(96.7%)	(25.4% - 30.1%)	(99.7% - 99.5%)	(96.7%)	(45.5% - 68.9%)	(99.8% - 99.8%)	
Ecosystem	Habitat	acres	(0.0%)	-	-	-	-	-	-	-	
Ecosystem	Steelhead Habitat	feet	(0.0%)	-	-	-	-	-	-	-	
Ecosystem	Streams	feet	(0.0%)	-	-	-	-	-	-	-	
Ecosystem	Surfgrass	feet	0 (0.0%)	-	-	-	-	-	-	-	
Ecosystem	Wetlands	acres	1.323 (0.6%)	0.039 (3.0%)	0.931 (70.4%)	-	0.09-0.05 (7.1% - 4.0%)	1.182 (89.4%)	-	0.10-0.10 (7.6% - 7.3%)	
Emergency Response	Fire	acres	0 (0.0%)	-	-	-	-	-	-	-	
Emergency	Police	acres	0	-	-	-	-	-	-	-	
Hazardous Waste	Cleanup Sites	COUNT	0	-	-	_	_	_	-	-	
Hazardous Most	Solid Wasta Eacility	COUNT	(0.0%) 0	_	_				_	_	
	Underground Storage	count	(0.0%)	-	-	-	-	-	-	-	
Hazardous Waste	Tanks	count	(0.0%)	-	-	-	-	-	-	-	
Land Use	Auto Services	acres	(0.0%)	-	-	-	-	-	-	-	
Land Use	Beach	acres	0 (0.0%)	-	-	-	-	-	-	-	
Land Use	Commercial	acres	0 (0.0%)	-	-	-	-	-	-	-	
Land Use	Hotels	acres	0 (0.0%)	-	-	-	-	-	-	-	
Land Use	Industrial	acres	0	-	-	-	-	-	-	-	
Land Use	Mixed Use	acres	0	-	_	-	-	_	-	_	
	Mobile Homes	20100	(0.0%)								
		40103	(0.0%) 9.034		-	-	_			_	
Land Use	Multi-Family	acres	(4.9%)	-	-	-	-	-	-	-	
Land Use	Office	acres	(0.0%)	-	-	-	-	-	-	-	
Land Use	Other Open Space	acres	(2.2%)	(35.9%)	-	(20.1% - 21.4%)	(36.4% - 36.2%)	-	(24.9% - 30.4%)	(36.7% - 36.6%)	
Land Use	Other Public or Community Uses	acres	0 (0.0%)	-	-	-	-	-	-	-	
Land Use	Parks & Accessible Open Space	acres	4.892 (0.2%)	-	-	-	-	-	-	-	
Land Use	ROW	acres	0 (0.0%)	-	-	-	-	-	-	-	
Land Use	Schools	acres	0	-	-	-	-	-	-	-	
Land Use	Single Family	acres	27.82	0.107	1.782	-	0.09-0.09	3.955	-	0.09-0.13	
Land Line	Kesidential	20100	(1.6%) 24.934	(0.4%) 4.345	(6.4%) 17.048	0.90-1.03	(U.3% - 0.3%) 4.49-4.54	(14.2%) 21.751	1.49-2.13	(U.3% - 0.5%) 4.44-4.64	
		acies	(2.3%) 113.895	(17.4%)	(68.4%) 32.285	(3.6% - 4.1%) 4.54-4.88	(18.0% - 18.2%) 10.90-10.93	(87.2%) 50.568	(6.0% - 8.5%) 5.93-7.47	(17.8% - 18.6%) 10.90-11.13	
Lands	Pacifica City Limits	acres	(1.4%) 457	(9.4%) 9	(28.3%)	(4.0% - 4.3%) 6.00-6.00	(9.6% - 9.6%) 11.00-10.00	(44.4%) 157	(5.2% - 6.6%) 6.00-6.00	(9.6% - 9.8%) 11.00-11.00	
Lands	Parcels	count	(3.5%)	(2.0%)	(3.5%)	(1.3% - 1.3%)	(2.4% - 2.2%)	(34.4%)	(1.3% - 1.3%)	(2.4% - 2.4%)	
Lands	Parks Conservation	acres	24.878 (0.7%)	8.652 (34.8%)	17.064 (68.6%)	4.05-4.35 (16.3% - 17.5%)	8.75-8.75 (35.2% - 35.2%)	17.809 (71.6%)	5.24-6.50 (21.1% - 26.1%)	8.84-8.88 (35.5% - 35.7%)	
Recreation	Access Lateral	feet	0 (0.0%)	-	-	-	-	-	-	-	
Recreation	Access Vertical	feet	0 (0.0%)	-	-	-	-	-	-	-	
Recreation	Fishing Pier	count	0	-	-	-	-	-	-	-	
Recreation	Parks	acres	5.863	-	-	-	-	-	-	-	
Recreation	Trails	feet	(0.2%) 109.477	-	87.515	_	_	109.477	-	-	
Stormulator	Dinco	fact	(0.1%) 9480.924		(79.9%) 678.543			(100%) 2121.483			
Stomwater	ripes	166((3.2%)	-	(7.2%)	-	-	(22.4%)	-	-	
Stormwater	Pump Stations	count	(0.0%)	-	- 2	-	-	-	-	-	
Stormwater	Stormwater Outfalls	count	(1.8%)	-	(100%)	-	-	(100%)	-	-	
Transportation	Bridge Local	count	0 (0.0%)	-	-	-	-	-	-	-	
Transportation	Bridge State	count	0 (0.0%)	-	-	-	-	-	-	-	
Transportation	Highway	feet	6010.539 (0.0%)	-	-	-	-	89.653 (1.5%)	-	-	
Transportation	Streets City	feet	10525.866	-	331.45	-	-	3018.684	-	-	
Wastewater	Pipeline	feet	(1.9%) 8460.077	-	(3.1%) -	_	_	(∠o.1%) 1689.686	-	-	
Wastowater	Pump Stations	001104	(1.5%) 0					(20.0%)			
vvasiewaler			(0.0%)	-	-	-	-	- 1902.183	-	-	
Water	NCCWD Pipelines	feet	(1.6%)	-	-	-	-	(16.8%)	-	-	

 Table 4

 Fairmont West Asset Exposure for Existing and Future Sea-levels

Pacifica LCP Update SLR Vulnerability Assessment

Pacifica LCP Update SLR Vulnerability Assessment

West Edgemar and Pacific Manor



West Edgemar and Pacific Manor Sub-area - Coastal Hazards at 2100

Similar to Fairmont West, bluffs in the West Edgemar and Pacific Manor sub-area are high enough so that blufftop assets are not exposed to flooding, but are vulnerable to erosion in the future (sub-area shown in teal on Figure 24). Asset exposure to coastal erosion and flooding for existing conditions and Medium to High SLR at 2050 and 2100 are reported in Table 5. Asset exposures under Extreme SLR scenario can be estimated at 2075 using the exposures under Med-High SLR at 2100. Coastal flooding and erosion exposure to coastal armoring structures, stormwater and wastewater infrastructure, essential/emergency services, and hazardous materials are shown in Appendix B-2. Exposure to existing land use, City-owned parcels, landmarks, local streets, utilities, senior centers, affordable rentals and other community assets are shown in Appendix C-2. Exposure to parks and trails, public access, habitats and sensitive species are shown in Appendix D-2.

Portions of parcels that extend beyond the bluff edge are exposed to flooding. Beaches are the main habitat that is exposed, 3.6 to 5.3 acres are exposed to inundation and storm flooding respectively. Most of the coastal armoring in this reach is exposed to storm flooding. Two stormwater outfalls are exposed to inundation while a third is exposed to storm flooding.

Asset exposures to coastal erosion are more prevalent. A total of 96 parcels may be affected by erosion in 2100. All parcels west of Esplanade Ave are exposed, including single and multi-family residential, and vacant lands. Erosion also threatens land west of Esplanade including single and multi-family residential, commercial and public use. The SF RV resort is also exposed. Approximately 1 mile of streets and 0.2 miles of Highway 1 are exposed by 2100. One health care facility is also exposed. Wastewater (1.4 miles of pipe), stormwater (0.6 miles

of pipe and 3 outfalls) and water (1.5 miles of pipe) are exposed to erosion by 2100. Recreational trails (0.9 miles) are also exposed by 2100.

Sub-area Asse West Edgemai	et Exposure Table r, Pacific Manor			Existing Conditions (% of Sub-area)	2050 Exposure Count (Percent of sub-area total) Exposure Range for inundation and flooding is for Low to Medium-High SLR			2100 Exposure Count (Percent of sub-area total) Exposure Range for inundation and flooding is for Low to Medium-High SLR		
Category	Asset	Units	Total in Sub-area	Storm Flooding	Coastal Erosion	Regular Tidal	Storm Flooding	Coastal Erosion	Regular Tidal	Storm Flooding
Coastal Structures	Armor Structures	feet	3857.539 (23.8%)	2411.07	3857.539	-	2125.01-2110.64	3857.539	54.57-507.51 (1.4% - 13.2%)	2197.83-2325.47 (57.0% - 60.3%)
Coastal Structures	Levee	feet	0 (0.0%)	-	-	-	-	-	-	-
Communication	Comcast Underground	feet	0	-	-	-	-	-	-	-
Communication	Towers Private	count	0	-	-	-	-	-	-	-
Community	Affordable Rentals	count	0	-	-	-	-	-	-	-
Community	Communities At Risk	count	0	-	-	-	-	-	-	-
Community	Healthcare Facility	count	1	-	-	-	-	-	-	-
Community	Landmarks	count	0	-	-	-	-	-	-	-
Community	Mobile Home Parks	count	0	-	-	-	-	-	-	-
Community	Schools	acres	0	-	-	-	-	-	-	-
Community	Senior Centers	count	0	-	-	-	-	-	_	_
Ecosystem	Beaches	acres	(0.0%) 5.384	5.26	5.384	1.26-1.54	5.30-5.28	5.384	2.36-3.68	5.37-5.38
Ecosystem	CA Red Leg Frog	acres	(9.2%)	(97.7%)	(100%)	(23.4% - 28.7%)	(98.4% - 98.1%) -	(100%)	(43.8% - 68.3%)	(99.7% - 99.9%) -
Ecosystem	Habitat Steelhead Habitat	feet	(0.0%)	_	-	-	-	-	-	-
Ecosystem	Streams	feet	(0.0%)	-	-	-	-	-	-	-
Ecosystem	Surfgrass	feet	(0.0%)	-	-	-	-	-	-	-
Ecosystem	Wetlands	acres	(0.0%) 0.145	0.02	0.126	-	0.02-0.02	0.145	-	0.02-0.02
Emergency	Fire	acres	(0.1%)	(14.5%)	(87.3%)	-	(12.8% - 13.4%)	(100%)	-	(12.2% - 16.3%)
Response Emergency	Police	acres	(0.0%)	_		-			-	_
Response Hazardous Waste	Cleanup Sites	count	(0.0%)	_		-			-	_
Hazardous Waste	Solid Waste Facility	count	(12.5%) 0			-				
Hazardous Waste	Underground Storage	count	(0.0%)							
	Tanks	acres	(20.0%) 0.887					0.183	_	
	Reach	acres	(18.5%) 7.163	6.766		4.77-5.01	6.77-6.73	(20.6%)	5.50-6.10	6.79-6.88
	Commorpial	acres	(15.7%) 17.535	(94.5%) 3.056	-	(66.6% - 69.9%) 2.08-2.15	(94.5% - 94.0%) 2.78-2.85	_	(76.8% - 85.1%) 2.30-2.49	(94.8% - 96.0%) 2.93-2.91
	Hotolo	acres	(19.7%) 0	(17.4%)	-	(11.9% - 12.2%)	(15.9% - 16.3%)	-	(13.1% - 14.2%)	(16.7% - 16.6%)
		acres	(0.0%) 0	-	-	-	-	-	-	-
	Misselles	acres	(0.0%) 0	-	-	-	-	-	-	-
		acres	(0.0%)	-	-	-	-	-	-	-
Land Use	Mobile Homes	acres	(0.0%) 26.418	- 2.851	-	- 0.53-0.64	- 2.78-2.79	-	- 0.87-1.23	- 2.84-2.99
Land Use	Multi-Family	acres	(14.3%) 0.221	(10.8%)	-	(2.0% - 2.4%)	(10.5% - 10.6%)	-	(3.3% - 4.7%)	(10.7% - 11.3%)
Land Use	Office	acres	(5.1%) 0	-	-	-	-	-	-	-
Land Use	Other Open Space Other Public or	acres	(0.0%) 0.998	-	-	-	-	- 0.715	-	-
Land Use	Community Uses Parks & Accessible	acres	(1.3%) 0	-	-	-	-	(71.6%)	-	-
Land Use	Open Space	acres	(0.0%)	-	-	-	-	-	-	-
Land Use	ROW	acres	(0.0%)	-	-	-	-	-	-	-
Land Use	Schools Single Family	acres	(0.0%)	- 0.021	- 0.453	-	- 0.01-0.02	- 2.48	-	- 0.01-0.03
Land Use	Residential	acres	(0.4%) 5.176	(0.3%)	(7.2%)	-	(0.2% - 0.3%) 0.49-0.46	(39.4%)	- 0.00-0.04	(0.2% - 0.5%)
Land Use	Vacant/Undeveloped	acres	(0.5%)	(9.6%)	(71.0%)	- 8,33-8 84	(9.5% - 8.8%)	(97.0%)	(0.0% - 0.7%)	(11.0% - 13.3%)
Lands	Pacifica City Limits	acres	(1.2%)	(16.7%)	(33.2%)	(8.8% - 9.4%) 4 77-5 01	(16.3% - 16.3%)	(65.0%)	(10.7% - 12.5%)	(16.6% - 17.0%)
Lands	Parks Conservation	acres	(0.3%)	(68.8%)	(90.5%)	(45.1% - 47.4%)	(68.6% - 68.1%)	(96.0%)	(52.0% - 58.0%)	(69.2% - 71.2%)
Lands	Parcels	count	(1.1%)	(25.7%)	(37.1%)	(5.0% - 5.0%)	(25.0% - 25.0%)	(68.6%)	(6.4% - 7.1%)	(25.0% - 26.4%)
Recreation	Access Lateral	feet	(9.0%)	(73.8%)	(100%)	(9.6% - 10.9%)	(66.0% - 62.6%)	(100%)	(11.5% - 14.5%)	(65.7% - 71.2%)

Table 5 West Edgemar and Pacific Manor Asset Exposure for Existing and Future Sea-levels

Recreation	Access Vertical	feet	418 (16.5%)	12.47 (3.0%)	341.372 (81.7%)	-	23.18-4.26 (5.5% - 1.0%)	418 (100%)	-	13.99-27.78 (3.3% - 6.6%)
Recreation	Fishing Pier	count	0 (0.0%)	-	-	-	-	-	-	-
Recreation	Parks	acres	0 (0.0%)	-	-	-	-	-	-	-
Recreation	Trails	feet	4834.075 (2.6%)	-	3243.786 (67.1%)	-	-	4834.075 (100%)	-	-
Stormwater	Pipes	feet	9354.452 (3.2%)	218.73 (2.3%)	834.723 (8.9%)	121.25-127.83 (1.3% - 1.4%)	206.10-201.44 (2.2% - 2.2%)	2959.798 (31.6%)	161.49-181.97 (1.7% - 1.9%)	230.14-233.51 (2.5% - 2.5%)
Stormwater	Pump Stations	count	0 (0.0%)	-	-	-	-	-	-	-
Stormwater	Stormwater Outfalls	count	4 (3.7%)	3 (75.0%)	3 (75.0%)	2.00-2.00 (50.0% - 50.0%)	3.00-3.00 (75.0% - 75.0%)	3 (75.0%)	2.00-2.00 (50.0% - 50.0%)	3.00-3.00 (75.0% - 75.0%)
Transportation	Bridge Local	count	0 (0.0%)	-	-	-	-	-	-	-
Transportation	Bridge State	count	2 (22.2%)	-	-	-	-	-	-	-
Transportation	Highway	feet	6953.771 (0.0%)	-	-	-	-	1250.61 (18.0%)	-	-
Transportation	Streets City	feet	11703.863 (2.1%)	-	1019.373 (8.7%)	-	-	5339.903 (45.6%)	-	-
Wastewater	Pipeline	feet	14226.711 (2.6%)	-	1824.392 (12.8%)	-	-	7265.406 (51.1%)	-	-
Wastewater	Pump Stations	count	0 (0.0%)	-	-	-	-	-	-	-
Water	NCCWD Pipelines	feet	13558.454 (1.9%)	-	1115.193 (8.2%)	-	-	7941.885 (58.6%)	-	-

Pacifica LCP Update SLR Vulnerability Assessment

Northwest Sharp Park



Figure 25 Northwest Sharp Park Sub-area – Coastal Hazards at 2100

Lower bluffs in the Northwest Sharp Park sub-area lead to higher asset vulnerabilities from coastal flooding (subarea shown in teal on Figure 25). Asset exposure to coastal erosion and flooding for existing conditions and Medium to High SLR at 2050 and 2100 are reported in Table 6. Asset exposures under Extreme SLR scenario can be estimated at 2075 using the exposures under Med-High SLR at 2100. Coastal flooding and erosion exposure to coastal armoring structures, stormwater and wastewater infrastructure, essential/emergency services, and hazardous materials are shown in Appendix B-2. Exposure to existing land use, City-owned parcels, landmarks, local streets, utilities, senior centers, affordable rentals and other community assets are shown in Appendix C-2. Exposure to parks and trails, public access, habitats and sensitive species are shown in Appendix D-2.

Beaches (over 5 acres) and coastal armoring (0.2-0.4 miles) are exposed to inundation and flooding on the shore by 2100. Seaward portions of parcels are exposed to inundation (72) while 80 are exposed to wave damage and 79 are exposed to storm flooding by 2100. Local streets (0.1 mi) are also exposed to wave impacts. One stormwater outfall is exposed to coastal flooding by 2100.

A total of 125 parcels are exposed to coastal erosion by 2100. This includes industrial north Palmetto, with industrial, residential, office, commercial and auto services. The mobile home park and residential parcels along Shoreview Ave are exposed. Recreational trails (0.2 mi) and local streets (1 mi) are exposed to coastal erosion by 2100, while Highway 1 is barely exposed at 2100. Utilities are also exposed; 0.4 miles of communications conduit, 0.3 miles of stormwater pipes and 0.6 miles of wastewater pipes are exposed by 2100 as well as 2 stormwater outfalls and 0.7 miles of water pipes. All 0.6 miles of coastal armor are exposed by 2100.

Sub-area Asset	Exposure Table			Existing Conditions	(P Exposure Range i	2050 Exposure Cou ercent of sub-area to for inundation and flo	nt otal) ooding is for Low to	2100 Exposure Count (Percent of sub-area total) Exposure Range for inundation and flooding is for Low to		
Northwest Sha	rp Park		Total in Sub-area	(% of Sub-area)		Medium-High SLR			Medium-High SLR	
Category	Assets	Units	(% of Pacifica) 3601.654	Storm Flooding 2238.838	Coastal Erosion 3601.654	Inundation	Storm Flooding 1853.75-1988.95	Coastal Erosion 3601.654	Inundation	Storm Flooding 2067.92-2273.42
Coastal Structures		feet	(22.2%) 0	(62.2%)	(100%)		(51.5% - 55.2%)	(100%)		(57.4% - 63.1%)
	Comcast Underground	1001	(0.0%) 3007.378		1013.721			1895.112		
Communication	Conduit	feet	(2.0%)	-	(33.7%)	-	-	(63.0%)	-	-
Communication	Towers Private	count	(0.0%)	-	-	-	-	-	-	-
Community	Affordable Rentals	count	(0.0%)	-	-	-	-	-	-	-
Community	Communities At Risk	count	0 (0.0%)	-	-	-	-	-	-	-
Community	Healthcare Facility	count	0 (0.0%)	-	-	-	-	-	-	-
Community	Landmarks	count	0 (0.0%)	-	-	-	-	-	-	-
Community	Mobile Home Parks	count	1 (100%)	-	1 (100%)	-	-	1 (100%)	-	-
Community	Schools	acres	10.653 (4.5%)	-	-	-	-	-	-	-
Community	Senior Centers	count	0 (0.0%)	-	-	-	-	-	-	-
Ecosystem	Beaches	acres	3.318 (5.7%)	3.304 (99.6%)	3.317 (100%)	0.77-0.99 (23.2% - 29.8%)	3.32-3.31 (100% - 99.8%)	3.317 (100%)	1.56-2.40 (47.1% - 72.2%)	3.32-3.32 (99.9% - 100%)
Ecosystem	CA Red Leg Frog Habitat	acres	0 (0.0%)	-	-	-	-	-	-	-
Ecosystem	Steelhead Habitat	feet	0 (0.0%)	-	-	-	-	-	-	-
Ecosystem	Streams	feet	0	-	-	-	-	-	-	-
Ecosystem	Surfgrass	feet	y	-	-	-	-	-	-	-
Ecosystem	Wetlands	acres	0	-	-	-	-	-	-	-
Emergency	Fire	acres	(0.0%)	-	-	-		-	-	-
Response Emergency	Police	acres	(0.0%)							
Response		00100	(0.0%) 0	_	_			-		_
		count	(0.0%)	-	-	-	-	-	-	-
Hazardous Waste	Solid Waste Facility	count	(0.0%)	-	-	-	-	-	-	-
Hazardous Waste	Tanks	count	(0.0%)	-	-	-	-	- 0.106	-	-
Land Use	Auto Services	acres	(2.4%)	-	-	-	-	(93.2%)	-	-
Land Use	Beach	acres	(4.1%)	(94.8%)	-	(48.8% - 54.2%)	(97.6% - 96.8%)	-	(68.3% - 82.3%)	(97.4% - 99.0%)
Land Use	Commercial	acres	2.672 (3.0%)	0.326 (12.2%)	-	0.01-0.03 (0.4% - 1.2%)	0.28-0.29 (10.6% - 11.0%)	-	0.09-0.16 (3.3% - 6.1%)	0.27-0.29 (10.2% - 10.9%)
Land Use	Hotels	acres	0 (0.0%)	-	-	-	-	-	-	-
Land Use	Industrial	acres	11.9 (64.9%)	1.269 (10.7%)	-	0.12-0.16 (1.0% - 1.4%)	1.24-1.24 (10.4% - 10.4%)	-	0.30-0.59 (2.5% - 5.0%)	1.19-1.27 (10.0% - 10.6%)
Land Use	Mixed Use	acres	0.3 (8.5%)	-	-	-	-	-	-	-
Land Use	Mobile Homes	acres	8.842 (100%)	1.699 (19.2%)	-	0.62-0.76 (7.0% - 8.6%)	1.65-1.64 (18.6% - 18.5%)	-	1.00-1.28 (11.3% - 14.5%)	1.71-1.81 (19.3% - 20.4%)
Land Use	Multi-Family	acres	0 (0.0%)	-	-	-	-	-	-	-
Land Use	Office	acres	0.132 (3.0%)	-	-	-	-	-	-	-
Land Use	Other Open Space	acres	0 (0.0%)	-	-	-	-	-	-	-
Land Use	Other Public or Community Uses	acres	0	-	-	-	-	-	-	-
Land Use	Parks & Accessible	acres	0	-	-	-	-	-	-	-
Land Use	ROW	acres	0	-	-	-	-	-	-	-
Land Use	Schools	acres	10.653	-	_	_	_	_	_	_
Land Use	Single Family	acres	(4.5%) 9.933	0.746	4.026	-	0.66-0.66	6.561	0.03-0.14	0.72-0.86
	Residential	acros	(0.6%) 1.259	(7.5%) 0.441	(40.5%) 0.849	0.08-0.11	(6.6% - 6.6%) 0.40-0.41	(66.1%) 1.259	(0.3% - 1.4%) 0.18-0.24	(7.3% - 8.6%) 0.38-0.41
Landa	Pacifica City Limite	20100	(0.1%) 63.824	(35.0%) 7.507	(67.4%) 17.224	(6.5% - 9.1%) 2.80-3.21	(31.6% - 32.7%) 7.30-7.30	(100%) 29.2	(13.9% - 19.3%) 4.10-5.21	(30.4% - 32.3%) 7.36-7.73
		aures	(0.8%)	(11.8%) 81	(27.0%) 96	(4.4% - 5.0%) 68.00-69.00	(11.4% - 11.4%) 82.00-82.00	(45.8%) 125	(6.4% - 8.2%) 70.00-72.00	(11.5% - 12.1%) 82.00-82.00
Lands	Parcels	count	(1.2%)	(52.3%)	(61.9%)	(43.9% - 44.5%)	(52.9% - 52.9%)	(80.6%)	(45.2% - 46.5%)	(52.9% - 52.9%)
Lands	Parks Conservation	acres	(0.0%)	- 737 758	- 737 758	-	- 737.7-737 7	-	-	- 737.76-737 76
Recreation	Access Lateral	feet	(6.6%)	(100%)	(100%)	-	(100% - 100%)	(100%)	-	(100% - 100%)
Recreation	Access Vertical	feet	(5.9%)	(18.0%)	(100%)	-	(0.7% - 5.7%)	(100%)	-	-
Recreation	Fishing Pier	count	(0.0%)	-	-	-	-	-	-	-
Recreation	Parks	acres	(0.0%)	-	-	-	-	-	-	-
Recreation	Trails	feet	2965.264 (1.6%)	-	147.566 (5.0%)	-	-	1318.32 (44.5%)	-	-
Stormwater	Pipes	feet	6931.722 (2.4%)	168.348 (2.4%)	814.997 (11.8%)	-	137.61-146.79 (2.0% - 2.1%)	1262.228 (18.2%)	2.67-22.36 (0.0% - 0.3%)	161.55-188.22 (2.3% - 2.7%)
Stormwater	Pump Stations	count	0 (0.0%)	-	-	-	-	-	-	-
Stormwater	Stormwater Outfalls	count	2 (1.8%)	1 (50.0%)	2 (100%)	-	1.00-1.00 (50.0% - 50.0%)	2 (100%)	-	1.00-1.00 (50.0% - 50.0%)
Transportation	Bridge Local	count	0 (0.0%)	-	-	-	-	-	-	-
Transportation	Bridge State	count	0	-	-	-	-	-	-	-
Transportation	Highway	feet	4072.648	-	-	-	-	125.933	-	-
Transportation	Streets Citv	feet	9857.95	-	2675.965	-	_	(3.1%) 5329.645	-	-
Wastewater	Pipeline	feet	(1.8%) 8265.525 (1.5%)	-	(27.1%) 1103.251 (13.3%)	-	-	(54.1%) 3327.011 (40.3%)	-	-
Wastewater	Pump Stations	count	0 (0.0%)	-	-	-		(^{10.070})	-	-
Water	NCCWD Pipelines	feet	8894.445 (1.3%)	-	1059.602 (11.9%)	-	-	3789.539 (42.6%)	-	-

 Table 6

 Northwest Sharp Park Asset Exposure for Existing and Future Sea-levels

Pacifica LCP Update SLR Vulnerability Assessment

Sharp Park, West Fairway Park and Mori Point





Inundation and flooding can have a significant impact on the Sharp Park, West Fairway Park and Mori Point subarea with SLR (sub-area shown in teal on Figure 26). Asset exposure to coastal erosion and flooding for existing conditions and Medium to High SLR at 2050 and 2100 are reported in Table 7. Asset exposures under Extreme SLR scenario can be estimated at 2075 using the exposures under Med-High SLR at 2100. Coastal flooding and erosion exposure to coastal armoring structures, stormwater and wastewater infrastructure, essential/emergency services, and hazardous materials are shown in Appendix B-3. Exposure to existing land use, City-owned parcels, landmarks, local streets, utilities, senior centers, affordable rentals and other community assets are shown in Appendix C-3. Exposure to parks and trails, public access, habitats and sensitive species are shown in Appendix D-3.

Up to 230 parcels are exposed to coastal storm wave impacts, while 156 parcels will be impacted by sustained flooding. Exposed land uses include residential, commercial, city-owned public use and parks, mixed use, vacant land, SPGC, one industrial parcel. An affordable rental unit is among the exposed. Beaches (7.6 to 20.4 acres) and wetlands in/around the golf course are exposed to coastal flooding. Surfgrass habitat (0.1 mi) is also exposed. The fishing pier is exposed to storm impacts from wave run-up. Up to 0.9 miles of recreational trail and 82.4 acres of parks are exposed to storm flooding. One affordable rental unit is exposed. Utilities are also exposed. Communications conduit (0.7-0.8 mi) are exposed to storm flooding. Coastal inundation impacts 0.1 mi of stormwater pipes and 4 outfalls, while storm flooding impacts up to 2 miles of pipe and 7 outfalls. Wastewater pipelines are also exposed (1.9 to 2.7 miles) while one to two wastewater pump stations are exposed to storm

flooding and wave impacts, respectively. Coastal armoring structures are exposed to storm flooding (0.3 miles) and wave run-up (1 miles).

A total of 203 parcels may be impacted by coastal erosion. All 1.1 miles of coastal armoring structures are exposed to coastal erosion. This includes residential (single and multi-family), vacant parcels, City Over 44 acres of wetlands are exposed, including 20.4 acres of beach. Of the utilities in the area, 0.7 miles of conduit, 1.2 miles of stormwater, 1.6 miles of water pipes and 2.4 miles of watewater pipelines, one wastewater pump station and 8 stormwater outfalls are exposed. A total of 1.4 miles of streets and 2.1 miles of trails are also exposed to erosion.

Populations of San Francisco garter snake and California Red-Legged Frog and associated habitat within Laguna Salada are vulnerable to increasing salinity from wave overtopping of the berm and saltwater seepage through the beach associated with sea-level rise. Both populations reside on lands that are owned and managed by the City of San Francisco (Sharp Park) and the National Park Service (Mori Point).

 Table 7

 Sharp Park, West Fairway Park and Mori Point Asset Exposure for Existing and Future Sea-levels

				Existing	(Pe	2050 Exposure Cour ercent of sub-area to	nt otal)	2100 Exposure Count (Percent of sub-area total)			
Sub-area Asse Sharn Park W	t Exposure Table est Fairway Park	and Mo	ri Point	Conditions (% of Sub-area)	Exposure Range for inundation and flooding is for Low to Medium-High SLR			Exposure Range for inundation and flooding is for Low to Medium-Hinh SLR			
Category	Asset	Units	Total in Sub-area	Storm Flooding	Coastal Erosion	Regular Tidal	Storm Flooding	Coastal Erosion	Regular Tidal	Storm Flooding	
	A	64	(% of Pacifica) 5745.243	5303.68	5705.658	Inundation	5459.00-5459.00	5705.658	Inundation	5459.00-5459.00	
Coastal Structures	Armor Structures	teet	(35.4%)	(92.3%) 1707 391	(99.3%) 3149 267	-	(95.0% - 95.0%) 1247 50-1263 90	(99.3%) 3149 267	-	(95.0% - 95.0%) 2028 50-2115 12	
Coastal Structures	Levee	feet	(100%)	(54.2%)	(100%)	-	(39.6% - 40.1%)	(100%)	-	(64.4% - 67.2%)	
Communication	Comcast Underground Conduit	feet	12976.887 (8.8%)	1848.454 (14.2%)	1462.363 (11.3%)	-	3909.10-3063.65 (30.1% - 23.6%)	3920.002 (30.2%)	-	5545.68-5694.46 (42.7% - 43.9%)	
Communication	Towers Private	count	5 (19.2%)	-	-	-	-	-	-	-	
Community	Affordable Rentals	count	1	-	-	-	-	-	-	-	
			(20.0%) 0								
Community	Communities At Risk	acres	(0.0%)	-	-	-	-	-	-	-	
Community	Healthcare Facility	count	(0.0%)	-	-	-	-	-	-	-	
Community	Landmarks	count	4 (44.4%)	-	-	-	-	-	-	-	
Community	Mobile Home Parks	count	0	-	-	-	-	-	-	-	
Community	Schools	acres	0.093	-	-	-	-	-	-	-	
Community	Senier Centere	aquint	(0.0%)								
Community	Senior Centers	count	(0.0%)	-	- 20 379	- 2 76-3 38	- 20 20-20 01	- 20 378	- 4 88-7 61	- 20 51-20 51	
Ecosystem	Beaches	acres	(35.2%)	(99.1%)	(99.3%)	(13.4% - 16.5%)	(98.4% - 97.5%)	(99.3%)	(23.8% - 37.1%)	(99.9% - 99.9%)	
Ecosystem	CA Red Leg Frog Habitat	acres	0 (0.0%)	-	-	-	-	-	-	-	
Ecosystem	Steelhead Habitat	feet	0	-	-	-	-	-	-	-	
Ecosystem	Streams	feet	1700.067	-	-	-	-	-	-	-	
	0.4		(1.5%) 329.821	329.821	2.406	329.82-329.82	329.82-329.82	2.406	329.82-329.82	329.82-329.82	
Ecosystem	Sungrass	teet	(2.0%)	(100%)	(0.7%)	(100% - 100%)	(100% - 100%)	(0.7%)	(100% - 100%)	(100% - 100%)	
Ecosystem	Wetlands	acres	(14.8%)	(96.0%)	(8.2%)	(14.9% - 19.0%)	(96.1% - 96.2%)	(45.2%)	(63.4% - 90.7%)	(96.7% - 96.8%)	
Emergency Response	Fire	acres	0 (0.0%)	-	-	-	-	-	-	-	
Emergency	Police	acres	0	-	-	-	-	-	-	-	
Hazardous Waste	Cleanup Sites	count	1								
		ooun	(12.5%)								
Hazardous Waste	Solid Waste Facility	count	(0.0%)	-	-	-	-	-	-	-	
Hazardous Waste	Tanks	count	(20.0%)	-	-	-	-	-	-	-	
Land Use	Auto Services	acres	0.586 (12.2%)	-	-	-	-	-	-	-	
Land Use	Beach	acres	2.245	2.236	-	0.12-0.17	2.24-2.24	-	0.28-0.61	2.24-2.24	
	Commorcial	20105	2.204	0.234	_	(5.5% - 7.4%)	0.23-0.23		(12.0% - 27.1%)	0.30-0.35	
	Commercial	acres	(2.5%)	(10.6%)	_		(10.6% - 10.6%)		_	(13.5% - 15.9%)	
Land Use	Hotels	acres	(0.0%)	-	-	-	-	-	-	-	
Land Use	Industrial	acres	(1.6%)	-	-	-	-	-	-	-	
Land Use	Mixed Use	acres	1.672 (47.5%)	0.221 (13.2%)	-	-	0.76-0.39 (45.3% - 23.6%)	-	-	0.76-0.76 (45.3% - 45.3%)	
Land Use	Mobile Homes	acres	0	-	-	-	-	-	-	-	
Land Lise	Multi-Family	acres	17.381	3.457			5.31-6.55			8.62-9.05	
	orr	uoroo	(9.4%) 0.934	(19.9%)			(30.5% - 37.7%)			(49.6% - 52.1%)	
Land Use	Office	acres	(21.5%)	-	-	-	-	-	-	-	
Land Use	Other Open Space	acres	(0.0%)	(100%)	-	-	(78.3% - 85.0%)	-	-	(100% - 100%)	
Land Use	Other Public or Community Uses	acres	7.332 (9.6%)	0.011 (0.1%)	2.293 (31.3%)	-	3.53-0.49 (48.1% - 6.6%)	3.728 (50.8%)	-	4.20-4.31 (57.2% - 58.7%)	
Land Use	Parks & Accessible	acres	266.781 (9.6%)	114.524 (42.9%)	63.688 (23.9%)	19.94-22.18 (7.5% - 8.3%)	112.07-113.11 (42.0% - 42.4%)	92.665 (34.7%)	43.15-71.84	120.73-128.38 (45.3% - 48.1%)	
Land Use	ROW	acres	0.64	0.007	0.564	-	0.64-0.64	0.64	-	0.64-0.64	
Landling	Oshaala		0	(1.1%)	(88.0%)		(100% - 100%)	(100%)		(100% - 100%)	
Land Use	Schools	acres	(0.0%)	- 1 174	- 2 659	-	- 2.04-3.58	-	-	-	
Land Use	Residential	acres	(2.5%)	(2.7%)	(6.1%)	-	(6.7% - 8.2%)	(11.9%)	-	(12.6% - 15.5%)	
Land Use	Vacant/Undeveloped	acres	3.24 (0.3%)	0.234 (7.2%)	1.097 (33.9%)	-	0.67-0.66 (20.7% - 20.4%)	1.44 (44.5%)	-	0.87-1.03 (26.9% - 31.9%)	
Lands	Pacifica City Limits	acres	410.471 (5.1%)	129.269 (31.5%)	78.924 (19.2%)	19.00-21.34 (4.6% - 5.2%)	138.61-137.68 (33.8% - 33.5%)	120.09 (29.3%)	42.74-72.72 (10.4% - 17 7%)	157.40-168.37 (38.3% - 41 0%)	
Lands	Parks Conservation	acres	269.053	116.787	65.932	20.07-22.35	114.34-115.39	94.91	43.43-72.45	123.00-130.65	
Landa	Parcela	COUNT	(7.4%) 683	(43.4%) 111	(∠4.5%) 136	(1.3% - 8.3%) 5.00-5.00	(42.5% - 42.9%) 169.00-203.00	(JD.J%) 207	9.00-15.00	(40.7% - 48.6%) 241.00-263.00	
	r alleis	count	(5.2%) 4967.416	(16.3%) 4799.061	(19.9%) 4967.416	(0.7% - 0.7%)	(24.7% - 29.7%) 4536.29-4490 74	(30.3%) 4967.416	(1.3% - 2.2%)	(35.3% - 38.5%) 4965.54-4967 42	
Recreation	Access Lateral	feet	(44.6%)	(96.6%)	(100%)	-	(91.3% - 90.4%)	(100%)	-	(100% - 100%)	
Recreation	Access Vertical	feet	739.208 (29.2%)	393.876 (53.3%)	739.208 (100%)	-	574.42-577.78 (77.7% - 78.2%)	739.208 (100%)	-	617.47-617.53 (83.5% - 83.5%)	
Recreation	Fishing Pier	count	12 (1200.0%)	1 (8.3%)	1 (8.3%)	-	1.00-1.00 (8.3% - 8.3%)	1 (8.3%)	-	1.00-1.00 (8.3% - 8.3%)	
Recreation	Parks	acres	131.383	83.299	29.465	5.10-6.66	80.66-81.52	48.591	26.18-52.28	86.11-93.54	
Pecreation	Trails	foot	25646.832	(63.4%) 3041.175	7417.929	(3.9% - 5.1%)	(61.4% - 62.0%) 3152.82-3111.24	10838.471	(19.9% - 39.6%)	(65.5% - 71.2%) 4493.83-5049.88	
Recreation	Trails	leet	(13.8%)	(11.9%)	(28.9%)	-	(12.3% - 12.1%) 6050 14-6263 43	(42.3%) 4652 522	- 473 54-1851 89	(17.5% - 19.7%) 7576 66-8060 68	
Stormwater	Pipes	feet	(7.9%)	(23.5%)	(13.5%)	-	(26.1% - 27.0%)	(20.1%)	(2.0% - 8.0%)	(32.7% - 34.7%)	
Stormwater	Pump Stations	count	3 (33.3%)	1 (33.3%)	3 (100%)	-	3.00-3.00 (100% - 100%)	3 (100%)	-	3.00-3.00 (100% - 100%)	
Stormwater	Stormwater Outfalls	count	12 (11.0%)	9 (75.0%)	6 (50.0%)	1.00-1.00 (8.3% - 8.3%)	9.00-9.00 (75.0% - 75.0%)	8 (66.7%)	3.00-6.00 (25.0% - 50.0%)	10.00-10.00 (83.3% - 83.3%)	
Transportation	Bridge Local	count	0	-	-	-	-	-	-	-	
Transportation	Bridge State	court	(0.0%)				_				
-			(44.4%) 9263.799	-	-	-	-	-	-	- 59.19-69 87	
Transportation	Highway	feet	(0.0%)	-	-	-	-	-	-	(0.6% - 0.8%)	
Transportation	Streets City	feet	36633.25 (6.5%)	5342.075 (14.6%)	4464.635 (12.2%)	-	8409.84-7611.58 (23.0% - 20.8%)	7491.986 (20.5%)	31.69-439.18 (0.1% - 1.2%)	(30.7% - 33.9%)	
Wastewater	Pipeline	feet	44760.047 (8.1%)	10253.233 (22.9%)	8223.478 (18.4%)	-	14853.43-13875.01 (33.2% - 31.0%)	12827.066 (28.7%)	-	17534.30-19141.75 (39.2% - 42.8%)	
Wastewater	Pump Stations	count	2	1	1	-	2.00-1.00	1	-	2.00-2.00	
Water	NCCWD Pipelines	feet	35373.134	4364.073	4949.698	-	7526.46-7352.81	8235.167	-	10918.07-12148.84	
		1	(5.1%)	(12.3%)	(14.0%)		(21.3% - 20.8%)	(23.3%)	1	(30.9% - 34.3%)	

Pacifica LCP Update SLR Vulnerability Assessment

Rockaway Beach, Quarry and Headlands



Figure 27 Rockaway Beach, Quarry and Headlands Sub-area – Coastal Hazards at 2100

The Rockaway sub-area asset vulnerabilities are concentrated at Rockaway Beach where the low backshore is more densely developed than the higher open space at the Quarry and Headlands (sub-area shown in teal on Figure 27). Asset exposure to coastal erosion and flooding for existing conditions and Medium to High SLR at 2050 and 2100 are reported in Table 8. Asset exposures under Extreme SLR scenario can be estimated at 2075 using the exposures under Med-High SLR at 2100. Coastal flooding and erosion exposure to coastal armoring structures, stormwater and wastewater infrastructure, essential/emergency services, and hazardous materials are shown in Appendix B-4. Exposure to existing land use, City-owned parcels, landmarks, local streets, utilities, senior centers, affordable rentals and other community assets are shown in Appendix C-4. Exposure to parks and trails, public access, habitats and sensitive species are shown in Appendix D-4.

By 2100 considering high SLR, ten parcels are exposed to flooding,12 parcels are exposed to storm flooding, and 34 parcels are exposed to wave damages. Land uses include vacant and open space, hotels, office, commercial and mixed use, single and multi-family residential and public use. Beaches here are exposed to inundation and flooding with SLR (2.9 to 3.7 acres respectively). Wetlands in Calera Creek are also exposed to SLR. Surfgrass habitat (0.4 miles) along the rocky shores are exposed. Nearly all coastal structures are exposed to flooding, all are exposed to wave damages. Trails (0.2 miles) are exposed to wave impacts, 3.5 acres of parks are exposed to flooding. Stormwater pipelines (0.3 miles) are within the wave damage zone, as are 0.3 miles of communications lines. A total of three outfalls are exposed to flooding and inundation.

A total of 36 parcels in this sub-area are exposed to erosion. Land uses include vacant and open space, hotels, commercial and mixed use, single and multi-family residential and public use. Erosion threatens 3.7 acres of beach, 0.8 miles of trails, and 5.1 acres of parks. Local streets (0.6 miles), Highway 1 (0.2 miles) and of communications lines (0.5 miles) are exposed by 2100. Stormwater infrastructure is exposed, including five outfalls and 0.6 miles of pipelines. A wastewater pump station is also exposed along with 1.1 miles of sewer pipes and 0.6 miles of water pipes. All 0.3 miles of coastal structures are exposed to erosion.

 Table 8

 Rockaway Beach, Quarry and Headlands Asset Exposure for Existing and Future Sea-levels

Sub area Acces				Existing	2050 Exposure Count ing (Percent of sub-area total)			2100 Exposure Count (Percent of sub-area total)			
Sub-area Asset Rockaway Bea	ch, Quarry, and He	adlan	ds	Conditions (% of Sub-area)	Exposure Range for inundation and flooding is for Low to Medium-High SLR			Exposure Range for inundation and flooding is for Low to Medium-High SLR			
Category	Asset	Units	Total in Sub-area	Storm Flooding	Coastal Erosion	Regular Tidal	Storm Flooding	Coastal Erosion	Regular Tidal	Storm Flooding	
Coastal Structures	Armor Structures	feet	1490.051	1441.935	1490.051	58.36-106.16	1104.58-1420.62	1490.051	261.33-469.41	1490.05-1490.05	
		foot	(9.2%)	(96.8%)	(100%)	(3.9% - 7.1%)	(74.1% - 95.3%)	(100%)	(17.5% - 31.5%)	(100% - 100%)	
Coastal Structures	Comcast Underground	ieei	(0.0%)	423 371	- 1673 873	-	-	- 2402 337	-	- 1258 58-1429 77	
Communication	Conduit	feet	(2.1%)	(13.7%)	(54.0%)	-	-	(77.6%)	-	(40.6% - 46.2%)	
Communication	Towers Private	count	0 (0.0%)	-	-	-	-	-	-	-	
Community	Affordable Rentals	count	0 (0.0%)	-	-	-	-	-	-	-	
Community	Communities At Risk	count	0	-	-	-	-	-	-	-	
Community	Healthcare Facility	count	0	_	_	_	-	-	_	-	
Community	Landmarka	oount	(0.0%)								
Community	Landmarks	count	(0.0%)	-	-	-	-	-	-	-	
Community	Mobile Home Parks	count	(0.0%)	-	-	-	-	-	-	-	
Community	Schools	acres	(0.0%)	-	-	-	-	-	-	-	
Community	Senior Centers	count	0 (0.0%)	-	-	-	-	-	-	-	
Ecosystem	Beaches	acres	3.72 (6.4%)	3.035 (81.6%)	3.72 (100%)	0.86-1.20	2.87-3.26 (77.2% - 87.6%)	3.72 (100%)	1.89-2.90 (50.8% - 77.9%)	3.70-3.71 (99.5% - 99.7%)	
Ecosystem	CA Red Leg Frog	acres	0	-	-	-	-	-	-	-	
Ecosystem	Habitat	feet	0	_	_	_	_	_	_		
		icei	(0.0%) 4365.341	484.352	1134.514	56.17-69.36	- 184.10-487.12	1571.187	104.46-149.04	635.30-667.64	
Ecosystem	Streams	feet	(3.8%)	(11.1%)	(26.0%)	(1.3% - 1.6%)	(4.2% - 11.2%)	(36.0%)	(2.4% - 3.4%)	(14.6% - 15.3%)	
Ecosystem	Surfgrass	feet	(13.8%)	(100%)	(47.9%)	(99.5% - 99.9%)	(100% - 100%)	(47.8%)	(100% - 100%)	(100% - 100%)	
Ecosystem	Wetlands	acres	3.292 (1.5%)	0.072 (2.2%)	0.403 (12.2%)	0.00-0.01 (0.1% - 0.2%)	0.03-0.07 (1.0% - 2.2%)	0.568 (17.2%)	0.02-0.04 (0.5% - 1.3%)	0.10-0.12 (3.0% - 3.6%)	
Emergency Response	Fire	acres	0 (0.0%)	-	-	-	-	-	-	-	
Emergency	Police	acres	0	-	-	-	-	-	-	-	
Hazardous Waste	Cleanup Sites	count	1	_	-	_	-	-	_	-	
			(12.5%)								
Hazardous Waste	Solid Waste Facility	count	(0.0%)	-	-	-	-	-	-	-	
Hazardous Waste	Tanks	count	(20.0%)	-	-	-	-	-	-	-	
Land Use	Auto Services	acres	0 (0.0%)	-	-	-	-	-	-	-	
Land Use	Beach	acres	10.993 (24.1%)	9.367 (85.2%)	-	7.42-7.76 (67.5% - 70.6%)	9.50-9.59 (86.5% - 87.2%)	-	8.38-9.24 (76.3% - 84.1%)	10.29-10.27 (93.6% - 93.4%)	
Land Use	Commercial	acres	2.069	0.628	-	0.14-0.16	0.52-0.55	-	0.19-0.22	0.63-0.72	
Land Use	Hotels	acres	4.384	1.924	-	-	-	-	-	3.18-3.18	
			(67.2%) 0	(43.9%)						(72.6% - 72.6%)	
Land Use	industriai	acres	(0.0%)	- 0.079	-	-	-	-	-	- 0 31-0 34	
Land Use	Mixed Use	acres	(20.5%)	(10.9%)	-	-	-	-	-	(43.1% - 46.8%)	
Land Use	Mobile Homes	acres	0 (0.0%)	-	-	-	-	-	-	-	
Land Use	Multi-Family	acres	0.197 (0.1%)	-	-	-	-	-	-	-	
Land Use	Office	acres	0.53	-	-	-	-	-	-	-	
Land Use	Other Open Space	acres	10.346	1.055	_	_	0.10-1.06	-	_	1.14-1.26	
	Other Public or		(1.4%) 1.35	(10.2%)	1.342		(1.0% - 10.3%)	1.35		(11.0% - 12.2%) 0.03-0.01	
	Community Uses Parks & Accessible	acres	(1.8%)	0.465	(99.4%) 0.465	0.08-0.09	- 0.25-0.46	(100%)	0.12-0.17	(1.9% - 1.1%)	
Land Use	Open Space	acres	(0.0%)	(100%)	(100%)	(17.1% - 19.5%)	(53.2% - 100%)	(100%)	(26.7% - 37.6%)	(100% - 100%)	
Land Use	ROW	acres	(0.0%)	-	-	-	-	-	-	-	
Land Use	Schools	acres	0 (0.0%)	-	-	-	-	-	-	-	
Land Use	Single Family Residential	acres	0.286	0.213	0.023	-	-	0.27 (94.3%)	-	0.29-0.29 (100% - 100%)	
Land Use	Vacant/Undeveloped	acres	113.419	7.996	33.817	3.32-3.53	7.54-8.17	50.496	4.00-4.59	8.27-8.86	
Lande	Pacifica City Limite	acres	(10.3%) 191.834	(7.0%) 23.09	(∠9.8%) 56.477	(2.9% - 3.1%) 10.95-11.53	(0.7% - 7.2%) 18.51-23.25	(44.5%) 79.9	(3.5% - 4.0%) 12.69-14.34	(7.3% - 7.8%) 26.51-27.79	
		00165	(2.4%) 56	(12.0%) 23	(29.4%) 30	(5.7% - 6.0%) 9.00-9.00	(9.7% - 12.1%) 12.00-23.00	(41.7%) 36	(6.6% - 7.5%) 9.00-10.00	(13.8% - 14.5%) 24.00-34.00	
Lands	Parcels	count	(0.4%)	(41.1%)	(53.6%)	(16.1% - 16.1%)	(21.4% - 41.1%)	(64.3%)	(16.1% - 17.9%)	(42.9% - 60.7%)	
Lands	Parks Conservation	acres	(1.6%)	(22.2%)	(44.5%)	(12.4% - 13.2%)	(21.6% - 22.7%)	(57.4%)	(14.8% - 17.1%)	(24.2% - 24.5%)	
Recreation	Access Lateral	feet	697.125 (6.3%)	353.412 (50.7%)	697.125 (100%)	-	297.32-483.38 (42.6% - 69.3%)	697.125 (100%)	24.40-539.05 (3.5% - 77.3%)	697.13-697.13 (100% - 100%)	
Recreation	Access Vertical	feet	180.778 (7.1%)	64.368 (35.6%)	180.778 (100%)	-	-	180.778 (100%)	-	95.43-88.69 (52.8% - 49.1%)	
Recreation	Fishing Pier	count	0	-	-	-	-	-	-	-	
Recreation	Parks	acres	5.848	3.27	5.115	2.31-2.51	3.41-3.50	5.113	2.86-3.46	4.21-4.17	
Door#-	Ter !!-	40-1	(0.2%) 7556.328	(55.9%) 890.873	(87.5%) 3538.016	(39.5% - 42.9%)	(58.3% - 59.8%) 505.79-874.93	(87.4%) 4373.516	(48.9% - 59.2%)	(71.9% - 71.3%) 1039.21-1154.56	
Recreation	Iralis	reet	(4.1%)	(11.8%)	(46.8%)	- 14 26-17 63	(6.7% - 11.6%)	(57.9%) 898 762	-	(13.8% - 15.3%)	
Stormwater	Pipes	feet	(0.6%)	(23.4%)	(40.9%)	(0.8% - 0.9%)	(8.2% - 22.5%)	(47.6%)	(0.9% - 1.0%)	(30.0% - 31.2%)	
Stormwater	Pump Stations	count	0 (0.0%)	-	-	-		-	-	-	
Stormwater	Stormwater Outfalls	count	9 (8.3%)	3 (33.3%)	5 (55.6%)	1.00-1.00 (11.1% - 11.1%)	2.00-3.00 (22.2% - 33.3%)	5 (55.6%)	1.00-3.00 (11.1% - 33.3%)	3.00-3.00 (33.3% - 33.3%)	
Transportation	Bridge Local	count	0	-	-	-	-	-	-	-	
Transportation	Bridge State	count	0	-	-	-	_	_	_	-	
		, sound	(0.0%) 6820.728		-	-	-	913.9	-	-	
Transportation	Highway	feet	(0.0%)	-	- 2002 42	-	-	(13.4%)	-	-	
Transportation	Streets City	feet	4143.432 (0.7%)	800.581 (19.3%)	2003.12 (48.3%)	-	34.59-775.23 (0.8% - 18.7%)	2738.07 (66.1%)	-	1303.07-1895.06 (37.7% - 45.7%)	
Wastewater	Pipeline	feet	13089.767 (2.4%)	1643.448 (12.6%)	3755.142 (28.7%)	-	137.21-1635.19 (1.0% - 12.5%)	5757.214 (44.0%)	-	2486.49-3516.82 (19.0% - 26.9%)	
Wastewater	Pump Stations	count	2 (33.3%)	1 (50.0%)	1 (50.0%)	-	-	1 (50.0%)	-	1.00-1.00	
Water	NCCWD Pipelines	feet	5567.154 (0.8%)	645.537 (11.6%)	2058.559 (37.0%)	-	-	2976.446 (53.5%)	-	1549.16-2486.16 (27.8% - 44.7%)	

Pacifica LCP Update SLR Vulnerability Assessment

Pacifica State Beach



Figure 28 Pacifica State Beach Sub-area – Coastal Hazards at 2100

While the Pacifica State Beach sub-area is mostly beach, there are a number of key assets that are vulnerable (subarea shown in teal on Figure 28). Asset exposure to coastal erosion and flooding for existing conditions and Medium to High SLR at 2050 and 2100 are reported in Table 9. Asset exposures under Extreme SLR scenario can be estimated at 2075 using the exposures under Med-High SLR at 2100. Coastal flooding and erosion exposure to coastal armoring structures, stormwater and wastewater infrastructure, essential/emergency services, and hazardous materials are shown in Appendix B-5. Exposure to existing land use, City-owned parcels, landmarks, local streets, utilities, senior centers, affordable rentals and other community assets are shown in Appendix C-5. Exposure to parks and trails, public access, habitats and sensitive species are shown in Appendix D-5.

Eighteen parcels are exposed to coastal flooding, and include beach, commercial and public uses and multiple City-owned parcels. Beaches are exposed to inundation (7.4 acres) and storm flooding and waves (14.5 to 16.5 acres). Wetlands at San Pedro Creek are also exposed along with the creek itself which supports critical steelhead habitat (less than 0.1 miles, does not appear in table). Parks (Pacifica State Beach) are exposed to inundation (2.2 acres), flooding (9 acres) and wave impacts (15.6 acres). Highway 1 is exposed to flooding and storm impacts (0.8 miles). The stormwater and wastewater systems are particularly exposed in this sub-area. Two stormwater pump stations with a total of six pumps are exposed to storm flooding and waves, while 0.3 miles of pipe are exposed. Two outfalls are exposed. One wastewater pump station is exposed to flooding along with 1 mile of pipe. The entire seawall is exposed to flooding and wave impacts.

Erosion threatens 18 parcels that are exposed to flooding impacts. Over 16 acres of parks are exposed to erosion along with nearly 16 acres of beach. Highway 1 is also exposed (0.3 miles). Both stormwater pump stations and the wastewater pump station are exposed to erosion in addition to 0.3 miles of storm drains, two outfalls, 0.1 miles of water pipes, and 0.8 miles of sewer. The seawall is also exposed to erosion. A total of 18 parcels are exposed to erosion.

				Existing	(P	2050 Exposure Coun	t tal)	2100 Exposure Count (Percent of sub-area total)			
Sub-area Asset	Exposure Table			Conditions	Exposure Range for inundation and flooding is for Low to Medium-Hinh SLR			Exposure Range for inundation and flooding is for Low to Medium-High SLR			
Category	Asset	Units	Total in Sub-area	Storm Flooding	Coastal Erosion	Regular Tidal	Storm Flooding	Coastal Erosion	Regular Tidal	Storm Flooding	
Coastal Structures	Armor Structures	feet	(% of Pacifica) 676.819	676.819	676.819	inundation	676.82-676.82	676.819	12.05-85.11	676.82-676.82	
Coastal Structures	Levee	feet	(4.2%) 0	(100%)	(100%)		(100% - 100%)	(100%)	(1.8% - 12.6%)	(100% - 100%)	
Communication	Comcast Underground	foot	(0.0%)								
Communication	Conduit	acumt	(0.0%) 0	-	-	-	-	_	-	-	
Communication		count	(0.0%)	-	-	-	-	-	-	-	
Community	Affordable Rentals	count	(0.0%)	-	-	-	-	-	-	-	
Community	Communities At Risk	count	(0.0%)	-	-	-	-	-	-	-	
Community	Healthcare Facility	count	(0.0%)	-	-	-	-	-	-	-	
Community	Landmarks	count	0 (0.0%)	-	-	-	-	-	-	-	
Community	Mobile Home Parks	count	0 (0.0%)	-	-	-	-	-	-	-	
Community	Schools	acres	0 (0.0%)	-	-	-	-	-	-	-	
Community	Senior Centers	count	0 (0.0%)	-	-	-	-	-	-	-	
Ecosystem	Beaches	acres	16.582 (28.4%)	16.565 (99.9%)	15.188 (91.6%)	2.10-2.88 (12.7% - 17.4%)	16.10-16.32 (97.1% - 98.4%)	15.79 (95.2%)	4.35-7.43 (26.2% - 44.8%)	16.34-16.58 (98.6% - 100%)	
Ecosystem	CA Red Leg Frog Habitat	acres	0 (0.0%)	-	-	-	-	-	-	-	
Ecosystem	Steelhead Habitat	feet	471.474	217.775	112.679	-	371.40-471.47	178.251	193.83-471.47	471.47-471.47	
Ecosystem	Streams	feet	55.514	55.514	55.514	-	55.51-55.51	55.514	29.52-55.51	55.51-55.51	
Ecosystem	Surforass	feet	0	(100%)	- (100%)	-	- (100% - 100%)	(100%)	(53.2% - 100%)	(100% - 100%)	
Ecosystem	Wotlanda	00100	(0.0%) 0.346	0.133	0.067	0.00-0.01	0.26-0.32	0.106	0.10-0.33	0.33-0.35	
Emergency		acres	(0.2%)	(38.5%)	(19.2%)	(1.0% - 2.2%)	(75.5% - 92.2%)	(30.6%)	(28.6% - 93.9%)	(95.6% - 99.6%)	
Response	⊢ire _	acres	(0.0%)	-	-	-	-	-	-	-	
Response	Police	acres	(0.0%)	-	-	-	-	-	-	-	
Hazardous Waste	Cleanup Sites	count	(0.0%)	-	-	-	-	-	-	-	
Hazardous Waste	Solid Waste Facility	count	0 (0.0%)	-	-	-	-	-	-	-	
Hazardous Waste	Underground Storage Tanks	count	0 (0.0%)	-	-	-	-	-	-	-	
Land Use	Auto Services	acres	0 (0.0%)	-	-	-	-	-	-	-	
Land Use	Beach	acres	23.219 (51.0%)	21.563 (92.9%)	-	1.77-2.37 (7.6% - 10.2%)	17.85-18.83 (76.9% - 81.1%)	-	3.80-7.42 (16.4% - 32.0%)	18.93-21.71 (81.5% - 93.5%)	
Land Use	Commercial	acres	0.676	0.676	-	-	0.68-0.68	-	0.00-0.14	0.68-0.68	
Land Use	Hotels	acres	0	-	-	-	-	-	-	-	
Land Use	Industrial	acres	0	-	-	-	-	-	-	-	
Land Use	Mixed Use	acres	0	-	_	_	_	_	_	_	
	Mobile Homos	20100	(0.0%)								
	Multi Familu	acres	(0.0%) 0	-	-	-	-	-	-	-	
Land Use	Multi-Family	acres	(0.0%)	-	-	-	-	-	-	-	
Land Use	Office	acres	(0.0%)	-	-	-	-	-	-	-	
Land Use	Other Open Space	acres	(0.0%)	- 3 172	-	-	-	- 2.866	-	-	
Land Use	Community Uses	acres	(4.1%)	(100%)	(21.6%)	-	(100% - 100%)	(90.4%)	(1.7% - 8.9%)	(100% - 100%)	
Land Use	Open Space	acres	(0.0%)	-	-	-	-	-	-	-	
Land Use	ROW	acres	0 (0.0%)	-	-	-	-	-	-	-	
Land Use	Schools	acres	0 (0.0%)	-	-	-	-	-	-	-	
Land Use	Single Family Residential	acres	0 (0.0%)	-	-	-	-	-	-	-	
Land Use	Vacant/Undeveloped	acres	0 (0.0%)	-	-	-	-	-	-	-	
Lands	Pacifica City Limits	acres	38.93 (0.5%)	28.973 (74.4%)	17.854 (45.9%)	1.45-1.96 (3.7% - 5.0%)	25.41-26.57 (65.3% - 68.3%)	27.653 (71.0%)	3.51-9.31 (9.0% - 23.9%)	26.79-30.75 (68.8% - 79.0%)	
Lands	Parcels	count	18	18	17	4.00-6.00	18.00-18.00	18 (100%)	14.00-16.00	18.00-18.00	
Lands	Parks Conservation	acres	23.219	21.563	16.856	1.77-2.37	17.85-18.83	21.139	3.80-7.42	18.93-21.72	
Recreation	Access Lateral	feet	(U.b%) 3427.209	(92.9%) 3427.209	(12.0%) 3427.209	(1.0% - 10.2%) -	(70.9% - 81.1%) 3427.21-3427.21	(91.0%) 3427.209	(10.4% - 32.0%) 113.71-1229.88	(01.5% - 93.5%) 3427.21-3427.21	
Recreation	Access Vertical	feet	(30.8%) 827.978	(100%) 820.757	(100%) 485.192		(100% - 100%) 657.19-689.90	(100%) 794.732	(3.3% - 35.9%) 5.30-62.78	(100% - 100%) 686.51-827.98	
Docrection	Eiching Die		(32.7%) 0	(99.1%)	(58.6%)	-	(79.4% - 83.3%)	(96.0%)	(0.6% - 7.6%)	(82.9% - 100%)	
recreation	risning Pier	count	(0.0%) 16.91	- 15.254	- 12.491	- 0.04-0.10	- 11.54-12.52	- 16.245	- 0.40-2.27	- 12.62-15.41	
Recreation	Parks	acres	(0.6%)	(90.2%) 2067 633	(73.9%) 1289.389	(0.2% - 0.6%)	(68.2% - 74.1%) 1584 05-1617 99	(96.1%) 2162 422	(2.4% - 13.5%)	(74.7% - 91.1%) 1648 99-2355 41	
Recreation	Trails	feet	(2.2%)	(51.0%)	(31.8%)	-	(39.1% - 39.9%)	(53.3%)	-	(40.7% - 58.1%)	
Stormwater	Pipes	feet	(0.6%)	(100%)	(58.0%)	(9.8% - 12.4%)	(100% - 100%)	(88.1%)	(19.4% - 34.1%)	(100% - 100%)	
Stormwater	Pump Stations	count	66.7%)	6 (100%)	3 (50.0%)	-	6.00-6.00 (100% - 100%)	6 (100%)		6.00-6.00 (100% - 100%)	
Stormwater	Stormwater Outfalls	count	2 (1.8%)	2 (100%)	2 (100%)	2.00-2.00 (100% - 100%)	2.00-2.00 (100% - 100%)	2 (100%)	2.00-2.00 (100% - 100%)	2.00-2.00 (100% - 100%)	
Transportation	Bridge Local	count	1 (25.0%)	-	-	-	1.00-1.00 (100% - 100%)	-	-	1.00-1.00 (100% - 100%)	
Transportation	Bridge State	count	0 (0.0%)	-	-	-	-	-	-	-	
Transportation	Highway	feet	4412.671	1905.395 (43.2%)	-	-	1759.57-1759.57 (39.9% - 39.9%)	748.381	-	1780.09-2195.19 (40.3% - 49.7%)	
Transportation	Streets City	feet	667.241 (0.1%)	326.01	-	-	414.81-437.96	-	-	451.88-667.24	
Wastewater	Pipeline	feet	6404.812 (4.0%)	4904.812	2295.334	-	3664.57-3712.85	4158.117	113.61-906.63	3709.19-4910.86	
Wastewater	Pump Stations	count	(1. <i>2</i> %)	(/0.0%) 1	(JD.8%) -	-	(37.2% - 58.0%) 1.00-1.00	(04.9%) 1	(1.0% - 14.2%)	(37.9% - 76.7%) 1.00-1.00	
Motor		foot	(16.7%) 1348.493	(100%) 614.794	106.19		(100% - 100%) 706.10-775.03	(100%) 370.374	4.99-199.00	(100% - 100%) 816.75-1213.67	
vv alei	record ripelines	icel	(0.2%)	(45.6%)	(7.9%)	-	(52.4% - 57.5%)	(27.5%)	(0.4% - 14.8%)	(60.6% - 90.0%)	

 Table 9

 Pacifica State Beach Asset Exposure for Existing and Future Sea-levels

Pacifica LCP Update SLR Vulnerability Assessment

West Linda Mar



SOURCE: Multiple

Figure 29 West Linda Mar Sub-area – Coastal Hazards at 2100

The coastal hazards posed to West Linda Mar are shown in Figure 29 (sub-area shown in teal). Asset exposure to coastal erosion and flooding for existing conditions and Medium to High SLR at 2050 and 2100 are reported in Table 10. Asset exposures under Extreme SLR scenario can be estimated at 2075 using the exposures under Med-High SLR at 2100. Coastal flooding and erosion exposure to coastal armoring structures, stormwater and wastewater infrastructure, essential/emergency services, and hazardous materials are shown in Appendix B-5. Exposure to existing land use, City-owned parcels, landmarks, local streets, utilities, senior centers, affordable rentals and other community assets are shown in Appendix C-5. Exposure to parks and trails, public access, habitats and sensitive species are shown in Appendix D-5.

Coastal flooding may impact as many as 362 parcels in West Linda Mar. Vulnerable land uses include residential, commercial, auto services, public use and open space. One landmark, the Pacifica Community Center, is exposed to storm flooding and wave damages. One affordable rental unit, a senior center and one school are exposed to flooding. Wetlands and streams in San Pedro Creek are exposed to storm flooding (0.2 and 0.1 acres respectively). Local streets and Highway 1 totaling 3 miles are also exposed as well as both bridges over San Pedro Creek (Hwy 1 and San Pedro Ave). Underground conduit (0.4 miles) are exposed to flooding. There are two hazardous materials clean up sites in Linda Mar that are exposed to flooding. While there are no pump stations in West Linda Mar, those exposed in Pacifica State Beach will also affect storm drainage in this sub-area. There are 3 miles of stormwater drains and 2.6 miles of sewer lines that are exposed to flooding in this sub-area.

Erosion may affect only a few assets in this sub-area by 2100. Four parcels are exposed that include residential and public use. A total of 0.1 miles of Highway 1 and 0.1 miles of stormwater drains and 0.1 miles of water pipes are exposed. A total of 1.2 acres of lands, including 4 parcels, are exposed to erosion by 2100 in this sub-area.
				Existing	2050 Exposure Count (Percent of sub-area total)			2100 Exposure Count (Percent of sub-area total)			
Sub-area Asset Exposure Table West Linda Mar				Conditions (% of Sub-area)	Exposure Range for inundation and flooding is for Low t Medium-High SLR			Exposure Range for inundation and flooding is for Low to Medium-High SLR			
Category	Asset	Units	Total in Sub-area	Storm Flooding	Coastal Erosion	Regular Tidal	Storm Flooding	Coastal Erosion	Regular Tidal	Storm Flooding	
Coastal Structures	Armor Structures	feet	0	-	-	-	-	-	-	_	
Coastal Structures	Levee	feet	0	-	-	-	-	-	-	-	
Communication	Comcast Underground	feet	24319.476	696.486	-	_	1202.13-879.13	-	_	1344.86-3049.67	
Communication	Conduit Towers Private	count	(16.5%)	(2.9%)		_	(4.9% - 3.0%) -		_	(5.5% - 12.5%) -	
Community	Affordable Rentals	count	(0.0%)	<u> </u>							
Community		count	(20.0%) 0		_	_	_	_	_	_	
Community		COUIN	(0.0%)	-	-	-	-	-	-	-	
	Healthcare Facility	couni	(50.0%) 2	- 1	-	-	- 1.00-1.00	-	-	- 1.00-1.00	
Community	Landmarks	count	(22.2%)	(50.0%)	-	-	(50.0% - 50.0%)	-	-	(50.0% - 50.0%)	
Community	Mobile Home Parks	count	(0.0%)	-	-	-	-	-	-	-	
Community	Schools	acres	(18.6%)	-	-	-	-	-	-	-	
Community	Senior Centers	count	(100%)	-	-	-	-	-	-	-	
Ecosystem	Beaches	acres	(0.0%)		-	-	-	-	-	-	
Ecosystem	CA Red Leg Flog Habitat	acres	181.271 (0.5%)	-	-	-	-	-	-	-	
Ecosystem	Steelhead Habitat	feet	5492.985 (21.1%)	-	-	-	12.59-45.75 (0.2% - 0.8%)	-	-	104.30-219.81 (1.9% - 4.0%)	
Ecosystem	Streams	feet	7214 (6.3%)	-	-	-	23.43-44.85 (0.3% - 0.6%)	-	3.94-44.85 (0.1% - 0.6%)	291.02-571.00 (4.0% - 7.9%)	
Ecosystem	Surfgrass	feet	0 (0.0%)	-	-	-	-	-	-	-	
Ecosystem	Wetlands	acres	7.614 (3.5%)			-	0.00-0.00 (0.0% - 0.0%)	-	0.00-0.00 (0.0% - 0.0%)	0.02-0.15 (0.3% - 1.9%)	
Emergency Response	Fire	acres	1.646 (83.6%)	-	-	-	-	-	-	-	
Emergency Response	Police	acres	0 (0.0%)	-	-	-	-	-	-	-	
Hazardous Waste	Cleanup Sites	count	2 (25.0%)	1 (50.0%)	-	-	1.00-1.00 (50.0% - 50.0%)	-	-	2.00-2.00 (100% - 100%)	
Hazardous Waste	Solid Waste Facility	count	0 (0.0%)	-	-	-	-	-	-	-	
Hazardous Waste	Underground Storage	count	0	-	-	-	-	-	-	-	
Land Use	Auto Services	acres	0.42	0.42	-	-	0.42-0.42	-	-	0.42-0.42	
Land Use	Beach	acres	0	(100%)	-	_	(100% - 10070) -	-	_	(100% - 100 <i>7</i> 0) -	
Land Use	Commercial	acres	(0.0%) 18.242	8.587		_	8.57-8.57	_	0.01-3.08	8.86-12.29	
Land Use	Hotels	acres	(20.5%)	(47.1%)			(47.0% - 47.0%)		(0.0% - 16.9%)	(48.5% - 67.4%)	
Land Lee	Industrial	20100	(29.0%) 0.983			_			_	_	
	Incustriai	acies	(5.4%) 0	-	-	-	-	-	-	-	
Land Use	Mixed Use	acres	(0.0%) 0	-	-	-	-	-	-	-	
Land Use	Mobile Homes	acres	(0.0%)	-	-	-	-	-	-	-	
Land Use	Multi-Family	acres	(3.8%)	-	-	-	-	-	-	-	
Land Use	Office	acres	(23.7%)	-	-	-	-	-	-	-	
Land Use	Other Open Space	acres	28.739 (3.9%)	0.001 (0.0%)	-	-	0.37-1.42 (1.3% - 4.9%)	-	0.06-1.12 (0.2% - 3.9%)	2.61-3.79 (9.1% - 13.2%)	
Land Use	Other Public or Community Uses	acres	15.133 (19.8%)	3.477 (23.0%)	-	0.00-0.17 (0.0% - 1.1%)	3.45-3.45 (22.8% - 22.8%)	0.283 (1.9%)	0.60-2.30 (4.0% - 15.2%)	3.51-4.72 (23.2% - 31.2%)	
Land Use	Parks & Accessible Open Space	acres	21.858 (0.8%)	1.797 (8.2%)	-	0.00-0.09 (0.0% - 0.4%)	1.70-1.70 (7.8% - 7.8%)	-	0.53-1.43 (2.4% - 6.6%)	1.71-1.96 (7.8% - 8.9%)	
Land Use	ROW	acres	0 (0.0%)	-	-	-	-	-	-	-	
Land Use	Schools	acres	59.795 (25.2%)		-	-	-	-		-	
Land Use	Single Family Residential	acres	289.447 (16.4%)	22.696 (7.8%)	-	0.00-0.02 (0.0% - 0.0%)	24.94-23.96 (8.6% - 8.3%)	0.24 (0.1%)	1.32-11.45 (0.5% - 4.0%)	26.72-43.62 (9.2% - 15.1%)	
Land Use	Vacant/Undeveloped	acres	155.432 (14.1%)	-	-	-	-	-	-	-	
Lands	Pacifica City Limits	acres	575.807	50.619 (8.8%)	-	0.00-0.34	53.31-52.63	1.174	4.58-28.14	58.57-85.77	
Lands	Parcels	count	1953	242	-	2.00-3.00	(9.3% - 9.170) 251.00-235.00	(U.270) 4 (0.2%)	44.00-142.00	268.00-386.00	
Lands	Parks Conservation	acres	(15.0%) 31.942	(12.4%) 2.455 (7.7%)	-	(U.1% - U.2%) 0.00-0.26	(12.9% - 12.0%) 2.35-2.36	(U.2%) 0.246	(2.3% - 7.3%)	2.37-2.61	
Recreation	Access Lateral	feet	(0.9%)	(7.7%)		(0.0% - 0.8%)	(7.4% - 7.4%)	(0.8%)	(3.5% - 6.6%) -	(7.4% - 8.2%)	
Pocreation	Access Vertical	faat	(0.0%) 0	 							
Decreation	Fishing Diar		(0.0%) 0	-						_	
Recreation		COUII	(0.0%) 27.819	-	-	-	-	-	-	-	
Recreation	Parks	acres	(1.0%) 10318.582	-	-	-	-	-	-	-	
Recreation	Trails	feet	(5.6%)	- 0.401	-	-	- 0 40-0 40	-	-	- 0 40-0 40	
Stormwater	EQ Basin	acres	(100%)	(100%)	-	-	(100% - 100%)	-	(1.0% - 100%)	(100% - 100%)	
Stormwater	Pipes	feet	(11.4%)	(19.5%)	-	-	(21.4% - 20.4%)	(1.0%)	(3.6% - 12.5%)	(22.3% - 29.2%)	
Stormwater	Pump Stations	count	(0.0%)	-	-	-	-	-	-	-	
Stormwater	Stormwater Outfalls	count	9 (8.3%)	-	-	-	-	-	-	-	
Transportation	Bridge Local	count	2 (50.0%)	-	-	-	-	-	-	-	
Transportation	Bridge State	count	2 (22.2%)	-	-	-	-	-	-	-	
Transportation	Highway	feet	7470.476 (0.0%)	1841.48 (24.7%)	-	-	1760.11-1760.11 (23.6% - 23.6%)	681.753 (9.1%)	-		
Transportation	Streets City	feet	81165.088 (14.4%)	11074.088 (13.6%)	-	-	11168.60-10552.81 (13.8% - 13.0%)	-	1540.09-6145.19 (1.9% - 7.6%)	11713.44-14641.42 (14.4% - 18.0%)	
Wastewater	Pipeline	feet	83553.921 (15.1%)	10563.016 (12.6%)	-	-	11153.23-10357.97 (13.3% - 12.4%)	-	1483.14-6265.44 (1.8% - 7.5%)	11610.32-14360.48 (13.9% - 17.2%)	
Wastewater	Pump Stations	count	0 (0.0%)	-	-	-	-	-	-	-	
Water	NCCWD Pipelines	feet	104890.026	13683.684	-	-	13750.52-13134.35	721.172	2008.47-7938.78	14454.34-18861.96	
		1 1	(15.0%)	(13.0%)			(13.1% - 12.5%)	(0.7%)	(1.9% - 7.0%)	(13.0% - 10.0%)	

 Table 10

 West Linda Mar Asset Exposure for Existing and Future Sea-levels

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Pedro Point and Shelter Cove



Pedro Point and Shelter Cove Sub-area - Coastal Hazards at 2100

The Pedro Point and Shelter Cove sub-area is mostly high above sea level, thereby limiting its vulnerability to flooding and wave damages (sub-area shown in teal on Figure 30). Asset exposure to coastal erosion and flooding for existing conditions and Medium to High SLR at 2050 and 2100 are reported in Table 11. Asset exposures under Extreme SLR scenario can be estimated at 2075 using the exposures under Med-High SLR at 2100. Coastal flooding and erosion exposure to coastal armoring structures, stormwater and wastewater infrastructure, essential/emergency services, and hazardous materials are shown in Appendix B-5. Exposure to existing land use, City-owned parcels, landmarks, local streets, utilities, senior centers, affordable rentals and other community assets are shown in Appendix C-5. Exposure to parks and trails, public access, habitats and sensitive species are shown in Appendix D-5.

Fifteen parcels are exposed to coastal storm flooding, including residential homes along the boat docks, the commercial Pedro Point Shopping center, vacant lands, and the Shelter Cove community. Beaches in this sub-area are exposed to both inundation (1.2 acres) and storm flooding (1.4 acres). Surf grass is also exposed to inundation (0.4 miles) and flooding (0.5 miles). This sub-area includes a portion of San Pedro Creek wetlands that are exposed to flooding. Shelter Cove, an identified community at risk, is exposed to flooding and wave damages. All 0.1 miles of coastal structures are exposed to flooding and wave damages.

Erosion poses a greater threat to this sub-area. A total of 91 parcels are exposed that are mostly residential and some vacant land. Local streets are exposed (1.4 miles). Shelter Cove is exposed to erosion. Sewer lines are also

exposed (0.5 miles) as are water pipes (0.6 miles). All coastal structures are exposed, including timber structures at Shelter Cove and along the boat dock homes.

Asset exposures to coastal flooding under existing conditions, coastal erosion for 2050 and 2100, and coastal storm flooding and regular tidal inundation for a range of Medium to High SLR (shown as a range) at 2050 and 2100 are reported in the table below. For each asset, the total quantity within the sub-area (and percent of total within Pacifica) is provided for reference. Exposures are reported for the asset unit of measure and the percentage of that particular asset within the sub-area.

Sub-area Asset Exposure Table Pedro Point and Shelter Cove				Existing Conditions (% of Sub-area)	2050 Exposure Count (Percent of sub-area total) Exposure Range for inundation and flooding is for Low to Medium-High SLR			2100 Exposure Count (Percent of sub-area total) Exposure Range for inundation and flooding is for Low to Medium-High SLR		
Category	Asset	Units	Total in Sub-area	Storm Flooding	Coastal Erosion	Regular Tidal	Storm Flooding	Coastal Erosion	Regular Tidal	Storm Flooding
Coastal Structures	Armor Structures	feet	583	583	459.654	148.00-182.04	583.00-583.00	465.862	293.44-481.65	583.00-583.00
Coastal Structures	Levee	feet	0	-	-	-	-	-	-	-
Communication	Comcast Underground	feet	0	-	-	-	-	-	-	-
Communication	Towers Private	count	1	-	-	-	-	-	-	-
Community	Affordable Rentals	count	(3.8%)	_	-	-	-	-	-	-
Community	Communities At Risk	count	(0.0%)	1	1	-	1.00-1.00	1	1.00-1.00	1.00-1.00
Community	Healthcare Facility	count	0	- (100%)	- (100%)	-	- (100% - 100%)	- (100%)	- (100% - 100%)	- (100% - 100%)
Community	Landmarks	count	0	-	_	-	-		-	_
Community	Mobile Home Parks	count	0	-	_	-	-		-	_
Community	Schools	acres	0	_	-	-	-	-	-	_
Community	Senior Centers	count	(0.0%)	-	-	-	-	-	-	-
Ecosystem	Beaches	acres	(0.0%) 1.364	1.364	0.718	0.56-0.68	1.36-1.36	0.723	0.93-1.24	1.36-1.36
Ecosystem	CA Red Leg Frog	acres	(2.3%) 131.996	(100%)	(52.7%)	(40.8% - 50.1%)	(99.7% - 100%)	(53.0%)	(67.9% - 90.7%)	(100% - 100%)
Ecosystem	Habitat Steelbead Habitat	feet	(0.4%) 164.418	16.955	16.955	6.95-14.70	118.59-151.58	16.955	68.74-151.58	159.42-162.67
Ecosystem	Streams	feet	(0.6%) 578.161	(10.3%) 178.346	(10.3%) 86.258	(4.2% - 8.9%) 17.62-24.95	(72.1% - 92.2%) 465.21-521.01	(10.3%) 151.421	(41.8% - 92.2%) 290.61-527.82	(97.0% - 98.9%) 562.56-571.35
Ecosystem	Surfarass	feet	(0.5%) 3053.368	(30.8%) 2899.113	(14.9%) 2286.177	(3.0% - 4.3%) 1690.87-1724.11	(80.5% - 90.1%) 2647.60-2888.54	(26.2%) 2286.718	(50.3% - 91.3%) 1790.98-2370.48	(97.3% - 98.8%) 3018.00-3053.37
Ecosystem	Wetlands	201001	(19.0%) 5.568	(94.9%) 0.021	(74.9%) 0.661	(55.4% - 56.5%) 0.01-0.01	(86.7% - 94.6%) 0.03-0.04	(74.9%) 1.934	(58.7% - 77.6%) 0.02-0.03	(98.8% - 100%) 0.78-1.23
	Fire	acres	(2.6%)	(0.4%)	(11.9%)	(0.1% - 0.2%)	(0.5% - 0.8%)	(34.7%)	(0.3% - 0.6%)	(13.9% - 22.2%)
Emergency Respons	Polico	acres	(0.0%) 0	-	-	-	-	-	-	-
		actes	(0.0%) 0	-	-	-	-	-	-	-
	Cleanup Sites	count	(0.0%) 0	-	-	-	-	-	-	-
	Underground Storage	count	(0.0%) 0	-	-	-	-	-	-	-
	Tanks	count	(0.0%) 0	-	-	-	-	-	-	-
	Auto Services	acres	(0.0%)	0.028	-	- 0.00-0.00	0.03-0.03	-	0.02-0.03	0.03-0.03
Land Use	Beach	acres	(0.1%) 6.228	(100%)	-	(0.2% - 0.4%)	(100% - 100%) 0.09-0.12	-	(75.3% - 99.5%) 0.04-0.12	(100% - 100%) 0.31-1.35
Land Use	Commercial	acres	(7.0%) 0	(0.1%)	-	-	(1.4% - 2.0%)	-	(0.7% - 2.0%)	(5.0% - 21.6%)
Land Use	Hotels	acres	(0.0%)	-	-	-	-	-	-	-
Land Use	Industrial	acres	(2.8%)	-	-	-	-	-	-	-
Land Use	Mixed Use	acres	(9.7%)	-	-	-	-	-	-	-
Land Use	Mobile Homes	acres	(0.0%)	-	-	-	-	-	-	-
Land Use	Multi-Family	acres	(0.0%)	-	-	-	-	-	-	-
Land Use	Office	acres	(2.6%)	-	-	-	-	-	-	-
Land Use	Other Open Space	acres	(18.8%)	(0.4%)	-	(0.0% - 0.0%)	(0.4% - 0.3%)	-	(0.0% - 0.1%)	(0.4% - 0.4%)
Land Use	Community Uses	acres	(0.0%)	-	-	-	-	-	-	-
Land Use	Open Space	acres	(0.0%)	-	-	-	-	-	-	-
Land Use	ROW	acres	(0.0%)	-	-	-	-	-	-	-
Land Use	Schools	acres	(0.0%)	-	-	-	-	-	-	-
Land Use	Single Family Residential	acres	55.984 (3.2%)	3.323 (5.9%)	18.076 (32.3%)	0.15-0.22 (0.3% - 0.4%)	2.04-3.50 (3.6% - 6.3%)	25.415 (45.4%)	0.46-0.99 (0.8% - 1.8%)	3.79-4.40 (6.8% - 7.9%)
Land Use	Vacant/Undeveloped	acres	29.344 (2.7%)	0.397 (1.4%)	0.699 (2.4%)	0.00-0.00 (0.0% - 0.0%)	0.35-0.44 (1.2% - 1.5%)	2.513 (8.6%)	0.05-0.21 (0.2% - 0.7%)	1.31-1.77 (4.5% - 6.0%)
Lands	Pacifica City Limits	acres	152.832 (1.9%)	9.41 (6.2%)	25.457 (16.7%)	4.35-4.69 (2.8% - 3.1%)	8.09-10.15 (5.3% - 6.6%)	36.903 (24.1%)	5.49-6.80 (3.6% - 4.4%)	11.78-14.28 (7.7% - 9.3%)
Lands	Parcels	count	328 (2.5%)	13 (4.0%)	46 (14.0%)	5.00-5.00 (1.5% - 1.5%)	14.00-15.00 (4.3% - 4.6%)	91 (27.7%)	11.00-13.00 (3.4% - 4.0%)	17.00-18.00 (5.2% - 5.5%)
Lands	Parks Conservation	acres	139.023 (3.8%)	0.586 (0.4%)	9.682 (7.0%)	0.00-0.01 (0.0% - 0.0%)	0.53-0.47 (0.4% - 0.3%)	12.638 (9.1%)	0.06-0.17 (0.0% - 0.1%)	0.57-0.60 (0.4% - 0.4%)
Recreation	Access Lateral	feet	314.619 (2.8%)	314.619 (100%)	314.619 (100%)	-	314.62-314.62 (100% - 100%)	314.619 (100%)	129.41-314.62 (41.1% - 100%)	314.62-314.62 (100% - 100%)

Table 11 Pedro Point and Shelter Cove Asset Exposure for Existing and Future Sea-levels

Recreation	Access Vertical	feet	214.12 (8.5%)	186.572 (87.1%)	105.896 (49.5%)	-	168.65-185.83 (78.8% - 86.8%)	171.468 (80.1%)	35.11-159.72 (16.4% - 74.6%)	194.63-214.12 (90.9% - 100%)
Recreation	Fishing Pier	count	0 (0.0%)	-	-	-	-	-	-	-
Recreation	Parks	acres	0 (0.0%)	-	-	-	-	-	-	-
Recreation	Trails	feet	9023.361 (4.9%)	50.189 (0.6%)	-	-	35.60-75.83 (0.4% - 0.8%)	37.207 (0.4%)	-	109.99-366.15 (1.2% - 4.1%)
Stormwater	Pipes	feet	3660.637 (1.3%)	-	-	-	-	-	-	-
Stormwater	Pump Stations	count	0 (0.0%)	-	-	-	-	-	-	-
Stormwater	Stormwater Outfalls	count	7 (6.4%)	-	-	-	-	-	-	-
Transportation	Bridge Local	count	0 (0.0%)	-	-	-	-	-	-	-
Transportation	Bridge State	count	0 (0.0%)	-	-	-	-	-	-	-
Transportation	Highway	feet	2532.49 (0.0%)	-	-	-	-	-	-	-
Transportation	Streets City	feet	18371.055 (3.3%)	-	4641.309 (25.3%)	-	2.63-25.48 (0.0% - 0.1%)	7107.297 (38.7%)	-	116.18-167.25 (0.6% - 0.9%)
Wastewater	Pipeline	feet	16624.544 (3.0%)	-	281.566 (1.7%)	-	52.85-462.31 (0.3% - 2.8%)	2574.016 (15.5%)	14.00-293.82 (0.1% - 1.8%)	603.40-992.64 (3.6% - 6.0%)
Wastewater	Pump Stations	count	0 (0.0%)	-	-	-	-	-	-	-
Water	NCCWD Pipelines	feet	17062.759 (2.4%)	-	837.747 (4.9%)	-	14.12-18.35 (0.1% - 0.1%)	3313.556 (19.4%)	-	24.87-165.87 (0.1% - 1.0%)

Pacifica LCP Update SLR Vulnerability Assessment

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Pacifica LCP Update SLR Vulnerability Assessment ESA / D170663.00 June 2018

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West Linda Mar



SOURCE: City of Pacifica

Pacifica LCP Update . 170663.00

Figure 1 Project Area and Assessment Subareas

ESA





Disclaimer: This map is not detailed to the parcel-scale and should not be used for navigation, permitting, regulatory, or other legal uses. The erosion scenario does not account for shoreline protection. Hazards projections were sourced from publicly available data and existing models not created by the City of Pacifica. Pacifica LCP Update . 170663.00

Appendix A-1 Existing Conditions Map Fairmont West





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Appendix A-2 Existing Conditions Map West Edgemar, Pacific Manor



ESA

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Appendix A-3 Existing Conditions Map Northwest Sharp Park





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Appendix A-4

Existing Conditions Map Sharp Park, West Fairway Park, and Mori Point





Disclaimer: This map is not detailed to the parcel-scale and should not be used for navigation, permitting, regulatory, or other legal uses. The erosion scenario does not account for shoreline protection. Hazards projections were sourced from publicly available data and existing models not created by the City of Pacifica. Pacifica LCP Update . 170663.00

Appendix A-5

Existing Conditions Map Rockaway Beach, Quarry, and Headlands





Disclaimer: This map is not detailed to the parcel-scale and should not be used for navigation, permitting, regulatory, or other legal uses. The erosion scenario does not account for shoreline protection. Hazards projections were sourced from publicly available data and existing models not created by the City of Pacifica. Pacifica LCP Update . 170663.00

Appendix A-6 Existing Conditions Map Pacifica State Beach





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Appendix A-7 Existing Conditions Map West Linda Mar



High Tide Shoreline (2016)
 Coastal Armor
 General Plan Specific Sites
 Pacifica Subareas

Pedro Point Shopping Center



SOURCE: San Mateo County 2017 Imagery; City of Pacifica Assets (2017); FEMA Flood Hazard Areas (2017)



Disclaimer: This map is not detailed to the parcel-scale and should not be used for navigation, permitting, regulatory, or other legal uses. The erosion scenario does not account for shoreline protection. Hazards projections were sourced from publicly available data and existing models not created by the City of Pacifica. Pacifica LCP Update . 170663.00

Appendix A-8

Existing Conditions Map Pedro Point and Shelter Cove Pacifica Sea-level Rise Vulnerability Assessment Appendix B Hazard Mitigation Asset Exposure Maps for 2100 High SLR



ESA

SOURCE: San Mateo County 2017 Imagery; City of Pacifica Assets (2017); Pacific Institute Erosion (2009); OCOF Coastal Flooding (2014)

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Appendix B-1 Hazard Mitigation - Asset Exposure Map Fairmont West



SOURCE: San Mateo County 2017 Imagery; City of Pacifica Assets (2017); Pacific Institute Erosion (2009); OCOF Coastal Flooding (2014)

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Appendix B-2

Hazard Mitigation - Asset Exposure Map West Edgemar and Pacific Manor; Northwest Sharp Park



SOURCE: San Mateo County 2017 Imagery; City of Pacifica Assets (2017); Pacific Institute Erosion (2009); OCOF Coastal Flooding (2014)

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Appendix B-3

Hazard Mitigation - Asset Exposure Map Sharp Park, West Fairway Park, and Mori Point



SOURCE: San Mateo County 2017 Imagery; City of Pacifica Assets (2017); Pacific Institute Erosion (2009); OCOF Coastal Flooding (2014)

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Appendix B-4

Hazard Mitigation - Asset Exposure Map Rockaway Beach, Quarry and Headlands



SOURCE: San Mateo County 2017 Imagery; City of Pacifica Assets (2017); Pacific Institute Erosion (2009); OCOF Coastal Flooding (2014)

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Appendix B-5

Hazard Mitigation - Asset Exposure Map Pacifica SB; West Linda Mar; Pedro Point and Shelter Cove Pacifica Sea-level Rise Vulnerability Assessment Appendix C Community and Land Use Asset Exposure Maps for 2100 High SLR



SOURCE: San Mateo County 2017 Imagery; City of Pacific and SMC Assets (2017); Pacific Institute Erosion (2009); OCOF Coastal Flooding (2014)

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Appendix C-1 Community and Land Use - Asset Exposure Map Fairmont West

ESA



SOURCE: San Mateo County 2017 Imagery; City of Pacific and SMC Assets (2017); Pacific Institute Erosion (2009); OCOF Coastal Flooding (2014)

ESA

Pacifica LCP Update . 170663.00

Appendix C-2

Community and Land Use - Asset Exposure Map West Edgemar and Pacific Manor; Northwest Sharp Park



SOURCE: San Mateo County 2017 Imagery; City of Pacific and SMC Assets (2017); Pacific Institute Erosion (2009); OCOF Coastal Flooding (2014)

ESA

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Appendix C-3

Community and Land Use - Asset Exposure Map Sharp Park, West Fairway Park, and Mori Point



SOURCE: San Mateo County 2017 Imagery; City of Pacific and SMC Assets (2017); Pacific Institute Erosion (2009); OCOF Coastal Flooding (2014)

ESA

Pacifica LCP Update . 170663.00

Appendix C-4

Community and Land Use - Asset Exposure Map Rockaway Beach, Quarry and Headlands



SOURCE: San Mateo County 2017 Imagery; City of Pacific and SMC Assets (2017); Pacific Institute Erosion (2009); OCOF Coastal Flooding (2014)

ESA

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Appendix C-5

Community and Land Use - Asset Exposure Map Pacifica SB; West Linda Mar; Pedro Point and Shelter Cove



SOURCE: San Mateo County 2017 Imagery; City of Pacific and SMC Assets (2017); Pacific Institute Erosion of bluff or dune crest without armoring (2009); OCOF Coastal Flooding from 100-yr storm (2014)



DISCLAIMER: Federal, state, and local regulatory agencies with jurisdiction over wetlands may define ESA and describe wetlands in a different manner than that used in this figure. There is no attempt in this figure to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. A margin of error is inherent in this figure; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

Pacifica LCP Update . 170663.00

Appendix D-1

Public Access, Recreation and Ecology - Asset Exposure Map Fairmont West



SOURCE: San Mateo County 2017 Imagery; City of Pacific and SMC Assets (2017); Pacific Institute Erosion of bluff or dune crest without armoring (2009); OCOF Coastal Flooding from 100-yr storm (2014)



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Appendix D-2

Public Access, Recreation and Ecology - Asset Exposure Map West Edgemar and Pacific Manor; Northwest Sharp Park



SOURCE: San Mateo County 2017 Imagery; City of Pacific and SMC Assets (2017); Pacific Institute Erosion of bluff or dune crest without armoring (2009); OCOF Coastal Flooding from 100-yr storm (2014)



Appendix D-3

Public Access, Recreation and Ecology - Asset Exposure Map Sharp Park, West Fairway Park, and Mori Point



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SOURCE: San Mateo County 2017 Imagery; City of Pacific and SMC Assets (2017); Pacific Institute Erosion of bluff or dune crest without armoring (2009); OCOF Coastal Flooding from 100-yr storm (2014)



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Appendix D-4

Public Access, Recreation and Ecology - Asset Exposure Map Rockaway Beach, Quarry and Headlands



SOURCE: San Mateo County 2017 Imagery; City of Pacific and SMC Assets (2017); Pacific Institute Erosion of bluff or dune crest without armoring (2009); OCOF Coastal Flooding from 100-yr storm (2014)



DISCLAIMER: Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this figure. There is no attempt in this figure to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. A margin of error is inherent in this figure; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis. Pacifica LCP Update . 170663.00

Appendix D-5

Public Access, Recreation and Ecology - Asset Exposure Map Pacifica SB; West Linda Mar; Pedro Point and Shelter Cove

Appendix E. Responses to Comments on Draft Vulnerability Assessment

On January 12, 2018, the City of Pacifica released the Draft Vulnerability Assessment for public review and comment. The original public review period was January 12, 2018 through February 28, 2018. The City extended the comment period an additional two weeks to March 14, 2018 in response to requests from the public.

Draft Vulnerability Assessment Public Outreach

The City of Pacifica held three public meetings to discuss the Draft Vulnerability Assessment and the overall sea level rise planning effort that the City is conduction and receive feedback. Each public meeting began with a presentation, with an opportunity for questions followed with a mapping activity. Details of the public meetings are provided below

Technical Work Group (Work group comprised of key federal, state, and local regulatory and resource agencies. Public was welcome to attend, but public participation was limited) Tuesday January 23, 2018 at 2:00pm Pacifica Council Chambers (2212 Beach Blvd, 2nd Floor)

Community Work Group (Work group comprised of selected community stakeholders. Public was welcome to attend, but public participation was limited) Tuesday January 23, 2018 at 6:00pm Pacifica Council Chambers (2212 Beach Blvd, 2nd Floor)

Public Workshop (Full public participation) Tuesday, February 13, 2018 at 6:00pm Pacifica Council Chambers (2212 Beach Blvd., 2nd Floor)

Work group members and the public were invited to submit written comment until the public review period closed on March 14, 2018. Written comments were submitted at the public meetings, submitted to a City email address (sealevelrise@ci.pacifica.ca.us or o'connorb@ci.pacifica.ca.us), or mailed to Bonny O'Connor, Assistant Planner at 170 Santa Maria Ave, Pacifica, CA 94044.

Overview of Comments

The City received 148 comments during the public comment period. Five comments were received from the Technical Work Group, 34 comments from the Community Work Group, and 109 comments from the public. Tables E-1 through E-3 lists the assigned comments numbers and the commenter associated with the letter.
Comment #	Commenter
TWG 1	California Coastal Commission
TWG2	San Francisco Recreation and Parks Department
TWG2	California State Parks
TWG4	US Army Corps of Engineers
TWG5	California Department of Transportation

Table E-1. Technical Work Group Comments

Table E-2. Community Work Group Comments

Comment #	Commenter	Comment #	Commenter	
CWG1	Gordon Tannura	CWG18	Ron Maykel	
CWG2	Jim Kremer	CWG19	Jim Steele	
CWG3	Jim Kremer	CWG20	James Kremer	
CWG4	Gordon Tannura	CWG21	Eileen O'Reilly	
CWG5	Robine Runneals	CWG22	Cindy Abbott	
CWG6	Jim Kremer	CWG23	Jim Steele	
CWG7	Jim Steele	CWG24	Jim Kremer	
CWG8	Gordon Tannura	CWG25	Cindy Abbott	
CWG9	Robine Runneals	CWG26	Sam Casillas	
CWG10	Jim Kremer	CWG27	Shalini Desroches	
CWG11	Connie Menefee	CWG28	Maureen Garcia and Toni Boykin	
CWG12	Eileen O'Reilly	CWG29	Peter Guzman Garcia	
CWG13	Gordon Tannura	CWG30	Jim Kremer	
CWG14	Jim Kremer	CWG31	Ron Maykel	
CWG15	Toni Boykin	CWG32	Eileen O'Reilly	
CWG16	Connie Menefee	CWG33	Robine Runneals	
CWG17	Gordon Tannura	CWG34	Gordon Tannura	

Table E-3. Public Comments

Comment #	Commenter	Comment #	Commenter
P1	Margaret Goodale	P56	Margaret Goodale
P2	Richard Harris	P57	Stan Zeavin
Р3	Bart Willoughby	P58	Sue Casperson
P4	Margaret Goodale	P59	Tina Arroyo
Р5	Colleen Golden	P60	Linda Bruno
P6	Victor Carmichael	P61	Theresa Alas Andrews
P7	Taya Tandon	P62	Eberhard Fiebig
P8	Jason Tripp	P63	Marc and Sandra Tavasci
Р9	Allison Zenner	P64	Joann Reeves
P10	David Leal	P65	Cheryl Henley

Comment #	Commenter	Comment #	Commenter	
P11	Dave Plumb1	P66	Cindy Madden	
P12	Frank Vella	P67	David Chamberlin	
P13	Kevin McCluskey	P68	Daniel Gould	
P14	Kathy Moresco	P69	Dan Mail	
P15	Mary Ann Edson Plumb	P70	Delia McGrath	
P16	Tiffany Seagren	P71	Dennis Thomas	
P17	Victor Spano	P72	David Tipton	
P18	Brenda Storey	P73	Frankie Pun	
P19	Cherie Chan	P74	Gil Anda	
P20	Ciyavash Moazzami	P75	Jim Ryan	
P21	Carol Zammit	P76	Kent Flinn	
P22	Fran Quartini	P77	Kenneth Ho	
P23	Gina Zari	P78	Leigh Ward	
P24	Joe Erasmey	P79	Mary Nappi	
P25	Josh Richman	P80	Marianne Osberg	
P26	Jim Wagner	P81	Raheela Ghafur	
P27	Marisa Beck	P82	Roy Stotts	
P28	Marty Cerles	P83	R. Walker	
P29	Marissa Wat	P84	Sean Cunningham	
P30	Paul Kuhn	P85	Susan Osberg	
P31	Sue Eldredge	P86	Teresa Hoskins	
P32	W. White	P87	Amy Perez	
P33	Brett Bodisco	P88	Angel Riley	
P34	Bill Chan	P89	B. Nordeman	
P35	Carol Camacho	P90	Eric Cox	
P36	Chuck Rategan	P91	Erin Macias	
P37	Pete and Cheryl Yoes	P92	Ka Man Chan	
P38	Jeff and Pam Anderberg	P93	Judy Taylor	
P39	Lorraine Bannister	P94	Larry Bothen	
P40	Lance Sorensen	P95	Maria Martinez	
P41	Sharon Christianson	P96	Mark Stechbart	
P42	Shirlee Gibbs	P97	Pacifica Historical Society	
P43	Tom Thompson	P98	Sissy Riley	
P44	Carol Zammit	P99	Tom Richardson	
P45	Jung Lee	P100	Wendy Huber	
P46	Frank Vento	P101	Richard Harris	
P47	Jennifer Lee	P102	Nancy Stotts	
P48	Robert Bloomer	P103	Unknown	
P49	Ron Granville	P104	Jeff Bruno	
P50	Tom Garcia	P105	Jeanne Gold	

	Table E-3.	Public	Comments	(Cont.)
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Comment #	Commenter	Comment #	Commenter
P51	John Mikulin	P106	Mark Merritte
P52	Krista Markowitz	P107	Matthew Koester
P53	Jeff Lockhart	P108	Teletha Derrington
P54	Larry Passmore	P109	Mark Stechbart
P55	Nancy Crawfod		

Table E-3 (Cont.). Public Comments

Master Responses

Master responses were prepared to address the repeating and overlapping comments received. These Master responses are referenced in the individual responses provided in the next section.

A. Public Outreach and Notification

A Stakeholder Engagement Plan was prepared at the start of this planning effort to identify intended stakeholder engagement objectives for the LCP Update and outline the specific stakeholder engagement activities that will be implemented to achieve those objectives. The identified stakeholder engagement activities include:

- **Community Work Group.** The Community Work Group members were selected, in part, based on their ability to reach out to their affiliated community groups, neighbors, and other hard to reach stakeholders on behalf of the City. Please see Master Response C for more information of the Community Work Group's role.
- **Technical Work Group.** The Technical Work Group members were invited to provide a venue for productive interagency coordination and collaboration
- **Public Workshops.** Public workshops are to educate stakeholders on the LCP Update specifically, and coastal flooding and erosion issues in Pacifica generally, and to gather public input to inform the development of the LCP Update. Workshops are open to the public and begin with a presentation designed to educate participants on relevant topics, followed by a structured exercise to solicit input.
- Public Outreach, Education and Notification. The City has used several public outreach methods to inform the public of the City's sea level rise planning effort. These efforts include:
 - Public meetings
 - Continuous updates to the sea level rise webpage (<u>www.cityofpacfica.org/sealevelrise</u>)
 - Continuous updates to the sea level rise mailing list (232 recipients)
 - Regular mentions in Connect with Pacifica e-newsletter (3,224 recipients)
 - Multiple mentions from the City and CWG members in the Pacifica Tribune
 - Multiple posts on NextDoor
 - Multiple discussions at City Council meetings

- Posting public meetings on YouTube
- City Wide Mailer
- Staff present at special events to specifically talk about this topic
- Highway 1 electronic message sign
- Business cards
- Postings at Planning Department

Several comments were received stating that the City needed to provide more public outreach and notification. In response, on March 26, 2018, the City Council approved the redistribution of \$40,000 of Planning Department funds to support ESA and their subconsultants to hold two additional public meetings for the Adaptation Planning phase of the sea level rise effort (Please see Master Response C regarding the process). The City Council also directed staff to send a citywide mailer with a map and provide a tutorial on how to use the GIS webviewer available on the sea level rise webpage. The City wide mailer was mailed on April 25, 2018 to all postal customers in Pacifica and to all owners of Pacifica property that did not have a Pacifica address as their mailing address. A tutorial of the GIS webviewer was provided during the April 26, 2018 public meeting and a video has been provided on the sea level rise webpage.

Lastly, comments were received stating that the City should notify stakeholder that have property that may be affected by sea level rise impacts. The city decided not to focus the notification as suggest because:

- Sea level rise will affect all stakeholders of Pacifica whether or not they have property in area identified as being vulnerable to sea level rise. Major public utilities facilities and infrastructure, highly used recreational areas, sale and transient tax generating areas, and major circulation right-of-way (i.e., Highway 1) are within the area that may be vulnerable to sea level rise. Impacts to these assets will affect Pacifica residents, businesses, and property owners outside of the vulnerability area.
- The impacts of sea level rise are projected based on current best available science and the exact area of impact is not known. The projections are only being used a planning tool to identify appropriate adaption strategies and do not directly trigger any implementation requirements on those properties. Please see Master Response B regarding the purpose of the Vulnerability Assessment for more information.

B. Purpose of the Vulnerability Assessment

The City is conducting the sea level rise planning effort and LCP Update process using a multistep process. Please see Master Response C for more information on the overall process. The Vulnerability Assessment is the first step in this process. As stated in the Introduction of the Draft Vulnerability Assessment, "this Vulnerability Assessment [is] to address existing conditions and future vulnerability of the City of Pacifica and its social, economic and physical coastal resources to projected sea level rise, coastal flooding, and erosion. The findings of this Assessment will enable ESA to assist the City with development of adaptation strategies to prepare for future impacts." In summary, the purpose of the Draft Vulnerability Assessment is to identify what areas and assets may be vulnerable to sea level rise based on modeled projections to help inform the next step which is Adaptation Planning. The Vulnerability Assessment does not discuss or consider in adaptation strategies.

The Draft Vulnerability Assessment shows the extent of projected sea level rise impacts by 2100. In the Draft Vulnerability Assessment these extents were shown for each hazard type (i.e., coastal erosion, wave run-up, storm flood, flood prone). In the work group meetings and public workshop, posters were displayed which summarized these extents into one red line, which commenters have referred to as the "Vulnerability Zone". Publically available data and models were used to identify these projected Vulnerability Zone. The City of Pacifica did not create this data. Additionally, these projections are based on best available science at this time. No one knows for sure the exact impacts of sea level rise. The maps showing the "Vulnerability Zone" is being used as a planning tool only and is not intended to specifically identify where sea level rise impacts will occur. Adaptation strategies and policy language in the LCP will be discussed further in the next two phases of this effort. Implementation details, such as variance requirements, funding sources or construction methods, of the LCP policies will be developed outside of this planning effort.

Many comments were received stating that adaptation strategies were not considered in the Vulnerability Assessment. Comments also stated that an economic analysis should be conducted to inform the City as to what adaptation strategy is best. Additionally, staff inferred that some commenters thought the Vulnerability Assessment was the final product of the sea level rise planning effort and LCP update. As stated above, the Vulnerability Assessment does not discuss or consider in adaptation strategies. The Vulnerability Assessment will be use as a planning tool to inform the next phase, which is adaptation planning. An economic analysis and a discussion of tradeoffs will be conducted as part of the adaptation planning. The methodology of the economic analysis, including how residences, commercial property, beaches, and other areas are being valued is also part of the adaptation planning phase. Please see Master Response C regarding the process of the sea level rise planning effort and LCP update.

On April 19, 2018, the Introduction to Adaptation Strategies Memo, which identifies various potential adaptation tools was posted to the sea level rise webpage (www.cityofpacifica.org/sealevelrise). On May 4, 2018, the Economic Analysis Methodology memo, which discloses the methods and assumptions that will be used for the economic analysis in the Draft Adaptation Plan was posted to the sea level rise webpage.

C. LCP Update Process and Schedule

Many comments were received regarding the overall sea level rise planning effort and LCP update process and schedule. Table summarizes the overall process and a detailed project schedule for the process is provided on the sea level rise webpage (www.cityofpacifica.org/sealevelrise) under the Deliverables heading. The City's grant agreement from the Coastal Commission currently identifies a completion date (LCP needs to be sent to Coastal Commission for certification) of December 31, 2018.

	Phase	Action	Deliverables	Meetings
nber 2017	t	Identify the best, publically available coastal hazard modeling programs for Pacifica	Future Conditions Scenario Memo	
Decen	ssmen	Identify what type of assets are located within Pacifica Coastal Zone	Asset Inventory Memo	
	Vulnerability Asse	Analyze what assets may be vulnerable to sea level rise by overlaying modeling data with asset locations	Draft Vulnerability Assessment	Community Work Group (1/23/18) Technical Work Group (1/23/18) Public Workshop (2/13/18)
		Incorporate public comments on Draft Vulnerability Assessment	Final Vulnerability Assessment	
		Identify the range of adaptation strategy tools	Introduction to Adaptation Strategies	Public Meeting (4/26/18)
	Plan	Identify the methodology and assumptions that will be used to determine values in the economic analysis	Economic Analysis Methodology Memo	Public Meeting (5/10/18)
	Adaptation I	Analyze the economic, social, and environmental impacts of alternative adaption strategies for each subarea in Pacifica and recommend adaptation strategies	Alternative Adaptation Strategies Memo Draft Adaptation Plan	Community Work Group (5/31/18) Technical Work Group (5/31/18) Public Workshop (6/23/18)
		Incorporate public comments on Draft Adaptation Plan	Final Adaptation Plan	
	LCP Update	Prepare policy language based on Final Adaptation to incorporate into LCP	Draft changes to LCP	Community Work Group (TBD) Technical Work Group (TBD) Public Workshop (TBD)
		Incorporate public comments on Draft changes to LCP	Final changes to LCP	
m		Recommendation to City Council	Planning Commission Staff Report	Public Hearing (TBD)
er 201	roval	Approve Sending LCP to CCC for certification	City Council Staff Report	Public Hearing (TBD)
ecemp	App	Certify LCP	California Coastal Commission Staff Report	Public Hearing (TBD)
Δ		Accept LCP as is	City Council Staff Report	Public Hearing (TBD)

Table E-4. Summary of Overall Process, Deliverables, and Meetings for Sea Level Rise
Planning and Local Coastal Plan Update.

Several comments were received regarding the various parties that are involved in the effort and each of their roles. A summary of everyone's role is provided below.

Coastal Commission –The Coastal Commission plays two roles in this effort. First, the Coastal Commission, with the Coastal Conservancy, provided Pacifica with the grant funds to conduct this sea level rise planning effort with the overall goal of the City submitting a Local Coastal Plan for Coastal Commission certification. The Coastal Commission will be monitoring the City's progress, scope, and budget, in accordance with the grant agreement.

The second role of the Coastal Commission will be to review the Local Coastal Plan for consistency with the California Coastal Act and certify the Local Coastal Plan. The State of California requires that local agencies address climate adaptation and resiliency strategies in long range planning documents (SB 379). The Governor's Executive Order No B-30-15 also directed state agencies to factor climate change into planning decisions. This order has been promulgated by the Coastal Commission to be included in Local Coastal Plan updates.

City Council – The City Council will review the Draft LCP prior to authorizing staff to send the document to the Coastal Commission for certification. Additionally, once the LCP is certified by the Coastal Commission, the City Council will have to accept the certified LCP from the Coastal Commission before it goes into effect. The City Council's actions on the LCP will occur during public hearings, which will allow for public comment.

Planning Commission – The Planning Commission will review the Draft LCP prior to the City Council. Planning Commission will recommend a Draft LCP to the City Council for consideration. The Planning Commission's actions on the LCP will occur during a public hearing, which will allow for public comment.

Technical Work Group – The City invited various representatives from Federal, State, and local agencies to participate in the Technical Work Group (TWG). Members of this group will meet three times to review, discuss, and comment on draft versions of the City's major milestone documents (e.g., Draft Vulnerability Assessment, Draft Adaptation Plan, Draft LCP Policy updates). The TWG provides a venue for productive interagency coordination and collaboration.

Community Work Group – The City created the Community Work Group (CWG) from a list of applicants that represented a broad and balanced representation of stakeholders in Pacifica. The purpose of creating this group was to ensure that the City received input from the various stakeholders of Pacifica. Members of this group will meet three times to review, discuss, and comment on draft versions of the City's major milestone documents (e.g., Draft Vulnerability Assessment, Draft Adaptation Plan, Draft LCP Policy updates). Additionally, the CWG was asked to attend two additional public meetings during the beginning of the adaptation planning phase to provide input on the background documents for the Draft Adaptation Plan.

CWG members were also selected based on their ability to be engaged as key communicators. The CWG members are responsible for providing Project information and updates to other members of their respective organizations and neighborhoods. This approach will help the City significantly expand its sphere of outreach, including connecting with harder-to-reach stakeholders. **City Council Ad Hoc Committee** – Mayor Keener and Mayor Pro Tem Vaterlaus were selected by City Council to coordinate with city staff as an Ad Hoc committee. City staff regularly meets with the Ad Hoc committee to discuss proposed and conducted public outreach efforts and activities for input and direction.

Consultants – Environmental Sciences Associates and their subconsultants Kearns and West, Charles Lester, and Dr. Phil King are preparing under the direction and review of staff, planning documents based on technical data, professional analysis, and public and agency input.

D. City Council's Goals for the Draft Local Coastal Land Use Plan Update and Adaptation Planning

On March 26, 2018, the City Council unanimously adopted the following goals for the Draft Local Coastal Land Use Plan Update and Adaptation Planning:

- 1. **Bolster efficacy of public safety efforts.** Evacuations of bluff top homes have been necessary to protect the health, safety, and wellness of residents. The Adaptation Plan will assist the City to protect human life, property, and critical infrastructure in response to a catastrophic event.
- 2. **Respond to climate change.** The Adaptation Plan will allow Pacifica to prepare for sea level rise and climate change impacts by identifying policies that enhance the coastal zone's adaptive capacity.
- 3. *Preserve Existing Neighborhoods and Promote Environmental Justice and Local Economic Vitality.* Pacifica's Coastal Zone, i.e. the land area west of Highway 1, includes:
 - 12% of the City's population
 - The majority of older, and therefore more affordable, housing stock
 - Five of six hotels (80% of the rooms) that generate transient occupancy tax revenues for City operations and bring visitors who patronize businesses
 - More than half of commercial businesses, which provide vitality to the community and tax revenue for City operations
 - Public facilities that include City Hall, North Coast County Water District, Ingrid B. Lacy Middle School, the Pacifica Pier, drainage outfalls, waste water pumping stations, sewer force mains, and the Calera Wastewater Treatment Plant
 - Significant historical and public recreational assets including beaches, coastal trails, the Beach Blvd. promenade, parks and golf course.

The loss or disruption of these assets could have far reaching impacts and affect everyone in Pacifica, not just those living or doing business in the Coastal Zone. The Adaptation Plan will allow the city to create policies that will protect these areas from the impacts of sea level rise, erosion, and coastal flooding. Consistent with the Coastal Act, the Adaptation Plan shall protect existing homes, businesses, and infrastructure in Pacifica.

4. **Preserve and enhance coastal access.** Beach and bluff access to the coastline is a crucial element of Pacifica's coastal character and is valued by the community. The Adaptation Plan will allow the city to identify where bluff erosion, sedimentation, and sea level rise may threaten coastal access.

Please also see Master Response B regarding the purpose of the Vulnerability Assessment.

E. Reoccurring Questions Regarding the Draft Local Coastal Land Use Plan Update and Adaptation Planning.

The following questions were asked in multiple comment letters. Similar questions with the same responses were grouped together. Please also review the frequently asked questions document on the sea level rise webpage (www.cityofpacifica.org/sealevelrise).

1. What are the exact street addresses of the properties that are located inside the red zones and have those property owners been notified?

The City has not developed a list of addresses located within the area delineated by a red line, which represents the most inland extent of the coastal hazard area for year 2100, for the Draft Vulnerability Assessment. Please see Master Response A regarding public notification.

2. What will happen to a home or business building once it is drawn into the red zone along the coast? What policies will be different for homes in the red zone than from other homes in Pacifica? What does it mean if a home is drawn into the storm-flood area? What policy differences will these homes face? Will restrictions be placed upon homes in any of the identified zones? What are those restrictions? Will property owners in the red area be able to maintain their homes, get permits from the City, and remodel or replace their roofs?

The LCP will contain policies that will help the City assist property owners (public and private) in planning for and addressing future sea level rise, storm surge, coastal flooding, and erosion. At the current stage of the process, it is too early to know the exact policy outcomes. Adaptation strategies to address areas that may be vulnerable to sea level rise impacts have not been decided. This will be further discussed in the Adaptation Plan phase.

Properties in the hazard areas are already asked to consider Coastal Commission guidance when contemplating development. After the LCP is certified and accepted, property owners will benefit from acceptable strategies as defined in the Plan which will provide consistency and assurance.

Please also see Master Response D regarding the Council's goals.

3. Who will pay to move all of the infrastructure and utilities in West Sharp Park and where will they be moved to? How will the City handle the foreclosures when the banks foreclose on the properties located in these zones due to a "Managed Retreat plan from the City of Pacifica"? Why has there been no discussion of armoring the Coast to protect the communities west of Highway 1? What mitigation will be under consideration to protect Pacifica homes from coastal erosion? What armament can protect the coast from Sea Level Rise? Coastal erosion? What are you going to do to protect the homes from Sea Level Rise?

Adaptation strategies to address areas that may be vulnerable to sea level rise impacts have not been decided. This will be further discussed in the Adaptation Plan phase. Please also see Master Response D regarding the Council's goals.

4. How will a property located in these zones still be able to get property insurance, which is a lender requirement? What are the economic ramifications of being in the drawn into one of the zones by the City? When properties lose value because the City draws them into one of the vulnerability zones, will the City also lose revenue? Will the City be liable for lost property value? Will homeowners in any of the red vulnerability zones be able to get insurance? Will they be able to get a loan? Will their property values drop?

It is not known if or how third parties will use the City's Local Coastal Plan and Adaptation Plan. However, it is important to note that the City is not creating new hazard data. The study is relying on existing hazard data produced by agencies such as such as the Federal Emergency Management Agency (FEMA) and State of California Ocean Protection Council. The hazard data used in the City's study is already readily available to the public and financial institutions and insurers.

5. How are the property values being calculated? given the age of the properties, the assessed value is not an accurate means of property valuation. Fair market value is considerably higher and a more accurate representation.

Please see Master Response B regarding the purpose of the Vulnerability Assessment.

6. Why is Pacifica working on Sea Level Rise in its LCP when the California Coastal Commission has not even completed its Residential Adaptation Policy Guidance?

Pacifica's current LCP was approved in 1980. The LCP needs to be updated to account for the various regulatory and environmental changes that have occurred throughout Pacifica's coastal zone over the last 38 years. Included in these changes is Coastal Commission's requirement to address the hazard of sea level rise. The Residential Adaptation Policy Guidance that the Coastal Commission is currently preparing is advisory and not a regulatory document or legal standard of review for the actions that the Commission or local governments may take under the Coastal Act. The Residential Adaptation Policy Guidance is expected to be updated periodically to address new climate science, information, and approaches regarding sea level rise adaptation, and new legal precedent. Therefore, the status of the Coastal Commission's Residential Adaptation Policy Guidance has no impact on Pacifica's ability to proceed with updating the LCP to address sea level rise.

Additionally, please note that the Coastal Commission is providing the City with the grant funding to update the LCP to address sea level rise. The grant agreement requires that the City's LCP be sent to Coastal Commission for certification by December 31, 2018, which highlights the fact the Coastal Commission has no reservations with Pacifica updating their LCP prior to the release of the final Residential Adaptation Policy Guidance.

Lastly, an updated LCP will benefit Pacifica when applying for grants and other funding to implement adaptation strategies, as the city will have a certified document which details the plan and commitment to the selected adaptation strategies.

7. Why is the City's consultant, Bob Battalio, who's writing the Sea Level Rise Vulnerability Assessment, citing his own un-adopted policy from 2016? Why does the City use drafts – meaning that they have never been adopted by a government agency - as data sources, such as the "Army Corps of Engineers & Coastal Sediment Management Workgroup San Francisco Littoral Cell Coastal Regional Sediment Management Plan, DRAFT 2016"?

The draft Coastal Regional Sediment Management Plan (CRSMP) and its results are not being directly relied upon for the City's study. The report is referenced by ESA to illustrate its experience on the topic of coastal adaptation and give an example application of the methodology ESA has developed to analyze coastal adaptation alternatives. The shoreline response modeling and hazard modification methodologies used to develop aspects of the draft CRSMP are being used in the Pacifica SLR study, not the results of the draft CRSMP.

8. The California Coastal Commission's Sea Level Rise Policy Guidance says that the "best available science on Sea Level Rise in California" is the National Research Council's (NRC) Sea Level Rise - California, Oregon, and Washington Past, Present, and Future. Why doesn't Pacifica's Vulnerability Assessment use the NRC's study?

As further explained in the Existing Conditions Scenarios memo (available at <u>www.cityofpacifica.org/sealevelrise</u>) The California Coastal Commission (CCC) adopted SLR policy guidance in 2015, which identified National Research Council's (NRC) California, Oregon, and Washington Past, Present, and Future from 2012 as best available science. Since then, California has commissioned an update on sea-level rise science (Griggs et al, 2017) which is incorporated into the updated State Guidance and is planning an update to Policy in early 2018.

In April 2017, at the request of OPC, a Working Group of OPC's Science Advisory Team (OPC-SAT) released a report synthesizing the state of sea- level rise science entitled "Rising Seas in California: An Update on Sea-Level Science" (Rising Seas Report). The Rising Seas Report was prepared and peer-reviewed by some of the nation's foremost experts in coastal processes, climate and sea-level rise science, observational and modeling science, the science of extremes, and decision-making under uncertainty. The Rising Seas Report, which provides the scientific foundation for this update to the Guidance, included advances in sea-level rise modeling and improved understanding of the processes that could drive extreme global sea-level rise from ice loss from the Greenland and Antarctic ice sheets. This work, along with other authoritative peer-reviewed science (as long as not less precautionary than the foundation set forth by the Rising Seas Report) serve as the best available science on which to base future planning and investing decisions in California.

9. Why does Pacifica's Vulnerability Assessment fail to state that the CCC's decision on the Sharp Park Berm was to maintain it in the future?

The direction from the Coastal Commission in their approval of Coastal Development Permit 2-17-0702 for the Sharp Park Golf Course levee will be included in the Final Adaptation Plan.

10. Why haven't the State and Federal government been part of this entire process?

Applicable Federal, State and local agencies have been invited to participate in a Technical Work Group (TWG) for Pacifica's sea level rise analysis. Please see Master Response C regarding the TWG's role.

11. Can the LCP go to a vote of the people?

The City Council is elected by the People of Pacifica to make important decisions on behalf of their constituents. Consideration of approval of the LCP Update prior to sending to the Coastal Commission for certification and acceptance of the certified LCP are appropriate actions of the City Council. Please see Master Response C regarding the City Council's role.

12. Armor the coast; protect the homes, truck in sand twice a year.

Your comment is in the record. Adaptation strategies to address areas vulnerable to sea level rise impacts have not been decided. This will be further discussed in the Adaptation Plan phase. Please also see Master Response D regarding the Council's goals.

13. Why is the Vulnerability Assessment focused on Sea Level Rise, when the problem Pacifica has experienced is coastal erosion?

The Draft Vulnerability Assessment addresses wave run up, storm flooding, flooding, and coastal erosion as shown in Figures 23 through 30. The text that supports each figure discusses how assets will be affected differently from each coastal hazard.

14. Why did the Pacifica City Council hire a consultant, Bob Battalio, who had previously been recorded on video expressing his view that Pacifica should pursue "managed retreat"?

The City Council voted to authorized staff to enter a contract with Environmental Science Associates for the sea level rise planning effort and LCP at the August 14, 2017 City Council meeting. The meeting minutes from the meeting can be reviewed to understand the considerations that the Council had for this decisions. The meeting minutes can be found here:

http://pacificacityca.iqm2.com/Citizens/FileOpen.aspx?Type=15&ID=1175&Inline=True

15. Ventura, Los Angeles, and San Diego are the most heavily armored California counties to protect residents from the ocean. Why is San Mateo County not among those counties?

This question is outside the scope of the Draft Vulnerability Assessment. Adaptation strategies to address areas vulnerable to sea level rise impacts have not been decided. This will be further discussed in the Adaptation Plan phase. Please also see Master Response D regarding the Council's goals.

16. How can the City close the public comment period when the City has not released the addresses or assessed values? What is the next step in this process?

Please see Master Response B regarding the purpose of the Vulnerability Assessment and upcoming Adaptation Planning. Please see Master Response C regarding the process.

17. The Pacific Institute study was issued in 2009. Why is the City using 9-year-old data? Is there no newer information that can be used?

Pacific Institute erosion data was selected to be consistent with the San Mateo County's Vulnerability Assessment and it is the most recent source of erosion data for Pacifica's entire coastline. The City of Pacifica does not have the budget or resources to create hazard data, therefore the City must rely on existing publicly available data.

F. Sea level rise models

Many comments were received questioning the coastal hazard models the City used and the assumptions or science supporting the models. The City of Pacifica has not created any hazard data and does not have the budget or resources to create hazard data, therefore the City must rely on existing publicly available data. Section 2 of the Draft Vulnerability Assessment discusses the planning horizons and sea level rise scenarios selected for this sea level rise planning effort. The selected data sources and models are consistent with the State of California 2018 Sea Level Rise Guidance for best available science for sea level rise in California. Questions regarding assumptions or methodology for the sources should be directed to the agencies that created the models.

Comments were received suggesting that this sea level rise effort should wait until more precise modeling data is available. Research and studies of sea level rise impacts and adaptation is continually improving and expanding. Staff anticipates this trend to continue through the foreseeable future due to the expansive areas and assets all over the world that may be vulnerable. The City is going to proceed with sea level rise policy updates to the LCP using current best available science. The City will be able to update the LCP as necessary to address advancements in sea level rise science or adaptation technologies when new sea-level rise projections and/or hazard data become available.

G. Pacific Institute Erosion model doesn't account for sea wall

Future coastal erosion is predicted by using historic shoreline erosion data. To some degree, very old coastal armoring structures are accounted for as they slowed the historic shoreline erosion rate. More modern armoring structures haven't had a chance to show an impact in the historic erosion data. Therefore, while newer armoring structures are shown on study maps, the Vulnerability Assessment reflects a worst-case scenario and if shoreline protective devices are maintained in place erosion rates will be significantly reduced. This approach is consistent with best practices when considering erosion scenarios including the San Mateo County Vulnerability Assessment.

During the adaptation planning phase of this effort, the City will consider locations of existing armoring structures for future adaptation strategies.

Responses to Comments

Individual responses to comments are provided below. Marked up comment letters are provided in the order listed below at the end of this appendix.

Technical Work Group

TWG1. California Coastal Commission

- 1. Your comment is in the record.
- 2. The Final Vulnerability Assessment will include comparison of asset impact quantities for each hazard versus total quantity of assets.
- 3. The Final Vulnerability Assessment will clarify the exposure and vulnerability of assets as well as consequences.
- 4. Parts a. and b. of your comments were incorporated into the Final Vulnerability Assessment. No graphic was created to show the SLR project curves as suggested in Part c. of your comment. Erosion was described in the text as suggested in Part d., however larger scaled maps were not prepared as the public has access to a GIS webviewer which allow the public to zoom in on areas of interest.

TWG2. San Francisco Recreation and Parks Department

- 1. The Asset Data and Hazard Zone GIS-webviewer provides the data used to develop the impacts, which is available for the public to review.
- 2. While there are a few areas where the Coastal Commission has retained original and additional permit jurisdiction, West Sharp Park is not one of these areas. The Updated LCP will provide further clarification on this distinction.
- 3. ESA is not scoped to create GIS asset data for this analysis, and therefore cannot calculate impact acreages without GIS data to support observations of sensitive species habitat. They however will be mentioned in the text of the report.
- 4. Your comment is in the record.
- 5. Wetlands can serve as flood control structures when designed to do so. If the Laguna Salada wetland extended throughout the golf course up to the perimeter (near the homes, businesses), it could provide flood protection benefits. But given the existing condition in which the wetland is constrained and surrounded by golf course grass (which does not provide the same protection as wetland vegetation), the wetland's effect on flood reduction for surrounding properties is questionable. At this time the report has not been amended.
- 6. Your comment is in the record.

TWG3. California State Parks

1. ESA is not scoped to create GIS asset data for this analysis, and therefore cannot calculate impact acreages without GIS data to support observations of sensitive species habitat. They however will be mentioned in the text of the report.

TWG4. US Army Corps of Engineers

1. Your comment is in the record.

TWG5. California Department of Transportation

1. Your four bulleted comments have been incorporated into the Final Vulnerability Assessment.

Community Work Group

CWG1. Gordon Tannura

- 1. Critical assets are those which play a role in emergency response (Fire/Police station, Highway 1) and/or public safety (stormwater/wastewater infrastructure).
- 2. The Asset Inventory Memorandum was revised on January 9, 2018 to include the residential, commercial, and city-owned buildings as noted in the comment. Information from the Revised Asset Inventory Memo was used in the Draft Vulnerability Assessment.
- 3. Natural assets include beaches and landward dunes which may be subject to future erosion.

CWG2. Jim Kremer

1. Your comment is in the record. The typo identified in the Future Conditions Scenario memo did not get carried over into the Draft Vulnerability Assessment.

CWG3. Jim Kremer

- 1. Your comment is in the record.
- The following revision was made on in response to your comment: The condition of the northern southern beach shows what is possible when applying a managed retreat strategy for shoreline adaptation. (Draft Vulnerability Assessment,
- Page 23) 3. Your comment is in the record.
- 4. As stated in Section 2.2 of the Draft Vulnerability Assessment, Pacifica and San Mateo County used the same data sources (Pacific Institute erosion and OCOF flooding). Pacifica's final Vulnerability Assessment will consider scenarios that more closely match the sea level rise amounts specified by the State under updated guidance and will include impacts at 2050. The San Mateo County study analyzed impacts from erosion considering High sea level rise at 2100 only, Pacifica will look at 2050 and 2100.
- 5. FEMA maps do not include sea level rise. Details on how FEMA hazard zones are produced can be found in the "Guidelines for Coastal Flood Hazard Analysis and Mapping for the Pacific Coast of the US" (accessible on FEMA's website).
- 6. The various hazard map sources can be compared via the Multi-Scenario Hazard GIS-webviewer posted on the City's SLR webpage. Pacific Institute flooding projections do not consider shoreline change, but erosion projections show dune and cliff erosion with time. CoSMoS Flooding incorporates a certain degree of shoreline erosion, but does not account for cliff erosion. CRSMP erosion hazards do account for shoreline change with time and SLR.
- 7. Predictions shown in the appendices of the Draft Vulnerability Assessment are from Pacific Institute (erosion) and OCOF (flooding).
- 8. Revisions will be made to Section 3 of the Vulnerability Assessment to clearly detail the sources of the hazard data.
- 9. Our scope of work does not include development of a sediment management plan, but such a plan could be pursued as a follow-on to the LCP update. Sand placement (called beach nourishment) will be one of the adaptation strategies considered in this study. Otherwise, we have not discussed a sediment management plan explicitly. There is no sediment management plan for Pacifica that we are aware of: Pacifica does conduct beach grading that includes berm building near Clarendon, and removal of sand from the Beach Boulevard area, which are actions

that could be included in a sediment management plan. Note that the CRSMP is not finalized and does not have a selected, specific plan owing largely to the lack of consensus in Pacifica. We are presently evaluating an existing sediment management plan underway at Del Mar (San Diego County) which is an additional task funded by the State. We anticipate considering modification of the existing sediment management plan at Santa Barbara...we're just starting that project. We're contributing to sediment management activities in San Francisco's / GGNRA's Ocean Beach which are part of SF's update to their LCP.

- 10. The City of Pacifica has not created any hazard data and does not have the budget or resources to create hazard data, therefore the City must rely on existing publicly available data. Section 2 of the Draft Vulnerability Assessment discusses the planning horizons and sea level rise scenarios selected for this sea level rise planning effort. The selected data sources and models are consistent with the State of California 2018 Sea Level Rise Guidance for best available science for sea level rise in California. Questions regarding assumptions or methodology for the sources should be directed to the agencies that created the models.
- 11. CoSMoS is generally supported by the State of California for LCP updates. The CRSMP erosion analysis represents adaptation strategies, which CoSMoS does not address. However, the CRSMP does not address flooding, only erosion. ESA's proposed scope will include application of the shore response modeling similar to that done with the CRSMP, and adjust the project erosion and flooding, with and without shore armoring, as defined by the selected adaptation scenarios, in order to inform the evaluation of adaptation strategies, and LCP policy.

CWG4. Gordon Tannura

- Comments on the Draft Vulnerability Assessment have been collected and provided in the Final Vulnerability Assessment. The meeting summary from the Community Work Group meeting on January 23, 2018 were posted to the sea level rise webpage (www.cityofpacifica.org/sealevelrise) on February 23, 2018.
- 2. Several federal and state agencies have started planning for the effects of sea level rise. Additionally, local and regional agencies, such as the County of San Mateo have started their sea level rise vulnerability assessment. The City of Pacifica has created a Technical Work Group to participate in the reviewing and commenting on the City's drafted sea level rise documents to coordinate efforts. The Technical Work Group is comprised of representatives from applicable Federal, State, and local agencies. A roster of the agencies invited to participate in the Technical Work Group is provided on the sea level rise webpage.
- 3. Please see Master Response B regarding the purpose of the Vulnerability Assessment. Please also see Master Response A regarding notification.
- 4. Please see Master Response B regarding the purpose of the Vulnerability Assessment.
- 5. On March 26, 2018 the Pacifica City Council approved the redistribution of existing Planning Department funds to support two additional public meeting/Community Work Group meetings during the Adaptation Planning Phase of the project. These meetings are in addition to the already budgeted public workshop meeting and Community Work Group meetings planned once the Draft Adaptation Plan is released. With the Community Work Group's approval, email addresses for the Community Work Group members were distributed to Community Work Group members. Additionally, as a result of a Public Records Act request, email addresses of the Community Work Group members were distributed to members of the public. Please see Master Response A regarding public notification.

CWG5. Robine Runneals

- 1. This Public Records Act request was responded to separately and in accordance with the Public Records Act.
- 2. A GIS webviewer for the asset data and vulnerability zones was posted on the City's sea level rise webpage (www.cityofpacifica.org/sealevelrise) on February 28, 2018.
- 3. Please see responses to comments CWG5-1 and CWG5-2.

CWG6. Jim Kremer

1. Your comments on Jim Steele's article have been included in the record. Since these comments were not directed to the City, no responses were provided.

CWG7. Jim Steele

1. Your responses to Jim Kremer's comments have been included in the record. Since these comments were not directed to the City, no responses were provided.

CWG8. Gordon Tannura

1. Comments on the Draft Vulnerability Assessment have been collected and provided in the Final Vulnerability Assessment.

CWG9. Robine Runneals

- 1. This Public Records Act request was responded to separately and in accordance with the Public Records Act.
- As stated under section 3. of the Draft Vulnerability Assessment, "This draft Vulnerability Assessment tabulates the exposure of assets to the highest flooding and erosion hazard scenarios chosen in this study [...] The Final Vulnerability Assessment will include impacts under all six sea level rise scenarios (Table 1), which includes existing (current sea level). "
- 3. The purpose of the Vulnerability Assessment document was to identify what areas may be vulnerable to sea level rise. The scope of the document was not intended to include discussion of an economic analysis of the vulnerabilities. An economic analysis will be included in the Adaptation Plan document. Please see Master Response B regarding the purpose of the Vulnerability Assessment
- Appendices B through D of the Draft Vulnerability Assessment show hazard data from the Pacific Institute Erosion (2009) and Our Coast Our Future (2014). Also, please see response to comment CWG9-2.
- 5. Some deliverables of the Vulnerability Phase were provided behind schedule. As requested the comment period for the Draft Vulnerability Assessment was extended 14 days, to March 14, 2018.
- 6. This Public Records Act request was responded to separately and in accordance with the Public Records Act. A GIS webviewer for the asset data and vulnerability zones was posted on the City's sea level rise webpage (www.cityofpacifica.org/sealevelrise) on February 28, 2018. On March 26, 2018 the Pacifica City Council approved the redistribution of existing Planning Department funds to support two additional public meeting/Community Work Group meetings, however these meetings were approved for the Adaptation Planning Phase of the project.

CWG10. Jim Kremer

- 1. Your comment is in the record.
- 2. Please see Master Response C regarding the sea level rise planning and Local Coastal Plan update process.
- 3. Please see Master Response B regarding the purpose of the Vulnerability Assessment.
- 4. The Sharp Park Golf Course is owned, operated, and maintained by the City and County of San Francisco. The City will consider this property in our LCP update the same way that Golden Gate National Recreation Area or bordering jurisdictions (i.e., County of San Mateo and City of Daly City) will be treated. Although the City does not have regulatory jurisdiction over these properties, these areas will need to be discussed and considered in the LCP update. The Coastal Commission issued a retroactive permit (Application 2-17-0702) for the Sharp Park Golf Course berm to San Francisco, not Pacifica.
- 5. Please see Master Response B regarding the purpose of the Vulnerability Assessment.
- 6. Your question is outside of the scope of the Vulnerability Assessment. Please see Master Response B regarding the purpose of the Vulnerability Assessment.
- 7. Please see Master Response B regarding the purpose of the Vulnerability Assessment.
- 8. As stated under section 3. of the Draft Vulnerability Assessment, "This draft Vulnerability Assessment tabulates the exposure of assets to the highest flooding and erosion hazard scenarios chosen in this study [...] The Final Vulnerability Assessment will include impacts under all six sea level rise scenarios (Table 1), which includes existing (current sea level). "Please see Master Response B regarding the purpose of the Vulnerability Assessment.
- 9. Please see Master Response B regarding the purpose of the Vulnerability Assessment.

CWG11. Connie Menefee

1. Please see responses to comments CWG9-1 through CWG9-6.

CWG12. Eileen O'Reilly

1. Please see responses to comments CWG9-1 through CWG9-6.

CWG13. Gordon Tannura

1. Please see responses to comments CWG9-1 through CWG9-6.

CWG14. Jim Kremer

- 1. Please see Master Response B regarding the purpose of the Vulnerability Assessment.
- 2. On March 26, 2018 the Pacifica City Council approved the redistribution of existing Planning Department funds to support two additional public meeting/Community Work Group meetings, however these meetings were approved for the Adaptation Planning Phase of the project.

CWG15. Toni Boykin

1. Please see responses to comments CWG9-1 through CWG9-6. The Coastal Commission issued a retroactive permit (Application 2-17-0702) for the Sharp Park Golf Course berm to San Francisco.

Pacifica does not have any authority to require San Francisco or the Coastal Commission to maintain the berm.

CWG16. Connie Menefee

1. Please see Master Response D regarding the City Council's goals for the LCP update.

CWG17. Gordon Tannura

1. Your responses to Jim Kremer's comments have been included in the record. Since these comments were not directed to the City, no responses were provided.

CWG18. Ron Maykel

- 1. Please see Master Response C regarding the overall process of the LCP update.
- 2. Please see Master Response B regarding the purpose of the Vulnerability Assessment.
- 3. The fluvial flooding source for Laguna Salada was evaluated by ESA, and adaptation alternatives will include a flood protection component for the Clarendon and West Fairway areas that are vulnerable to flooding from Laguna Salada.
- 4. The Draft Vulnerability Assessment lists "Trails" under Access and Recreation Assets (Page29). The California Coastal Trail would fall under this category.

CWG19. Jim Steele

1. Please see Master Response A regarding public notification.

CWG20. Jim Kremer

 Includes the baseline case of today's conditions, without sea level rise. Relating SLR to time is needed in order to develop economic impacts over time and in order to develop adaptation strategies to address/mitigate potential impacts. However, the basis for adaptation actions in the Adaptation Plan will related to triggers (i.e. when X feet of beach is eroded or when sea level reaches Y) that can be used to direct adaptation actions in the future, depending on how SLR occurs.

CWG21. Eileen O'Reilly

- Your comment is in the record. On March 26, 2018 the Pacifica City Council approved the redistribution of existing Planning Department funds to support two additional public meeting/Community Work Group meetings during the Adaptation Planning Phase of the project.
- 2. Please see Master Response E (question 6) regarding reoccurring questions.
- 3. The City interprets this comment to be referencing Pacific Institute erosion data from 2009. As further discussed in the Future Conditions Scenarios memo (December 18, 2017), Pacific Institute erosion data was selected to be consistent with the San Mateo County's Vulnerability Assessment and it is the most recent source of erosion data for all of Pacifica's coastline. The City of Pacifica does not have the budget or resources to create hazard data, therefore the City must rely on existing publicly available data. Please also see Master Response E (questions 7 and 17) regarding reoccurring questions.

- 4. Please see Master Response B regarding the purpose of the Vulnerability Assessment.
- 5. Your comment is in the record. Please see Master Response D regarding the City Council's goals for the LCP update. Please see Master Response E regarding these reoccurring questions.
- 6. Please see Master Response E regarding these reoccurring questions.
- 7. The City of Pacifica has not created any hazard data. It is not known if or how third parties will use the maps in the Vulnerability Assessment, Adaptation Plan, or the update to the City's Local Coastal Plan.
- 8. Please see Master Response C regard the process and Master Response D regarding the City Council's goals for the LCP update.

CWG22. Cindy Abbott

- 1. Please see Master Response C regarding the process.
- 2. Your comment is in the record.
- 3. Please see Master Responses A and C regarding public notification and the overall process.
- 4. Your comment is in the record. The purpose of the Vulnerability Assessment document was to identify what areas may be vulnerable to sea level rise. The scope of the document was not intended to include discussion of adaptation strategies. Nonetheless, your comment is noted.

CWG23. Jim Steele

- 1. Please see Master Response A regarding public notification
- 2. Your comment is in the record.
- 3. Your Pacifica Tribune article has been included in the record. Since these comments were not directed to the City, no responses were provided.

CWG24. Jim Kremer

- 1. Revisions will be made to Section 3 of the Vulnerability Assessment to clearly detail the sources of the hazard data.
- 2. Please see Master Response B regarding the purpose of the Vulnerability Assessment.

CWG25. Cindy Abbott

1. Your comment is in the record.

CWG26. Sam Casilla

- 1. Your comment is in the record.
- 2. The Draft Vulnerability Assessment identifies that portions of Highway one may be vulnerable to sea level rise, please review section 3.3 of the Draft Vulnerability Assessment for more information.
- 3. Commenter does not provide source for information of potential restoration of historic wildlife corridors. The creation of this data is outside the scope of this project.
- 4. Please see Master Response B regarding the purpose of the Vulnerability Assessment.
- 5. This information will be provided in the Adaptation Plan stage of the project.
- 6. The source used for flooding data is Our Coast, Our Future. Please see Master Response F regarding Sea level rise models.

Appendix E. Responses to Comments on Draft Vulnerability Assessment

7. This topic will be covered in the Adaptation Plan stage of the project.

CWG27. Shalini Desroches

- 1. The 100 year storm event also includes rainfall-induced flooding of Laguna Salada and San Pedro Creek. Analyzing smaller storm events are out of scope, but we are tracking inundation impacts from high tide using CoSMoS outputs.
- 2. Please see Master Response B regarding the purpose of the Vulnerability Assessment.

CWG28. Maureen Garcia and Toni Boykin

1. Your comment is in the record.

CWG29. Peter Guzman-Garcia

1. Your comment is in the record.

CWG30. Jim Kremer

1. Your comment is in the record. The Draft Vulnerability Assessment utilizes Griggs 2018 estimates of sea level rise, which is incorporated into the updated State guidance and is the best available science.

CWG31. Ron Maykel

1. Your comment is in the record.

CWG32. Eileen O'Reilly

1. Your comment in the record.

CWG33. Robine Runneals

1. Your comment is in the record.

CWG34. Gordon Tannura

1. Your comment is in the record. The economic analysis in the Adaptation Planning phase will utilize collected golfing fee records from San Francisco Parks and Recreation.

Public

P1. Margaret Goodale

1. The Snowy Plover habitat will be added to the list of assets.

P2. Richard Harris, San Francisco Public Golf Alliance

- 1. Your comment is in the record.
- 2. As further discussed in Section 3 of the Draft Vulnerability Assessment, the specific assets were grouped in a manner consistent with the San Mateo County Sea Change Project. The text provided under each subarea in Section 3 of the Draft Vulnerability Assessment, the maps in Appendices B through D, and the GIS webviewer provided on the sea level rise webpage (www.cityofpacifica.org/sealevelrise) provide the specific information requested in the comment. Residential parcels are included in the Lands-Parcels line item in the asset exposure tables for each sub area in the draft Vulnerability Assessment, and will be separated by type for the Final VA.
- 3. The reference to the San Mateo County Sea Change Vulnerability Assessment will be revised to reflect the final report date. Parcel data obtained from the County is included in the Final Vulnerability Assessment and is listed as Parcels in the exposure tables.
- 4. The following revision will be made in response to your comment:

"Secondly, flooding at the Sharp Park Golf Course (SPGC) affects residences directly north surrounding the golf course." (page 15)

No revisions were made to the second sentence that was identified in the comment as the sentence states " [...] for the neighborhood north of **and adjacent to** the golf course" (emphasis added).

- 5. Your comment is in the record.
- 6. Please see response to comment P2-3.
- 7. ESA is not scoped to create GIS asset data for this analysis, and therefore cannot calculate impact acreages without GIS data to support observations of sensitive species habitat. They however will be mentioned in the text of the report.
- 8. The species habitats in the golf course will be listed in the Final Vulnerability Assessment.
- 9. Your comment in the record.
- 10. Please see Master Response B regarding the purpose of the Vulnerability Assessment.
- 11. The City of Pacifica understands that the system was designed such that the 10- inch pipe would handle the low flow and that during big rain events the drainage would bubble up and sheet flow across the fairway. The Sharp Park Golf Course is the property of and maintained by City and County of San Francisco.
- 12. Pacifica's Grant Agreement does not specifically state that the Sharp Park Golf Course will be on the Community Advisory Group. The San Francisco Department of Recreation and Parks is participating in the Technical Work Group.
- 13. Your comment is in the record.

P3. Bart Willoughby

1. The following revision will be made in response to your comment:

"This seawall has since failed due to erosion above and behind the structure which caused portions of the wall to collapse (Figure 8)." (page 11)

- 2. The commenter's mentioned references do not provide erosion projections for Pacifica, which is why Pacific Institute was used. Pacific Institute is the best available erosion data for Pacifica.
- 3. Please see Master Response F regarding sea level rise models.
- 4. Your comment is in the record.
- 5. Your comment is in the record.
- 6. Your comment is in the record.

P4. Margaret Goodale

1. Please see Master Response B regarding the economic analysis methodology.

P5. Colleen Golden

1. Your comment is in the record. Please see Master Response D regarding the Council's goals.

P6. Victor Carmichael

1. Your comment is in the record.

P7. Tanya Tandon

1. Your comment is in the record. Please see Master Response D regarding the Council's goals.

P8. Jason Tripp

1. Please see Master Response B regarding the purpose of the Vulnerability Assessment.

P9. Allison Zenner

1. Your comment is in the record. Please see Master Response D regarding the Council's goals.

P10. David Leal

- 1. Please see Master Response A regarding public notification.
- 2. Pacific Institute (PI) erosion layers are the best available City-wide erosion projections and it is known and acknowledged that they do not account for existing armoring. The point of the vulnerability assessment is to determine all assets potentially at risk, and does not assume any adaptation interventions. Some of the existing seawalls and revetments have failed and damages have occurred to property landward of them; using the PI erosion maps takes into account this potential. The adaptation plan will analyze impacts from erosion and flooding considering different alternative adaptations, including maintaining existing and building new coastal armoring, and the effects that such structures may have on limiting erosion and flooding.
- 3. Please see Master Response B regarding the purpose of the Vulnerability Assessment.
- 4. Please see Master Response G regarding the Pacific Institute erosion data.

P11. Dave Plumb

1. Your comment is in the record. Please see Master Response A regarding public notification and Master Response D regarding the Council's goals.

P12. Frank Vella

1. Your comment is in the record. Please see Master Response D regarding the Council's goals.

P13. Kevin McCluskey

1. Your comment is in the record. Please see Master Response D regarding the Council's goals.

P14. Kathleen Moresco

1. Your comment is in the record. Please see Master Response D regarding the Council's goals.

P15. Mary Ann Edson- Plumb

1. Your comment is in the record. Please see Master Response D regarding the Council's goals and Master Response C regarding ESA's role and Master Response B regarding the purpose of the Vulnerability Assessment.

P16. Tiffany Seagren

1. Your comment is in the record. The purpose of the Vulnerability Assessment document was to identify what areas may be vulnerable to sea level rise. The scope of the document was not intended to include discussion of adaptation strategies or an economic analysis of the vulnerabilities. Please see Master Response B regarding the purpose of the Vulnerability Assessment.

P17. Victor Spano

1. Please see responses to comments CWG9-1 through CWG9-6.

P18. Brenda Storey

 As stated in Section 2.2 of the Draft Vulnerability Assessment, Pacifica and San Mateo County used the same data sources (Pacific Institute erosion and OCOF flooding). Please read the Future Conditions Scenario Memo available on the City's sea level rise webpage (www.cityofpacifica.org/sealevelrise) and Section 2 of the Draft Vulnerability Assessment for more information on the hazard data considered and used in the Draft Vulnerability Assessment.
Bevisions will be made to Section 3 of the Vulnerability Assessment to clearly detail the sources

Revisions will be made to Section 3 of the Vulnerability Assessment to clearly detail the sources of the hazard data. Please see Master Response G regarding Pacific Institute's erosion data.

- 2. Your comment is in the record. Please see Master Response B regarding the purpose of the Vulnerability Assessment.
- 3. Your comment is in the record. Please see Master Response E (question 6) regarding reoccurring questions.
- 4. Please see Master Response A regarding notification.

P19. Cherie Chan

- 1. Your comment is in the record.
- 2. Wetlands are now included in the Vulnerability Assessment. The data can be viewed on the web viewer posted to the City's SLR webpage. Liquefaction and earthquake hazards should indeed be a part of the LCP update, but are not in the scope of this study which is to analyze sea level rise.
- 3. PG&E will not provide the locations of their electrical and gas infrastructure due to security.

P20. Ciyavash Moazzami and Tiffany Zammit

1. Your comment is in the record.

P21. Carol Zammit

1. Your comment is in the record. Please see Master Response D regarding the Council's goals.

P22. Fran Quartini

1. Your comment is in the record.

P23. Gina Zari

1. Please see Master Response E regarding reoccurring questions.

P24. Joseph Erasmy

1. Your comment is in the record. Please see Master Response B regarding the purpose of the Vulnerability Assessment.

P25. Josh Richman

1. Your comment is in the record. Please see Master Response D regarding the Council's goals.

P26. Jim Wagner

1. Your comment is in the record. Please see Master Responses C and B regarding schedule and economic analysis during adaptation planning phase.

P27. Marisa Beck

1. Your comment is in the record.

P28. Marty Cerles

1. Your comment is in the record. Please see Master Responses C and B regarding the process and the purpose of the Vulnerability Assessment.

P29. Marissa Wat

1. Your comment is in the record.

P30. Paul Kuhn

1. Your comment is in the record. Please see Master Response B regarding the purpose of the Vulnerability Assessment.

P31. Sue S. Eldredge

- 1. Your comment is in the record. Please see Master Response B regarding the purpose of the Vulnerability Assessment.
- The commenter does not provide any reference to the information or studies that are mentioned in this comment. Please read the Future Conditions Scenario Memo available on the City's sea level rise webpage (<u>www.cityofpacifica.org/sealevelrise</u>) and Section 2 of the Draft Vulnerability Assessment for more information on the hazard data considered and used in the Draft Vulnerability Assessment.
- 3. Please see Master Response C regarding the LCP update process.
- 4. Your comment is in the record. Please see Master Response B regarding the purpose of the Vulnerability Assessment. The City Council is elected by the People of Pacifica to make important decisions on behalf of their constituents. Consideration of approval of the LCP Update prior to sending to the Coastal Commission for certification and acceptance of the certified LCP are appropriate actions of the City Council. Additionally, the City has created two working groups to help with this effort, including a Community Work Group and Technical Work Group.

P32. W. White

 A discussion of hazard data sources the City considered using prior to preparing the Draft Vulnerability Assessment is detailed in the Future Conditions Scenarios Memo available at <u>www.cityofpacifica.org/sealevelrise</u>. Our Coast, Our Future and Pacific Institute data was used in the Draft Vulnerability Assessment and is not considered to be draft data. Please read the Future Conditions Scenario Memo available on the City's sea level rise webpage (<u>www.cityofpacifica.org/sealevelrise</u>) and Section 2 of the Draft Vulnerability Assessment for more information on the hazard data considered and used in the Draft Vulnerability Assessment.

As stated under section 3. of the Draft Vulnerability Assessment, "This draft Vulnerability Assessment tabulates the exposure of assets to the highest flooding and erosion hazard scenarios chosen in this study [...] The Final Vulnerability Assessment will include impacts under all six sea level rise scenarios (Table 1), which includes existing (current sea level). " which will provide the different levels of severity requested in the comment.

- 2. The sea level rise planning effort is being reference as such as it is a term that is commonly understood by the general public. However our sea level rise planning effort will address coastal erosion, storm flooding, wave run-up, and flooding.
- 3. In preparation of the Draft Adaptation Plan, a Future Conditions Scenarios Memo was prepared to detail the current scientific updates regarding projected sea level rise impacts. Similarly in preparation of the Draft Adaptation Plan, an Introduction to Adaptation Strategies memo was prepared to detail the current adaptation strategies that are available.
- 4. Several coastal communities around the United States are preparing for the impacts of sea level rise. The type of sea level rise impacts each community will experience and the assets that are vulnerable will be different for each community. The City of Pacifica will need to choose sea level rise policies that are best for this community.
- 5. Please see Master Response A regarding public notification
- 6. Please see Master Response E regarding reoccurring questions.

P33. Brett Bodisco

1. Your comment is in the record. Please see Master Response E regarding reoccurring questions.

P34. Bill Chan

1. Your comment is in the record. Please see Master Response B regarding the purpose of the Vulnerability Assessment.

P35. Carol Camacho

1. Your comment is in the record. Please see Master Response B regarding the purpose of the Vulnerability Assessment.

P36. Chuck Rategan

- 1. A GIS webviewer for the asset data and vulnerability zones was posted on the City's sea level rise webpage (www.cityofpacifica.org/sealevelrise) on February 28, 2018. The public is able to use this webviewer to zoom into areas of interest.
- 2. Please see Master Response B regarding the purpose of the Vulnerability Assessment.
- 3. The City is not creating new hazard data. The study is relying on existing hazard data produced by agencies such as such as the Federal Emergency Management Agency (FEMA) and State of California Ocean Protection Council. The hazard data used in the City's study is already readily available to the public and financial institutions and insurers. Also see Master Response E (questions 4) regarding reoccurring questions.
- 4. Please see Master Response B regarding the purpose of the Vulnerability Assessment.
- 5. Please see Master Response B regarding the purpose of the Vulnerability Assessment.

P37. Pete and Cheryl Yoes

1. Your comment is in the record. Please see Master Response B regarding the purpose of the Vulnerability Assessment.

P38. Jeff and Pam Anderberg

1. Your comment is in the record. Please see Master Response B regarding the purpose of the Vulnerability Assessment.

P39 Lorraine Bannister

1. Your comment is in the record. Please see Master Response E regarding reoccurring questions.

P40. Lance Sorenson and Mindy Qiu

1. Your comment is in the record. Please see Master Response E regarding reoccurring questions.

P41. Shanon Christiansen

1. Your comment is in the record.

P42. Shirlee Gibbs

- 1. Please see Master Response B regarding the purpose of the Vulnerability Assessment.
- 2. Your comment is in the record.

P43. Tom Thompson

- 1. Your comment is in the record.
- 2. The Sea Level Rise Community Work Group was created by staff and the Ad Hoc councilmembers. Applicants were selected based on criteria listed on the Community Work Group application with the goal of created a balance and broad representation of Pacifica's community. Please see Master Response C regarding the purpose for the Community Work Group. The commenter provides no evidence to support their statement regarding the Community Work Group personal preferences regarding adaptation strategies for sea level rise.
- 3. The City issued a request for proposals and Environmental Sciences Associates (ESA) was one of the three responding consulting firms. Staff recommended ESA to the City Council based on their proposal and interview. City Council provided staff with approval to enter a contract for \$185,000 with ESA on August 14, 2017. Funding for the ESA contract is being provided through a grant that the City received from the Coastal Commission and Coastal Conservancy.
- 4. The public workshop for the Draft Adaptation Plan on February 13, 2018 provided an opportunity for the public to submit questions and comments.
- 5. Please see Master Response B regarding the purpose of the Vulnerability Assessment.
- 6. Please see Master Response B regarding the purpose of the Vulnerability Assessment and Master Response G regarding the Pacific Institute erosion data.
- 7. Please see Master Response B regarding the purpose of the Vulnerability Assessment.
- 8. The City of Pacifica has not created any hazard data. It is not known if or how third parties will use the maps in the Vulnerability Assessment, Adaptation Plan, or the update to the City's Local Coastal Plan.
- 9. Please see Master Response B regarding the purpose of the Vulnerability Assessment.
- 10. We are following the State's guidance, who is funding this work. Please see Master Response F regarding sea level rise models.
- 11. Please see Master Response F regarding sea level rise models.
- 12. Please see Master Response E regarding reoccurring questions.

P44. Carol Zammit

1. Your comment is in the record.

P45. Jung Lee

1. Your comment is in the record.

P46. Frank Vento

- 1. Predictions shown in the appendices of the Draft Vulnerability Assessment are from Pacific Institute and Our Coast, Our Future.
- 2. Please see Master Response B regarding the purpose of the Vulnerability Assessment. Please also see Master Response D regarding the Council's goals.
- 3. Please see Master Response B regarding the purpose of the Vulnerability Assessment.

P47. Jennifer Lee

1. Your comment is in the record. Please see Master Response D regarding the Council's goals.

P48. Robert Bloomer

1. Your comment is in the record. Please see Master Response D regarding the Council's goals.

P49. Ron Granville

1. Your comment is in the record. Please see Master Response E regarding reoccurring questions.

P50. Tom Garcia

1. Your comment is in the record. Please see Master Response E regarding reoccurring questions.

P51. John Mikulin

- 1. Your comment is in the record. The City addressed the reduction of greenhouse gas emissions in the City's Climate Action Plan.
- 2. Your comment is in the record. Please see Master Response B regarding the purpose of the Vulnerability Assessment.
- 3. The GIS webviewer available for public view on the sea level rise webpage (www.cityofpacifica.org/sealevelrise) includes hazard data from the data sources being used for the Draft Vulnerability Assessment. Another webviewer tool will be available to show the various sea level rise scenarios.

P52. Krista Markowitz

1. Your comment is in the record. Please see Master Response B regarding the purpose of the Vulnerability Assessment.

P53. Jeff Lockhart

1. Your comment is in the record. Please see Master Response B regarding the purpose of the Vulnerability Assessment.

P54. Larry Passmore, Fog Fest Organizing Group.

1. Your comment is in the record.

P55. Nancy Crawford

1. Your comment is in the record. Please see Master Response D regarding the Council's goals.

P56. Margaret Goodale

1. Your comment is in the record.

P57. Stan Zeavin

1. Your comment is in the record.

P58. Sue Casperson

1. Your comment is in the record.

P59. Tina Arroyo

1. Your comment is in the record.

P60. Linda Bruno

1. Your comment is in the record.

P61. Theresa Alas Andrews

1. Your comment is in the record. Please see Master Response D regarding the Council's goals.

P62. Eberhard Fiebig

1. Your comment is in the record. Please see Master Response D regarding the Council's goals.

P63. Marc and Sandra Tavasci

1. Your comment is in the record. Please see Master Response D regarding the Council's goals.

P64. Joann Reeves

1. Your comment is in the record. Please see Master Response D regarding the Council's goals.

P65. Cheryl Henley

- 1. Your comment is in the record. Please see Master Response D regarding the Council's goals.
- 2. As stated in Section 2.2 of the Draft Vulnerability Assessment, Pacifica and San Mateo County used the same data sources (Pacific Institute erosion and OCOF flooding). Revisions will be made to Section 3 of the Vulnerability Assessment to clearly detail the sources of the hazard data.

Please see Master Response B regarding the purpose of the Vulnerability Assessment and Master Response G regarding Pacific Institute's erosion data.

- 3. A link to the hazard data source has been added under the (i) information widget on the GIS webviewer .
- 4. Your comment is in the record. Please see Master Response D regarding the Council's goals.

P66. Cindy Madden

1. Your comment is in the record. Please see Master Response B regarding the purpose of the Vulnerability Assessment.

P67. David Chamberlin

- 1. Your comment is in the record. Please see Master Response D regarding the Council's goals.
- 2. The policies that will be developed shall be dependent on triggers that are irrespective of time (i.e. based on actual observed sea level rise amounts, storm damage frequency, existing beach width, offset from bluff edge, etc.) and do not initiate significant actions prematurely. Therefore, actions will be taken as necessary, and will not be based on a specific projection of sea level rise that may or may not occur. Please see Master Response F regarding the sea level rise models and Master Response E (question 6) regarding reoccurring questions.
- 3. Please see Master Response B regarding the purpose of the Vulnerability Assessment.
- 4. Please see Master Response G regarding the Pacific Institute(PI) erosion data. The purpose of the PI erosion data is not to show that the seawalls don't exist, but to show what the seawalls protect. Pacifica is using data that covers the entire city to be consistent. Pacifica is not directly using Our Coast, Our Future for planning. The data is being used to perform a vulnerability assessment and a cost benefit of hypothetical adaptation alternatives. The Our Coast, Our Future data is not prescribing what Pacifica should do.
- 5. Your comment is in the record. Please see Master Response B regarding the purpose of the Vulnerability Assessment.
- 6. Your comment is in the record.

P68. Daniel Gould

1. Your comment is in the record. Please see Master Response D regarding the Council's goals.

P69. Dan Mail

1. Your comment is in the record. Please see Master Response D regarding the Council's goals.

P70. Delia McGrath

- Funding for the demolition of 310 and 320 Esplanade Apartments and Beach Boulevard seawall repair projects was provided from the City's Disaster Accounting Fund. The Sewer Facility Construction Fund provided the money for the wet weather equalization basin, which is currently being built in the south parking lot of the Community Center. Please note that the wet weather equalization basin is a sewer project and not a flood project.
- 2. The City is conducting this sea level rise planning effort and updating LCP policies to address sea level rise hazards to support the implementation of adaptation efforts.

3. Your comment is in the record.

P71. Dennis Thomas

1. Your comment is in the record. Please see Master Response D regarding the Council's goals.

P72. David Tipton

1. Your comment is in the record. Please see Master Response D regarding the Council's goals.

P73. Frankie Pun

1. Your comment is in the record. Please see Master Response E regarding reoccurring questions.

P74. Gil Anda

1. Your comment is in the record. Please see Master Response D regarding the Council's goals.

P75. Jim Ryan

1. Your comment is in the record. The City of Pacifica has not created any hazard data and does not have the budget or resources to create hazard data, therefore the City must rely on existing publicly available data. Please see Master Response B regarding the purpose of the Vulnerability Assessment.

P76. Kent Flinn

1. Your comment is in the record. Please see Master Response B regarding the purpose of the Vulnerability Assessment.

P77. Kenneth Ho

1. Your comment is in the record. The City of Pacifica has not created any hazard data and does not have the budget or resources to create hazard data, therefore the City must rely on existing publicly available data. Please see Master Response B regarding the purpose of the Vulnerability Assessment.

P78. Leigh Ward

1. Your comment is in the record. Please see Master Response D regarding the Council's goals.

P79. Mary Nappi

1. Your comment is in the record.

P80. Marianne Osberg

1. Your comment is in the record. The City of Pacifica has not created any hazard data and does not have the budget or resources to create hazard data, therefore the City must rely on existing publicly available data. Please see Master Response B regarding the purpose of the Vulnerability Assessment.

P81. Raheela Ghafur

1. Your comment is in the record. Please see Master Response B regarding the purpose of the Vulnerability Assessment.

P82. Roy Stotts

1. Please see Master Response E regarding these reoccurring questions.

P83. R. Walker

1. Your comment is in the record. The City of Pacifica has not created any hazard data and does not have the budget or resources to create hazard data, therefore the City must rely on existing publicly available data. Please see Master Response B regarding the purpose of the Vulnerability Assessment.

P84. Sean Cunningham

1. Your comment is in the record. Please see Master Response D regarding the Council's goals.

P85. Susan Osberg

1. Your comment is in the record.

P86. Teresa Hoskins

1. Your comment is in the record. Please see Master Response D regarding the Council's goals and Master Response B regarding the purpose of the Vulnerability Assessment.

P87. Amy Perez

- 1. Your comment is in the record. Please see Master Response B regarding the purpose of the Vulnerability Assessment.
- 2. Your comment is in the record. Please see Master Response D regarding the Council's goals.

P88. Angel Riley

1. Your comment is in the record. Please see Master Response E for reoccurring questions

P89. B. Nordeman

1. Your comment is in the record. Please see Master Response B regarding the purpose of the Vulnerability Assessment.

P90. Eric Cox

1. Your comment is in the record. Please see Master Response B regarding the purpose of the Vulnerability Assessment.

P91 Erin Macias

- 1. The City has found no conflict of interest with hiring ESA to conduct the sea level rise analysis and LCP update. Please see Master Response C regarding the process.
- 2. Please see Master Response B regarding the purpose of the Vulnerability Assessment.
- 3. This comment is beyond the scope of the Draft Vulnerability Assessment. Please see Master Response B regarding the purpose of the Vulnerability Assessment.
- 4. Please see Master Response E (question 11) for reoccurring questions.
- 5. Please see Master Response B regarding the purpose of the Vulnerability Assessment.

P92. Ka Man Chan

1. Please see Master Response E regarding reoccurring questions.

P93. Judy Taylor

- 1. Your comment is in the record. Please see Master Response G regarding the Pacific Institute erosion data.
- 2. Please see Master Response B regarding the purpose of the Vulnerability Assessment.
- 3. Please see Master Response B regarding the purpose of the Vulnerability Assessment.
- 4. The GIS webviewer provided on the sea level rise webpage (www.cityofpacifica.org/sealevelrise) on February 28, 2018 allows the public to zoom in on asset and vulnerability data.

P94. Larry Bothen

1. Your comment is in the record. Please see Master Response D regarding the Council's goals.

P95. Maria Martinez

1. Your comment is in the record. Please see Master Response D regarding the Council's goals.

P96. Mark Stechbart

1. The report is in the public domain and posted on the City website. The disclaimer intends to limit the use of the data and outputs for more specific purposes than intended. This a planning-level study, with limited budget and uses the best available data. The data used is adequate for a planning-level study but should not be relied upon to assess an individual structure.

- 2. The draft CRSMP is not being directly used in the Pacifica SLR LCP Update, ESA references the document to illustrate experience studying the area; some methodologies used to assess adaptation alternatives in the draft CRSMP are being applied to the current study.
- 3. The Technical Work Group attendance to the February 13, 2018 meeting is provided in Appendix B of the Meeting Summary for the February 13, 2018 Technical Work Group. The Meeting Summary is available here: Public Participation webpage, here: <u>http://www.cityofpacifica.org/depts/planning/sea_level_rise_public_participation.asp</u> Additionally the list of agencies invited to participate in the Technical Work Group is also provided on the Public Participation webpage.
- 4. As stated under section 3. of the Draft Vulnerability Assessment, "This draft Vulnerability Assessment tabulates the exposure of assets to the highest flooding and erosion hazard scenarios chosen in this study [...] The Final Vulnerability Assessment will include impacts under all six sea level rise scenarios (Table 1), which includes existing (current sea level). "
- 5. The Parcel category in Tables 3 through 10 does not differentiate between the land use types. The associated text with each table describes the type of land uses of the parcel. Residential parcels are included in the Lands-Parcels line item in the asset exposure tables for each sub area in the draft Vulnerability Assessment, and will be separated by type for the Final VA.
- 6. The GIS webviewer provided on the sea level rise webpage(www.cityofpacifica.org/sealevelrise) on February 28, 2018 allows the public to zoom in on assets and vulnerability data.
- 7. The commenter does not provide enough information of where affordable housing is "known to be". The attribute table of the Affordable Rental layers provides five locations. Similar to the tables mentioned above the Parcels layer does not differentiate between the land use types.
- 8. The berm is accounted for in the flooding predictions by Coastal Storm Modeling System (CoSMoS).
- 9. Please see Master Response A regarding public notification
- 10. Your comment is in the record.
- 11. Your comment is in the record. Please see Master Response D regarding the Council's goals.
- 12. Clarification of how the impacts of sea level rise would affect all stakeholders of Pacifica will be made in the Final Vulnerability Assessment.
- 13. Please see Master Response B regarding the purpose of the Vulnerability Assessment.
- 14. Meeting summaries are available for the February 13, 2018 Community Work Group and Technical Work Group meetings, which summarized the discussions.
- 15. Your comment is in the record.
- 16. Your comment is in the record.

P97. Paul Slavin, Pacifica Historical Society

1. Your comment is in the record. Please see Master Response D regarding the Council's goals.

P98. Sissy Riley

1. Your comment is in the record. Please see Master Response D regarding the Council's goals.

P99. Tom Richardson

1. Your comment is in the record. Please see Master Response D regarding the Council's goals.

P100.Wendy Huber

1. Your comment is in the record. Please see Master Response D regarding the Council's goals.

P101. Richard Harris, San Francisco Public Golf Alliance

- 1. Please see Master Response B regarding the purpose of the Vulnerability Assessment.
- 2. Please see Master Response B regarding the purpose of the Vulnerability Assessment.
- 3. Please see Master Response E (question 7) regarding reoccurring questions.
- 4. The erosion projections from Pacific Institute (source is stated in the report) include long term erosion as well as shoreline transgression (landward shift) due to sea-level rise, which may exceed accretion rates and lead to beach loss if sufficient sediments are not delivered to the beach.
- 5. As further discussed in Section 3 of the Draft Vulnerability Assessment, the specific assets were grouped in a manner consistent with the San Mateo County Sea Change Project. The text provided under each subarea in Section 3 of the Draft Vulnerability Assessment, the maps in Appendices B through D, and the GIS webviewer provided on the sea level rise webpage (www.cityofpacifica.org/sealevelrise) provide the specific information requested in the comment.
- 6. The commenter does not provide enough information of where affordable housing is "known to be". The attribute table of the Affordable Rental layers provides five locations. Similar to the tables mentioned above the Parcels layer does not differentiate between the land use types.
- 7. As stated under section 3. of the Draft Vulnerability Assessment, "This draft Vulnerability Assessment tabulates the exposure of assets to the highest flooding and erosion hazard scenarios chosen in this study [...] The Final Vulnerability Assessment will include impacts under all six sea level rise scenarios (Table 1), which includes existing (current sea level). " which will provide the different levels of severity requested in the comment.

P102. Nancy Stotts

- 1. Please see Master Response E (question 6) regarding reoccurring questions.
- 2. Your comment is in the record.
- 3. Please see Master Response G regarding the Pacific Institute erosion data.
- 4. Please see Master Response B regarding the purpose of the Vulnerability Assessment.
- 5. The City has not developed a list of addresses located within the area delineated by a red line, which represents the most inland extent of the coastal hazard area for year 2100. Please see Master Response A regarding public notification. Additionally, a GIS webviewer for the asset data and vulnerability zones was posted on the City's sea level rise webpage (www.cityofpacifica.org/sealevelrise) on February 28, 2018. The public is able to use this webviewer to zoom into areas of interest.
- 6. Please see Master Response B regarding the purpose of the Vulnerability Assessment.

103. Unknown

1. Your comment is in the record.
P104 Jeff Bruno.

1. Your comment is in the record. Please see Master Response D regarding the Council's goals.

P105 Joanne Gold

1. Your comment is in the record.

P106. Mark Merritte

1. Your comment is in the record.

P107. Matthew Koester

1. Your comment is in the record.

P108. Taletha Derrington, Surfrider San Mateo Chapter

- Unfortunately, the City of Pacifica does not have the resources to prepare hazard data or models specific to Pacifica, therefore, the City is relying on publically available data and models. The Draft Vulnerability Assessment uses the current best available science to model the potential impacts of sea level rise. Considerations of how often or when the Vulnerability Assessment or adaptation planning should be updated will be addressed during the LCP policy update phase. Please see Master Response C regarding LCP update process.
- 2. Surfing resources are included in the recreational asset category.
- 3. Your comment is in the record.
- 4. Water quality is outside of the scope of this vulnerability assessment. Sewer pump stations and infrastructure are considered, but we cannot evaluate storm-related water quality issues in this study.
- 5. Your comment is in the record. There are an undefined number of recreation activities that could be listed as recreational uses in Pacifica's Coastal Zone. The City believes that "Parks" and "Trails", which are listed under Access and Recreation assets (page 29 of the Draft Vulnerability Assessment) encompasses the recreational uses that are listed in your comment.

109. Mark Stechbart

1. Your comment is in the record.

CALIFORNIA COASTAL COMMISSION

45 FREMONT STREET, SUITE 2000 SAN FRANCISCO, CA 94105-2219 VOICE (415) 904-5200 FAX (415) 904-5400 TDD (415) 597-5885



To: Bonny O'Connor From: Coastal Commission staff Date: February 28, 2018

RE: Coastal Commission staff comments on January 2018 *Draft City of Pacifica Sea Level Rise Vulnerability Assessment*

Dear Ms. O'Connor:

Thank you for the opportunity to comment on the January 2018 draft of the City of Pacifica's Sea Level Rise Vulnerability Assessment. This report is a deliverable for Task 2 of the City's LCP Local Assistance Grant, LCP-16-01. It describes the hazards associated with projected sea level rise for the City's zone, identifies assets exposed and vulnerable to these hazards, and, when combined with the forthcoming adaptation report (Task 3), will provide a foundation for developing new and updated LCP polices to help the City respond and adapt to sea level rise impacts. Overall, Commission staff finds that this report is a commendable first step, and provides the following comments to ensure that the report is a clear, instructive, and useful tool for providing City staff, citizens, and other interested parties with information on sea level rise vulnerabilities.

- Asset Exposure Context: In general, Commission staff recommends providing additional context to the identification of the assets that are exposed to flooding and erosion hazards. Currently, this information mostly just appears as a list of asset types exposed to the individual hazard (*e.g.*, acres of wetlands or number of schools exposed to erosion in 2100) for each sub-area. However, simply providing lists likely won't help most asset managers or citizens understand what this information means or what to do with it. Providing some simple comparisons, such has percentages of the asset type that is exposed versus the citywide total (*e.g.*, X% of the City's housing stock or X% of land zoned for open space is exposed) or a comparison of exposure across the different subareas (*e.g.*, X% of all roads exposed to flooding are located in subarea X), would help users of this information start to draw some conclusions. Although staff understands that some of this type of contextualization may be provided in the forthcoming adaptation report, including some of these basic comparisons in this report would help set a foundation for a broader discussion of prioritization and next steps in the next document.
- 2) Meaning of the term "Vulnerable": Commission staff also recommends providing a more nuanced discussion of what it means for these assets to be "vulnerable" to sea level rise. Currently, this draft Vulnerability Assessment identifies assets that are "exposed" to flooding and/or erosion with 5.7 feet of sea level rise in 2100, but often conflates this exposure as being "vulnerable". To be sure, there are a variety of definitions of "vulnerable", but in the

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context of most sea level rise vulnerability assessments, the term "vulnerable" includes some measure of an asset's *exposure* to a hazard along with its *adaptive capacity* to that hazard and some understanding of the *consequences* associated with being exposed to the hazard. This is because different asset types will respond differently to sea level rise. For example, a beach that is exposed to erosion and flooding through 2100 may be completely lost (particularly in places like Pacifica when they are backed by development), whereas a wastewater outfall or roadway may be protected from any impacts associated with such exposure. Providing this context also helps differentiate between the impacts associated with storm scenarios at a certain sea level rise projection (occasional impacts) and non-storm impacts (routine or daily impacts), and will be even more important when the additional sea level rise projection scenarios are brought into the final report (what does it mean to be exposed at both the lower/earlier SLR scenarios and the higher/later scenarios? Is there is tipping point at which exposure will significantly impact an asset? Etc.). Most importantly, these nuances are critical for understanding the needs and priorities for different assets when determining adaptation options.

3) Specific Comments:

- a. Pg. 27, Table 1: Although you are not including it as a scenario that you've mapped/evaluated, suggest including the extreme scenario for 2050 from the OPC draft 2018 State Sea-Level Rise Guidance update (2.7ft.) for consistency.
- b. Explain earlier in the report that the OCOF/CoSMoS modelling for this area doesn't incorporate the long-term erosion in the same way that CoSMoS 3.0 does for southern California (and thus the flood layers shown may underrepresent flood exposure). This caveat is included on page 34, but should be included in earlier descriptions of erosion and flood risk (*e.g.*, pg. 27 and/or 31-32).
- c. Pg. 27-28, Section 2.2: It may help to provide a visual of the SLR projection curves to show how the different SLR amounts used in the study compare.
- d. On the SLR maps (*e.g.*, Figure 23), please clarify within the map legend if the storm flood area is that for a 100-yr storm (with 5.7 ft. of SLR); and clarify if the red "coastal erosion" zone is showing the area that could be exposed to coastal erosion, or if the landward red line is where the future shoreline (MHW) is projected to be with erosion (and assuming the shoreline erodes without being blocked by development). Staff also recommends including some additional more zoomed in maps, at least in priority areas, to show more detail.

Again, thank you for the opportunity to comment. Coastal Commission staff are available to discuss these comments if that would be useful.

Sincerely,

Kelsey Ducklow LCP Grant Coordinator and Climate Change Analyst

Cc: Patrick Foster, Coastal Analyst, North Central Coast District

From: Sent:	Potter, Spencer (REC) <spencer.potter@sfgov.org> Wednesday, February 28, 2018 11:14 AM</spencer.potter@sfgov.org>
То:	O'Connor, Bonny
Cc:	Wayne, Lisa (REC); Bradley, Stacy (REC); Stokle, Brian (REC)
Subject:	Comment on January 2018 Draft Sea Level Rise Vulnerability Assessment

Hi Bonny,

Here are comments for suggested revisions to the January 2018 Draft Sea Level Rise Vulnerability Assessment for the Pacifica LCP. We presented these comments orally at the Jan 23rd meeting, but am following up via email as well. I have a few general comments, but most of our comments relate to our property in Pacifica, Sharp Park.

- General comment: the report should include an asset list of the properties that the report author has used to draw his/her conclusions. For example, on p. 40 the report states "Up to 230 parcels are vulnerable to coastal storm wave impacts, while 156 parcels will be impacted by sustained flooding." The report is incomplete in that it does not actually show what these properties are that were counted to get these sorts of statistics. For this reason, there's no way for a reader of the report to independently verify these report conclusions.
- 2. **General comment:** somewhere in the Local Coastal Planning documents, either in the Sea Level Vulnerability Assessment or elsewhere, the report should make clear that significant portions of the Coastal Zone in Pacifica, including most of the western portion of Sharp Park, are within the Coastal Commission's original (i.e., "retained") jurisdiction, and will therefore not be within Pacifica's LCP permitting jurisdiction. As written, the vulnerability assessment suggests that the entire study area is within Pacifica's delegated LCP jurisdiction. It probably makes the most sense to include this as a layer on a set of maps.
- 3. Endangered species habitat: You have asked us to provide information on endangered species habitat at Sharp Park. Sharp Park includes California red legged frog (Rana aurora draytonii) and San Francisco garter snake (Thamnophis sirtalis tetrataenia) habitat throughout the entire Laguna Salada wetland complex (including Laguna Salada, Horsestable Pond, the channel that connects the two water bodies, as well as an artificial pond that was built by SFRPD in 2015 to the south-east of Horsestable Pond), the upland areas around these wetland areas, and on the fairway areas in the western portion of the park. Potential habitat also exists at Lake Arrowhead, which is located in the eastern portion of the park, as well as the areas surrounding Lake Arrowhead. Though the park is not designated as critical habitat for California red-legged frog, current frog surveys indicate a robust population at Sharp Park. San Francisco Garter Snake critical habitat has not yet been designated by the U.S. Fish and Wildlife Service, but recent observations by SFRPD staff and others indicate their presence at Sharp Park. Snowy plover (Charadrius nivosus) have been documented on Sharp Park beach in the past. Additionally, a population of San Francisco forktail damselfly (Ischnura gemina) was discovered in association with the wetlands of Sharp Park in 1988. Mission blue butterfly (Icaricia icarioides missionensis) potentially occur within the boundaries of Sharp Park, and have been reported as recently at 1998 from just north of Sharp Park along Gypsy Hill Road.

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- 4. Sharp Park Berm Public Access Improvements: SFRPD will be implementing a series of public access improvements along the Sharp Park berm (as required under Coastal Development Permit 2-17-0702), sometime in the next few years. These improvements are still in the conceptual planning phase, but improvements will likely include two vertical accessways from the top of the berm to the Sharp Park beach, improvements to surfacing, two ocean overlooks, benches, informational/educational signage, bicycle racks, dog mitt stations, and other access amenities.
- 5. Wetlands as flood control structure: throughout the report, the Laguna Salada wetland should be categorized not only as a natural asset, but also as an important storm water and flood control structure. As the terminus of a large (800+ acre) watershed, Laguna Salada serves the larger region and protects surrounding commercial and residential areas (i.e., the Fairway Park and Sharp Park neighborhoods) from flooding. Laguna Salada's role as a hazard control feature should be indicated on the map in Appendix B-3 to the report.
- 6. **California Coastal Trail / Mori Point Emergency Access Route:** In addition to being a shoreline protective device, the Sharp Park berm also functions as a hiking/biking/walking trail as well as the sole emergency access route for Mori Point. These functions should be taken into account as assets at risk under various sea level rise scenarios and should be indicated on the maps in the appendices at the end of the document.

Thank you, Spencer

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Spencer Potter, J.D. Natural Resources Regulatory Specialist

San Francisco Recreation and Parks Department 811 Stanyan Street | San Francisco, CA | 94117 (415) 242-6373 | <u>spencer.potter@sfgov.org</u>



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Pacifica Sea Level Rise LCP Update Workgroup Meetings Mapping Exercise Handout 1/23/2018

Name: JAANNE KERBANAZ	Initials: <u>_</u>
Affiliation: CALIF STATE PARKS	
Contact information (phone/email): 6 D-720-5007	l'iname Verbauss e perce

This form is designed to facilitate input on the draft vulnerability assessment for the Pacifica Sea Level Rise LCP update workgroup meetings on 1/23/2018. Please provide a map reference for each comment. Input is requested on the following topics:

- Identification of any data gaps and recommendations of data sources to fill gaps
- Identification of recreational areas/uses/facilities and public access (and data sources)
- Identification of ecological and marine assets (and data sources)
- Identification of other community use areas and areas of concern
- Recommendation/notification of preferred/existing adaptation plans within Pacifica

Please provide your initials and number for each comment on the maps, provide details to your comment on this form and follow up with Bonny O'Connor via email (o'connorb@ci.pacifica.ca.us) to provide any further information, reports, contacts etc. by February 28, 2018.

Comment #	Description
	WESPER SUM-1 ROVER- PACIFICA STATE BEACH
2	ADD CALIF RED- UTGOED FROD HUTBITAL -
	SAN PEDRO CIREOR + PEDRO PT.
3	ADD WESTERN SNOWY RATE MARSITAT -
	JUNY REE BEACH
<u>}</u>	
	a second de la seconda de l
	OVERALL: IMPROVE SENSITIVE SPECIES INFORMATION
	PEPENDING ON HOW THIS INFORMATION WILL FIT



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Pacifica Sea Level Rise LCP Update Workgroup Meetings Mapping Exercise Handout 1/23/2018

R

Name: James Zoulas	Initials:
Affiliation: US Army Corps of Engineers	
Contact information (phone/email): 4/5-503-6923	James. G. Zoulas @usace. army. m.

This form is designed to facilitate input on the draft vulnerability assessment for the Pacifica Sea Level Rise LCP update workgroup meetings on 1/23/2018. Please provide-a map reference for each comment. Input is requested on the following topics:

- Identification of any data gaps and recommendations of data sources to fill gaps
- Identification of recreational areas/uses/facilities and public access (and data sources)
- Identification of ecological and marine assets (and data sources)
- Identification of other community use areas and areas of concern
- Recommendation/notification of preferred/existing adaptation plans within Pacifica

Please provide your initials and number for each comment on the maps, provide details to your comment on this form and follow up with Bonny O'Connor via email (o'connorb@ci.pacifica.ca.us) to provide any further information, reports, contacts etc. by February 28, 2018.

Comment #	Description
J2 <u>1</u>	USACE is evaluation potential fer study of Milagin Creet near RV park. (intact J. Dinster (John. K. Pinster @USACE away. mil)
J7#2	USACE is evaluation potential to study of erosion near RV part.
	Contact J. Zoulas or J. Angler
·	
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- h	

From:	Fahey, Dick@DOT <dick.fahey@dot.ca.gov></dick.fahey@dot.ca.gov>
Sent:	Wednesday, March 14, 2018 3:35 PM
То:	O'Connor, Bonny
Cc:	Yokoi, Stephen@DOT
Subject:	RE: Pacifica SLR Webpage Update - Extended Comment Period and GIS-Webviewer
Attachments:	SR1_SanPedroCreekBridgeInventory.pdf

Hello Bonny,

Thank you for the opportunity to review and comment on the Draft Sea Level Rise Vulnerability Assessment. Following are our comments:

- Use a lower-case "t" in the spelling of, Caltrans.
- It does not appear that all of the vulnerable local and state (Caltrans-maintained) bridges are captured in the lists in Tables 3-10; such as the Highway 1 bridge across San Pedro Creek, for example. Attached is a copy of a section of the bridge inventory report for the San Pedro Creek Bridge which includes attribute data for that bridge that might be useful.
- Page 33: We support separating out the impacts to local streets and to Highway 1.
- Page 42: It appears that portions of Highway 1 are exposed to coastal erosion in Figure 27, but this is not mentioned in the text.

Please let me know if you have any questions.

Thank you,

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Richard Fahey, GISP, AICP | Senior Transportation Planner <u>Caltrans - District 4</u> | Office of System and Regional Planning 111 Grand Avenue, Oakland, CA 94612 | (510) 286-5761

From: o'connorb@ci.pacifica.ca.us [mailto:o'connorb@ci.pacifica.ca.us]
Sent: Wednesday, February 28, 2018 2:20 PM
To: o'connorb@ci.pacifica.ca.us
Subject: Pacifica SLR Webpage Update - Extended Comment Period and GIS-Webviewer

Hello,

The City of Pacifica Sea Level Rise webpage has been updated with information regarding a two week extension to the Draft Vulnerability Assessment comment period. Please send comments to Bonny O'Connor, Assistant Planner at 170 Santa Maria Ave., Pacifica, CA 94044 or <u>sealevelrise@ci.pacifica.ca.us</u> by **March 14, 2018**. Additionally, a link to a GIS-webviewer containing GIS asset data and hazard zone has been made available for the public to search and view parcels or areas of concern. Please read the User Guide before accessing the GIS-webviewer link.

Please visit: www.cityofpacifica.org/SeaLevelRise for these updates and more information.

Thank you, Bonny

Bonny O'Connor, AICP

STRUCTURE INVENTORY AND APPRAISAL REPORT

(1) STATE NAME- CALIFORNIA 069 (8) STRUCTURE NUMBER 35 0350 (5) INVENTORY ROUTE (ON/UNDER) - ON 13100001 (2) HIGHWAY AGENCY DISTRICT 04 (3) COUNTY CODE 081 (4) PLACE CODE 00000
 (6) FEATURE INTERSECTED SAN PEDRO CREEK

 (7) FACILITY CARRIED STATE ROUTE 1

 (2) LOCATION
 STATE ROUTE 1
 (9) LOCATION-04-SM-001-40.83 (11) MILEPOINT/KILOMETERPOINT 40.83 (12) BASE HIGHWAY NETWORK- PART OF NET 1 (13) LRS INVENTORY ROUTE & SUBROUTE 00000000101 (16) LATITUDE 37 DEG 35 MIN 40.9 SEC (17) LONGITUDE 122 DEG 30 MIN 18.5 SEC (98) BORDER BRIDGE STATE CODE % SHARE % (99) BORDER BRIDGE STRUCTURE NUMBER ******* STRUCTURE TYPE AND MATERIAL ******** (43) STRUCTURE TYPE MAIN: MATERIAL- PRSTR CONC CONT CODE 601 TYPE- SLAB (44) STRUCTURE TYPE APPR: MATERIAL-OTHER / NA TYPE- OTHER/NA CODE 000 (45) NUMBER OF SPANS IN MAIN UNIT 2 (46) NUMBER OF APPROACH SPANS 0 (107) DECK STRUCTURE TYPE- CIP CONCRETE CODE 1 (108) WEARING SURFACE / PROTECTIVE SYSTEM: A) TYPE OF WEARING SURFACE- INTEGRAL CONC. CODE 2 B) TYPE OF MEMBRANE - NONE CODE o C) TYPE OF DECK PROTECTION- NONE CODE 0 (27) YEAR BUILT 2015 (106) YEAR RECONSTRUCTED (42) TYPE OF SERVICE: ON- HIGHWAY-PEDESTRIAN 5 UNDER- WATERWAY 5 (28) LANES: ON STRUCTURE 02 UNDER STRUCTURE 00 (29) AVERAGE DAILY TRAFFIC 14500 (30) YEAR OF ADT 2009 (109) TRUCK ADT 1 % (19) BYPASS, DETOUR LENGTH 37 KM (48) LENGTH OF MAXIMUM SPAN 23.5 M
 (49) STRUCTURE LENGTH
 42.7 M

 (50) CURB OR SIDEWALK:
 LEFT 0.0 M
 RIGHT 3.6 M
 (51) BRIDGE ROADWAY WIDTH CURB TO CURB 14.4 M (52) DECK WIDTH OUT TO OUT 19.2 M (32) APPROACH ROADWAY WIDTH (W/SHOULDERS) 14.4 M (33) BRIDGE MEDIAN- NO MEDIAN 0 (34) SKEW 36 DEG (35) STRUCTURE FLARED NO (10) INVENTORY ROUTE MIN VERT CLEAR 99.99 M (47) INVENTORY ROUTE TOTAL HORIZ CLEAR 14.4 M (53) MIN VERT CLEAR OVER BRIDGE RDWY 99.99 M 0.00 M (54) MIN VERT UNDERCLEAR REF- NOT H/RR (55) MIN LAT UNDERCLEAR RT REF- NOT H/RR 0.0 M (56) MIN LAT UNDERCLEAR LT 0.0 M (38) NAVIGATION CONTROL- NO CONTROL CODE 0 (111) PIER PROTECTION-CODE (39) NAVIGATION VERTICAL CLEARANCE 0.0 M (116) VERT-LIFT BRIDGE NAV MIN VERT CLEAR м 0.0 M (40) NAVIGATION HORIZONTAL CLEARANCE

	STATUS
	HEALTH INDEX
	DALINE CONDUCTION INDEX - N/2
	$\mathbf{PAINI CONDITION INDEX = N/A}$

(112)	NBIS BRIDGE LENGTH- YES Y
(104)	HIGHWAY SYSTEM- ROUTE ON NHS 1
(26)	FUNCTIONAL CLASS- OTHER PRIN ART URBAN 14
(100)	DEFENSE HIGHWAY- NOT STRAHNET 0
(101)	PARALLEL STRUCTURE- LEFT STRUCTURE L
(102)	DIRECTION OF TRAFFIC- 2 WAY 2
(103)	TEMPORARY STRUCTURE-
(105)	FED.LANDS HWY- NOT APPLICABLE 0
(110)	DESIGNATED NATIONAL NETWORK - NOT ON NET 0
(20)	TOLL- ON FREE ROAD 3
(21)	MAINTAIN- STATE HIGHWAT AGENCT 01
(22)	UNNER- STATE HIGHWAY AGENCY 01
(37)	HISTORICAL SIGNIFICANCE- NOT ELIGIBLE 5
	******************* CONDITION **************************** CODE
(58)	DECK 7
(59)	SUPERSTRUCTURE 7
(60)	SUBSTRUCTURE 7
(61)	CHANNEL & CHANNEL PROTECTION 8
(62)	CULVERTS N

(31)	DESTGN LOAD- HL 93
(63)	OPERATING RATING METHOD- ASSIGNED (LRED) F
(64)	OPERATING RATING-
(65)	INVENTORY RATING METHOD- ASSIGNED (LEFD) F
(66)	INVENTORY RATING-
(70)	BRIDGE POSTING- EQUAL TO OR ABOVE LEGAL LOADS 5
(41)	STRUCTURE OPEN. POSTED OR CLOSED-
,	DESCRIPTION- OPEN. NO RESTRICTION
	CODE
(67)	STRUCTURAL EVALUATION 7
(68)	DECK GEOMETRY 9
(09)	UNDERCLEARANCES, VERTICAL & HORIZONTAL N
(71)	
(12)	TONEETC CAFETY FEATURES 1111
(112)	
(113)	SCOOR CRITICAL BRIDGES 6
	********** PROPOSED IMPROVEMENTS ***********
(75)	TYPE OF WORK- CODE
(76)	LENGTH OF STRUCTURE IMPROVEMENT M
(94)	BRIDGE IMPROVEMENT COST
(95)	ROADWAY IMPROVEMENT COST
(96)	TOTAL PROJECT COST
(97)	YEAR OF IMPROVEMENT COST ESTIMATE
(114)	FUTURE ADT 39800
(115)	YEAR OF FUTURE ADT 2032

(90)	INSPECTION DATE 10/16 (91) FREQUENCY 24 MO
(92)	CRITICAL FEATURE INSPECTION: (93) CFI DATE
A)	FRACTURE CRIT DETAIL- NO MO A)
B)	UNDERWATER INSP- NO MO B)
C)	OTHER SPECIAL INSP- NO MO C)

35 0350/AAAA/37013

From:	Gordon's Email <gtannura@gmail.com></gtannura@gmail.com>
Sent:	Monday, January 08, 2018 12:21 PM
To:	O'Connor, Bonny
Subject:	Re: Pacifica Sea Level Rise Webpage Update
Follow Up Flag:	Follow up
Flag Status:	Completed

Bonny,

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I have a couple of questions and observations regarding your memo:

- What is the significance of identifying "critical natural and built assets" versus ALL assets, and what is the criteria for identifying an asset as critical?

- I expect that the Assessment will be used to help value the impact of Sea Level Rise (I.e., the cited "vulnerability assessment"). However, the list of Built Assets does not include residential, commercial, or governmental property (although there is a reference to City of Pacifica property under Critical Asset Managers). It is also odd that mobile home units and affordable housing units are included but other properties are not. Can you better identify the use of this

particular list of critical assets and how all assets will be identified and evaluated?

3 - Should Natural Assets not also include land which will be subject to further beach erosion? Perhaps that is to be assessed as part of Access and Recreation, although in my think it may not be part of either of those categories.

Thank you for your support.

Gordon

Sent from my iPad

On Jan 4, 2018, at 2:23 PM, <<u>o'connorb@ci.pacifica.ca.us</u>> <<u>o'connorb@ci.pacifica.ca.us</u>> wrote:

Great! thank you for confirming!

Bonny O'Connor, AICP Assistant Planner Planning Department City of Pacifica 1800 Francisco Blvd. Pacifica, CA 94044 www.cityofpacifica.org

Email: <u>o'connorb@ci.pacifica.ca.us</u> Phone: (650) 738-7443 Fax: (650) 359-5807

From:	James Kremer <jamesnkremer@gmail.com></jamesnkremer@gmail.com>
Sent:	Thursday, January 18, 2018 5:30 PM
То:	O'Connor, Bonny
Subject:	Re: Pacifica Sea Level Rise Webpage Update

I got a message about a phone call from Tina Gibbs.

Yes, I have received your emails, and I think I have all the updates on info posted on the Pacifica SLR site. (In any case, I have lots to read!)

I'm not sure if you want this info, or what is the best way to report typos or issues with resource docs? In this case, since the doc comes from outside your office, maybe it has to be left alone.

There seems to be a typo in the "Memorandum from James Jackson". http://www.cityofpacifica.org/civicax/filebank/blobdload.aspx?BlobID=13692

On p. 2, it refers to "medium scenario twice, in both the Low & Med parags. --"Low Scenario – The medium scenario assumes ...

It seems an obvious simple typo, but is insidious because we can't be sure how much of the repetition is intended, vs. the Medium statement. [Indeed, the distinctions intended between all 3 seem vague to me!]

-- Jim

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James Kremer Pacifica, CA jamesnkremer@gmail.com

On Jan 18, 2018, at 1:38 PM, <<u>o'connorb@ci.pacifica.ca.us</u>> <<u>o'connorb@ci.pacifica.ca.us</u>> wrote:

Hello,

The City of Pacifica Sea Level Rise webpage has been updated with meeting information for the Public Workshop, which will occur on Tuesday, February 13, 2018 at 6:00pm at the City Council Chambers. The webpage was also updated with City Council Progress Update No. 3. Please visit: <u>www.cityofpacifica.org/SeaLevelRise</u> for more information. Thank you,

Bonny

Bonny O'Connor, AICP Assistant Planner Planning Department City of Pacifica 1800 Francisco Blvd. James, Bob, and Bonny,

I have questions about Draft SFLC-CRSMP and CoSMoS models. At the CWG meeting in Pacifica, James suggested it would be good for the 3 of us to deal with this directly by email. Bonny asked we do this by email through her, for the public record.

First, a correction. In the draft SLR Vuln Assmt, p 23 "northern beach of Pacifica St Bch" should be
SOUTHERN (San Pedro Creek project), I think.

Second, I apologize for the length of this. I know you are busy. I hope you can provide responses to my concerns efficiently with inline comments to this document. If you prefer, I would be willing to discuss this by phone, chat, or meeting, but I assume a written record is desirable.

You may recall, I am a retired marine sciences professor and coastal ecosystem ecologist, retired after years in academia at USC and UCONN. My research was in varied different systems, but usually involved coupled physical and bio- eco-logical models. I don't profess any expertise in the specific science in this Pacifica SLR case, but I may be qualified to appreciate the details of the data and models, which I may be able to share with the committee & public.

My questions fall into 2 groups -

First, I have general ones about the data sources available for vulnerability assessment (VA), how they compare, and how they will actually be used. I think these may be of interest to the rest of the committee, and the public.

Second, I also have detailed questions about the formulation of the models. While I hope to be able to share my impressions of this part as appropriate, I doubt this will have an important wider audience. Still, since I have professional experience with physical and ecological models of different types, it will help me to understand ESA's activities to learn more about the models.

1. **Overall Q's about the use of the data sources & models**. The finalization of the dSLRVA is our first step (inventory of assets, and then projections of SLR risks for future scenarios). This VA step is potentially based on various resources, including CRSMP, CoSMoS, and the FEMA maps. This was mentioned in James' presentation at the CWG meeting, and similar recommendations were offered by the CCC in their Sea Level Rise Policy Guidelines document.

Q1.1. dSLRVA Sec. 1.2 says Sea Change SMC did groundwork for our present study. How much of the substantive work is essentially the same as SCSMC did earlier? The data sources and the VA process is the same. Are we now applying same process to our coast? Did they do comparable maps? (We are in SMC, but did they not address our coastline in the SCSMC report?)

Q1.2. How are FEMA flood zones predicted? Is it similar to the quantified conceptual estimates using shoreline topography and sea level predictions that are used in CRSMP? Are FEMA maps now available for future SRL scenarios? (I think FEMA's BFE & VE risk zones are both for100 yr storms, but that wouldn't necessarily include rising SL. Are they doing this yet?)

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Q1.3. Have the risk predictions by the 3 sources been directly compared? I know the conceptual basis and design purpose of the approaches differ, but they address similar risks, and it would be good to show wide consistency – or show objectively the differences – among the predictions. Direct comparisons could bolster public credibility.

The crux is that none of the 3 sources consider a time-course of change; is that right? I.e. shoreline doesn't evolve over time, eventually reaching 2050 or 2010 with SLR, or as a 100 yr storm probability. But all 3 could predict risks starting with present topography for a comparable scenario.

7 Q1.4: Were all the predictions in the maps (dSLRVA Appendix) from CRSMP?

Q1.5. Will it be clearly specified which resource produced the specific results that appear in reports & meeting presentations? This is very important since the potential sources are so different. I urge ESA to include this. In the dSLRVA this is not specified.

Q1.6. CCC recommends using a sediment management plan in their LCP Guidance document. How does ESA's dSFLR-CRSMP compares with other ongoing LCP updates being done, elsewhere? I think I read that ESA is working elsewhere in CA or nationally on other comparable projects – Is this correct, so our approach has precedent?

2. More specific questions

Q2.1. For the SFLC-CRSMP, does the model actually consider any sediment processes explicitly? Does the SF littoral cell as a connected system (implicated often in dSFLC-CRSMP sec. 1-3) constrain the calculations in any way? If not, how can you call this a sediment management plan (as encouraged by CCC, and SCSMC)?

Q2.2. Digital elevation models (DEM) are explicitly used in CoSMoS, and something similar in CRSMP. In sec. 2.1.4 of Ruggiero et al 2014, the inputs for their DEM are described, many sounded hi-tech and therefore recent. In our CWG meeting, it was repeatedly cautioned that the models used in the VA do not include current topography & armoring. (Could this have meant the SFLC-CRSMP only?) I don't understand why: a) current barriers such as Sharp Park beach's berm are not present for the DEM of CoSMos, or b) Why such topography is not/can not be used in the CRSMP? E.g. certainly some of the historical records of erosion overlap times when armoring and berms were present.

Q2.3. The CRSMP is described as a "quantified conceptual model". There are only brief descriptions of the formulations in what I have seen.

The bullets in Sec 4.2 sketch the "criteria" used to "track... shoreline location, backshore location, and beach width" (p.42ff). The conceptual rationale seems sensible, but its hard to envision the algorithm. Do you have a flow-chart, or could you offer examples for a few informative starting shorelines that would clarify what the CRSMP model does? Bob, in your PEF public presentation, slides 18-21 show some diagrams that seem related to formulation details, but hardly show what the model does. (Those slides are: Conceptual Model of Bluff Erosion; Two-Line Shore Response Model Tracks Beach Width; Historic Erosion & Future SLR; and SLR-Shoreline Response.) These are related, right?

10 (Cont.)

Q2.4. I have developed similarly empirical, "quantified conceptual models" for coastal eutrophication in my research, and agree the approach has real merit. But much depends on the empirical data supporting the formulations. Do you anywhere report the actual data on which the steps are based? I don't expect you to reply to this in detail, but is there a tech report, or some place where the extent and adequacy of the existing data are discussed? This seems really important.

Ideally, such data would be analyzed to provide confidence limits, and those evaluated in a sensitivity analysis. Was this done?

Q2.5. CoSMoS is a reductionist mechanistic simulation model, with details published in some detail (Ruggiero et al 2014). How is this model run for the Pacifica case? Presumably the entire coast including the 8 sub-areas are run together, perhaps extending even further to the north and south? How is the response of the coastline over time handled? That is, does CoSMos simulate from the present to, say, 2050 for a SLR scenario?

I think this can't be right. One report said, I think, that the model uses static Digital Elevation (DEM), so no feedback w/ changing shore. (<u>https://walrus.wr.usgs.gov/coastal_processes/cosmos/norcal/index.html</u>) So, is it the case that future SLR scenarios (e.g. 2050), are forced with GCM forcings but imposed on present DEM profiles?

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Q2.6. How would you compare the strengths of the 2 models (SFLC-CRSMP & CoSMoS) as a basis for policy decisions for SLR? I can see strengths and weaknesses in both, and ideally using both can help. Can you comment on this? (Technically, this is a general question, my group 1. But I felt is was better asked after we'd worked through everything.

Thank you very much for helping me get up to speed on these important details.

-- Jim

James Kremer, Ph. D. jamesnkremer@gmail.com

From: Sent: To: Cc: Subject: Gordon Tannura <gtannura@gmail.com> Tuesday, February 13, 2018 1:17 PM O'Connor, Bonny SeaLevel Rise Re: Pacifica Sea Level Rise Webpage Update

Bonny,

I have the following comments and questions I wish to raise to all members of the Community Work Group, City staff, and the ESA consultants. As agreed upon at our initial meeting, such comments are to be provided, singularly or consolidated, verbatim, to all. I also request that they be provided before the 2/28/18 date that you have established to receive comments so that others may reflect upon and respond to if desired. In addition, as I have yet to see the publication of the summary of our first meeting, I'd also request that it be made available at least by 2/21/18.

Regarding the Assessment:

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- I would like to understand what other neighboring cities, State, and Federal agencies are engaged on or have created a plan for regarding coastal erosion and sea level rise. I understand San Francisco has a plan regarding their oceanside exposure, but I do not know what Daly City may have constructed or are considering. As their actions may affect our coastline, I feel it is important to identify those aspects that may exist, or not. This also applies to County, State and Federal initiatives. The FAQs published by San Mateo County do not reflect any plans associated with coastal initiatives, reflecting primarily a Bay-side perspective.

- The method of determining property valuation, public and private, has not been identified. As I understand it, we will be entering the phase of that work soon, and I believe it is important to identify all aspects of the data sources, process and methodology that will be used. My concerns in this area include:

- Valuation methods (which are not known or at least published) need to be exposed and agreed upon. Such methods must be consistently applied by the various stakeholders who have been identified

- Stakeholders for private property (i.e., homeowners and businesses) should be actively engaged in the valuation process. That should include explicit notification to all those in the coastal hazard zone of the LCP update process, the valuation exercise, and its results

- Beyond property values, reconstruction, and modification costs, there are costs associated with relocation and disruption (e.g., moving costs, lost wages, funding for new locations) that must be accounted for in the event of abandonment to the estimated hazard exposure boundaries

- Further to abandonment, there needs to be modeling of lost tax revenue lost for such properties, and the impact of that on city funding. Perspectives on lost businesses, and their impact on tax revenue and local employment, should also be represented

- Similarly, there will be an impact to businesses that may be directly affected, but also those that may "survive". There should at least be be an acknowledgement of that

- In latest instances of apartments that were condemned and demolished on Esplanade, public funds were required to perform the task. There must be some allowance given in the cost assessment for such to re-occur, as I would expect many property owners will struggle with the extent of that expense

- There are substantial infrastructure projects currently in progress (i.e., the Palmetto Avenue Streetscape and Linda Mar Catchment facility), at least, that are at risk. In the case of the Catchment facility, if the risk of failure is recognized, you incur reconstruction costs, and potential fines that are substantial, as well as ecological impacts

- There are emotional impacts to those that will be directly affected by the assessment and adaptation plan. The pride, aspirations and determination of the community will be influenced by all scenarios. That aspect should be identified and accounted for in the assessment.

Regarding the Adaptation Plan:

- Are there (and what are they) approaches to a retreat strategy that are well-defined and in practice? For example, can eminent domain be used in some, all, or none of the instances?

- There are acknowledged pressures on current available housing in Pacifica, and that must be considered in any plan

- The boundary lines for Pacifica are well-established - current revetments, seawalls in Sharp Park and Rockaway, and the Coastal Commission directive to City of San Francisco to maintain the SPGC berm. it should be explicitly identified in the plan that movement from those lines is a challenge to the city role to protect its citizens' interests

Regarding the ongoing work of the Community Work Group, and the process in general for the LCP Update:

- As i stated at the initial meeting, I feel there are not enough meetings that were preliminarily proposed for the Work Group. There were comments that indeed there would be more added. We need a plan and schedule that identifies that. In particular, the Work Group should spend a considerable amount of time reviewing, elaborating, and validating the financial assessment and the various strategy scenarios. The current schedule accommodates only 2 more meetings, one of which is at the very end when the study is essentially final. Note also that per the Grant Agreement, there were to be at least 3 public information sessions. How does the current grant agreement and estimated work effort accommodate more deliberation and input? I also recommend that a Work Group meeting be called within the next month to review the assessment phase and its findings, prior to valuation, and that at such a meeting, or at a subsequent meeting, the valuation approach be clearly defined and agreed upon.

- For further community input, I recommend that a structured and monitored dialog be established on Pacifica's NextDoor website, or that another alternative be identified and used. Social media may be the best approach to engage the community in this important process that affects everybody in Pacifica. The newspaper and the weekly email updates from the city are clearly inadequate.

- I see no reason not to publish a list of Community Work Group members contact information. This will help in our role as outreach for community. Should others object, you may of course omit that information for them.

Thank you for your distribution of this to all parties. I assume I'll receive a copy of this in the distribution to all Community Work Group members.

Gordon Tannura

On Jan 31, 2018, at 5:11 PM, o'connorb@ci.pacifica.ca.us wrote:

Hello,

Several updates have been made to the Sea Level Rise webpage. A Frequently Asked Questions document and a Resources section has been added to the webpage. Additional meeting materials from the January 23, 2018 Technical Work Group and Community Work Group meetings were posted to the <u>Public Participation</u> page. Lastly, please note comments regarding the Draft Sea Level Rise Vulnerability Assessment shall be sent to Bonny O'Connor, Assistant Planner at 170 Santa Maria Ave., Pacifica, CA 94044 or <u>sealevelrise@ci.pacifica.ca.us</u> by **February 28, 2018**

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Robine Runneals 395 Lakeview Ave. Pacifica, CA. 94044 415-370-0644 pacfam5r@pacbell.net

February 12, 2018

Pacifica Planning Department Tina Wehrmeister, Planning Director 1800 Francisco Blvd. Pacifica, CA. 94044

Pacifica City Manager Kevin Woodhouse 170 Santa Maria Ave. Pacifica, CA. 94044

Pacifica City Council 170 Santa Maria Ave. Pacifica, CA. 94044

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Re: Pacifica Local Coastal Plan Update / Sea Level Rise Component Request for property asset identification and valuation Information that has to date been withheld.

Dear Ms. Wehrmeister, Mr. Woodhouse, and City Council,

I am a homeowner and resident of Pacifica's West Sharp Park neighborhood, a former member of the West Sharp Park Advisory Committee, and of the City of Pacifica Sea Level Rise Community Work Group.

As described below, Pacifica's Sea Level Rise planning process has to date failed to provide adequate information, as required by the Coastal Commission Grant, the City of Pacifica Request for Proposals, and the ESA Bid Proposal for the Pacifica LCP Update, Sea Level Rise component, to enable me and other Pacifica residents, property owners, and interested persons to fully understand and knowledgeably participate in the City's SLR planning process.

Specifically, the Planning Department and its consultant ESA have failed to provide, in a form intelligible by myself and many if not most members of the public, the property identification (address and ownership) and valuation information for Pacifica residential and commercial properties that lie within the

different SLR hazard zones described in the CCC Grant, RFP, and Bid documents that underlie Pacifica's SLR planning process. I further request that these lists be published, advertised, and made available to me and publicly at least 15 days prior to the close of the public comment period (which I understand is currently set to close on February 28, 2018) for the Vulnerability Assessment portion of the LCP planning process. Please consider this to be a request for public information pursuant to the California Public Records Act.

1 (Cont.)

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1. I participated as a member in Pacifica's SLR Community Work Group public meeting, held January 23 at City Hall. At that meeting, I commented that the Planning Department's LCP website did not contain the required Asset Inventory of residential, commercial and other properties that may become vulnerable to flooding and erosion due to sea level rise. Rather, the website contains only a Memorandum that fails to inventory the assets, but only references an attached 1 ½-page list of "GIS" files. I commented that I am not a GIS expert and do not have a GIS program or home computer capable of running GIS files, and I twice requested that Pacifica and its consultant ESA make the property information available in list form, understandable by ordinary people. In response to my request, ESA Project Manager James Jackson said "that's a good point," but then refused to say that a property asset inventory list would be made public. (Pacific Coast TV video of the Jan. 23 meeting, https://www.youtube.com/watch?v=CIFu2ru76Ao&list=PLFUunuheJ0ZUIGLqLE-W-tomaYK-npg6j, at1:04:22-1:06:00.)

2. Later in that same January 23 SLR Community Work Group meeting, Mr. Jackson said ESA has identified all parcels in the hazard zones, and has "all the parcel data for the whole city and the associated value of those parcels, the businesses are included". (Pacific Coast TV video of the Jan. 23 meeting, <u>https://www.youtube.com/watch?v=CIFu2ru76Ao&list=PLFUunuheJ0ZUIGLqLE-</u> <u>W-tomaYK-npq6j</u>, at 1:35:25-1:36:00.)

3. Following that January 23 meeting, I spoke with Planning Director Wehrmeister, who indicated to me the Planning Department would provide the lists of addresses and owners for the properties in the different projected risk zones. But I have not yet seen these posted on the City's website.

4. In the "Approach and Scope of Work" section, Tab 2 to the ESA bid proposal package, dated July 24, 2017, submitted in response to Pacifica's RFP for the SLR project, ESA states, at page 2-4, that as part of its Vulnerability Assessment Preparation, ESA "will augment a web-based viewing portal to all the project team, including City and CCC staff, to view exposure and asset maps without GIS software via any internet-connected computer. . . City staff will be able to rapidly compare . . . maps for any selected subarea, along with asset data. This tool can also be used in Stakeholder Meetings and Public Workshops . . ." (The ESA bid proposal is found in the Pacifica City Council Agenda Packet for the Council's August 14, 2017 meeting,

2 (Cont.) http://pacificacityca.iqm2.com/Citizens/FileOpen.aspx?Type=1&ID=1156&Inline= <u>True</u>; the above-quoted language is at Packet Pg. 251.) But at the January 23 Community Stakeholder meeting, information about the ""web-based viewing portal" tool was withheld, and was not used or mentioned in any way – not even when I very directly on two occasions asked how I could get the information.

It is clear that both ESA and Pacifica Planning have the information that I am requesting, which information is needed – in legible, understandable list format -- by myself and other Pacificans, including but not limited to property owners, to be able to intelligently understand and analyze both the properties and the valuations assigned to the properties in the zones which the SLR study identifies as hazard zones, and ultimately to make informed comment and judgement about the cost-benefit analyses which will be part of the Adaption Plan Development. (See the City Council Agenda Packet for the August 14, 2017 Council meeting, at Packet Pg. 187:

http://pacificacityca.iqm2.com/Citizens/FileOpen.aspx?Type=1&ID=1156&Inline= True.)

In addition to timely release of lists of properties in the various hazard zones, as requested above, this is to request that the above-described "web-based viewing tool" be hooked-up and operational and used, and made available and understandable to me and all members of the public who may attend the February 13 SLR study Public Workshop. This is also to request that the Planning Department circulate a copy of this letter to the SLR Technical Work Group and to my fellow members of the SLR Community Work Group.

Thank you for your attention to these matters.

Very truly yours,

Robine Runneals

cc: California Coastal Commission, North Central Coast District Attn: Patrick Foster, Coastal Planner Members, Pacifica SLR Community Work Group Members, Pacifica SLR Technical Work Group Bonny O'Connor, Pacifica Assistant Planner

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From:	James Kremer <jamesnkremer@gmail.com< th=""></jamesnkremer@gmail.com<>
Sent:	Sunday, February 18, 2018 11:23 AM
То:	sealeveljim@earthlink.net
Cc:	O'Connor, Bonny
Subject:	SLR CWG

Hi, SeaLevelJim ! 😂 (did you create that monicker for this CWG process? Nice.)

I am copying Bonny O'Connor, so that this is in committee records.

First, yes. Community input will require far more time than now allotted -- I couldn't agree more. Bonny seems to have gotten this, and may plan more meetings. I even wonder if the CWG should have a WIKI or some site for our own discussions. The planned meetings seem insufficient.

I have some questions about the rest of your article in the Feb. 14 Tribune, "<u>My Turn: Pacifica's vital sea level</u> <u>question</u>" –

1. Do you feel it is simplistic to frame the question as a dichotomy between "protect existing structures" and "managed retreat"? Aren't there hybrid response options, and different choices for <u>different areas</u>, or changing strategies adapting <u>over time</u>? Why is it necessary, especially at this early stage, to clearly state one policy? Perhaps it is a disservice to the CWG and the public to restrict our deliberations?

2. While it is inappropriate to infer SLR rates from one tide gauge because of large and variable local and regional effects, it does look to me that the SFTG is roughly consistent with the US West coast. Never-the-less, SLR is global – you don't expect our part of the Pacific coast not to rise, do you? Many (all?) extensive recent studies of tide gauge records show an upward trend globally larger than SF and the west coast. Additionally, satellite altimeters have a clear unambiguous trend, consistent with TGs, since they came online. Q: Why do you feel the projected SLR should be minimized in the light of extensive evidence, favoring inference from only one SF gauge?

3. Why would we focus on one model of SLR (you single out DeConto & Pollard)? I feel one strength of the GCM work has been the combined results of many disparate model types. This also applies with SLR models. A suite of models portray a range that is important to appreciate. Every model has strengths and weaknesses. Doesn't it make sense to consider a plausible range of uncertain predictions?

4. Do you think that the SLR Scenarios the CCC asks us to consider are unlikely, or impossible? Given the precautionary principle, why not begin municipal planning early for a range of scenarios that are far off? As you point out, we don't have to ACT on them initially, and can adapt over time. This is a key feature of risk analysis. (We planned for nuclear attack, or at least we used to... !)

5. Lastly, and perhaps most importantly, isn't it critical to the <u>LCP-SLR Update process</u> that the city (and our CWG) is following specific requirements mandated by the CA Coastal Act, overseen by the CCC? My reading of the **CCC Policy Guidelines** (1, citation below) for this process is that they are quite specific. It stipulates the need to consider "best available science" (which is defined), the time frame and SLR scenarios that must be considered (e.g. Δ SLR @ 2050 & 2100), the steps in the process, etc. The same constraints are clear in the **City's grant application** (2), and in the **grant award** (3).

If we were to propose in our LCP Update to do nothing for 10 yrs to see what happens, what are the chances the CCC would reject this as non-responsive? Might it not make sense to be more responsive – it is a 50-100 yr "plan" that will be revised, as you say – and begin the process of planning what Pacifica's strategy might be. Is this not the intent and rationale of what we are charged to do?

I trust we will continue this...

Citations:

1 – CCC Sea Level Rise Policy Guidance <u>https://documents.coastal.ca.gov/assets/slr/guidance/August2015/0_Full_Adopted_Sea_Level_Rise_Policy_Guidance.pdf</u>

2 – City of Pacifica Grant Application to CCC http://www.cityofpacifica.org/civicax/filebank/blobdload.aspx?BlobID=13815

3 – CCC Award to Pacifica for LCP Update for SLR https://documents.coastal.ca.gov/assets/lcp/grants/round-3-awarded-15-16/LCP-16-01 Pacifica Redacted.pdf

Cheers,

-- Jim Kremer

James Kremer Pacifica, CA jamesnkremer@gmail.com

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From:	Jim Steele <jsteele3@ix.netcom.com></jsteele3@ix.netcom.com>
Sent:	Sunday, February 18, 2018 4:28 PM
То:	James Kremer; sealeveljim@earthlink.net
Cc:	O'Connor, Bonny
Subject:	Re: SLR CWG

Hi Jim Kremer,

Thanks for your thoughtful comments. I have highlighted your questions in red, followed by my comments in black. I also cc'd Bonny

All the best

I have some questions about the rest of your article in the Feb. 14 Tribune, "My Turn: Pacifica's vital sea level question" -

Do you feel it is simplistic to frame the question as a dichotomy between "protect existing structures" and "managed retreat"? Aren't there hybrid response options, and different choices for <u>different areas</u>, or changing strategies adapting <u>over time</u>? Why is it necessary, especially at this early stage, to clearly state one policy? Perhaps it is a disservice to the CWG and the public to restrict our deliberations?

Indeed it was a tad simplistic, but by raising the question I hope to generate debate for a more nuanced solution. And without discussing the range of likely adaptation plans, then a discussion of what level or risk can we tolerate seems putting the cart before the horse. Having talked to many people, they were concerned about a push for managed retreat. Having spent much of my time working in the Sierra and SF, due to my retirement I am only just now paying attention to Pacifica politics. But it appears due to debates about the golf course and the library, many people believe there is a strong contingent pushing for managed retreat. Property owners fear if there is no commitment to protect their homes, they will suffer an big economics hits, and without a commitment business will not invest. I believe a commitment to protect Pacifica whenever feasible, should be clearly stated. For example there should be a clear commitment to maintaining the Sharp Park levy. When people bought homes there, there was an implied legal contract, that their homes would be protected by that levy

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Indeed there are hybrid options. The bluffs from Mori Point to Rockaway beach need no maintenance. However there can be a commitment to re-inforcing the rip-rap as needed for example in front of Nick's. Other bluffs along the Esplanade need to be evaluated more carefully. Those eroding bluffs will continue to erode until the next Ice Age causes sea levels to retreat whether or not sea level changes. Whether or not those bluffs can be protected and how to do so needs expertise that our working group cannot provide. However a commitment to protect, if feasible, is a first step to push that evaluation along.

I am not trying to restrict deliberations, but as the essay stated I am concerned how our time is being prioritized. Although I do advocate a commitment now to protecting existing structures, I am also saying at this early stage we cannot evaluate the more extreme sea level rise speculations that the CCC has embraced and that we should wait for more scientific clarity. I do not see any evidence that sea level will rise so rapidly that we cannot adjust and implement our adaptation plans as we go as more evidence accumulates.

Regards Linda Mar flooding, far more than sea level rise, I am more concerned that when a Pineapple Express hits the coast the way it did In 1982 and inundate the catchment with extreme rainfall, the rain will not have a chance to sink into the ground due to all

the imperious surfaces but instead will flood Linda Mar. Restricting deliberations to speculative sea level extremes, ignores addressing that previously observed devastating flood dynamic!

2. While it is inappropriate to infer SLR rates from one tide gauge because of large and variable local and regional effects, it does look to me that the SFTG is roughly consistent with the US West coast. Never-the-less, SLR is global – you don't expect our part of the Pacific coast not to rise, do you? Many (all?) extensive recent studies of tide gauge records show an upward trend globally larger than SF and the west coast. Additionally, satellite altimeters have a clear unambiguous trend, consistent with TGs, since they came online. Q: Why do you feel the projected SLR should be minimized in the light of extensive evidence, favoring inference from only one SF gauge?

Of course using just one tide gauge is too simplistic for any global analysis, but this is a local analysis and there are several good reasons why only the SF tide gauge was highlighted. 1) I was limited to 800 words for the Tribune. Highlighting the SF tide gauge made a valid point without going into more lengthy explanations or overwhelming details. 2) As you are aware, the SF tide gauge reflects the lack of sea level for the eastern Pacific so it is a good example of the regional trend. 3) A set ofSea level Guidelines stated the first step for the public is to look at the trend of their local TG. And 4) it is that TG that will advise us if sea level is acting as predicted.

Finally sea level fingerprint models have suggested Antarctic melting will be amplified around San Francisco. Just the opposite is happening and thus it raises the question of why sea re not behaving locally as global models predicted, but that issue is far too complicated for a newspaper opinion piece. But we should draw the public's attention to the SF tie gauge trends.

As my article stated, I believe we can anticipate a continued upward trend of 2 to 3 mm/year of sea level rise resulting from any further warming, and due to natural variability that would likely reverse the current decline in sea level along the eastern Pacific (largely driven by the Pacific Decadal Oscillation). That expectation is still only half of the low end projections that are being been pushed to the working group.

1 (Cont.)

I also disagree with your statement of a "clear" altimetry trend consistent with tide gauges, other than we have had a steady rise since the end of the Little Ice Age. Originally sea level researchers argued sea level rise accelerated from a 20th century 1.7 mm/year trend to about 3.2 mm/yr from the 90s on ward. Then altimetry data suggested a deceleration down to 2.4 mm/year after 2004. Some suggested, based on GRACE studies of terrestrial water storage, that there was an increase in terrestrial storage due to a La Nina pattern of precipitation, and that increased storage masked an underlying acceleration. Then others argued that based an inability to calibrate altimetry data with tide gauges that it was indicative of an instrumental failure, that caused altimetry data to overestimate the 1990s acceleration.

https://www.researchgate.net/publication/263056871_The_rate_of_sea-level_rise

GRACE data from 2003 to 2009 showed no increase ocean mass. So researchers have used various Glacial Isostatic Adjustments ranging from 1 to 2 mm/year to generate different rates of sea level rise. There is simply a lot of unsettled science.

The only certainty is that the SF tide gauge, and eastern Pacific data have shown that regional sea level rise has decelerated since the 80s. For now and for the next few decades, the CCC's suggestion that sea level will accelerate by about 7 times its current rate by 2050 is unsupported speculation that conflicts with regional observations. So for now it seems the minimal sea level expectations are more likely than the rising extremes. But I don't suggest that means se level can accelerate, only that we need more data.

Models are needed to explain and make sense of a cacophony of observations, but models are still hypotheses that require an observation-based evaluation to test how well they predict the future. Again that is why I suggested it is too early to decide how much risk we will be subjected to based on model extremes. We need time to evaluate these models.

3. Why would we focus on one model of SLR (you single out DeConto & Pollard)? I feel one strength of the GCM work has been the combined results of many disparate model types. This also applies with SLR models. A suite of models portray a range that is important to appreciate. Every model has strengths and weaknesses. Doesn't it make sense to consider a plausible range of uncertain predictions?

I never suggested we should focus on one model. I highlighted DeConto and Pollard because their hypotheses are at the foundation of every other model that suggests an extreme acceleration in sea level rise due to Antarctica. They are also co-authors of Griggs paper, and they have co-authored papers with Kopp, all of whom are providing "guidance" to the CCC and suggesting extreme sea level rise.

In the National Academy of Sciences paper Sea-level Rise for the Coasts of California, Oregon, and Washington: Past, Present, and Future https://www.nap.edu/resource/13389/sea-level-rise-brief-final.pdf

1 (**C**ont.)

The NAS states "the committee projects that, relative to 2000, sea level will rise 4–30 cm (2–12 in) by 2030"

Their lowest projection of 4 cm rise is still higher than what SF tide gauge has observed. Their high-end projection is more than 10 times the rate of what has been observed. With only 12 years left in their 30 year prediction, I suspect they will come up short.

The NAS also stated "Since 2006, the ice loss rate from the Greenland Ice Sheet has increased, and, according to most analyses, the contribution of the Antarctic Ice Sheet to sea-level change has shifted from negative (lowering sea level by accumulating ice) to positive (raising sea level).

But Greenland ice loss has decreased since 2012 and there was a net gain in 2017, and the Antarctic claim is highly debatable. Global Climate models have not captured the natural variability, nor are they designed to do so.

Our bluffs are most affected by storm surge during winters and EL NInos. There is no consensus on how El Nino will change in the future.

Although a recent paper stated that an increase in storm surge due to climate change should be a concern, their analyses found "storm surge and associated tracks have generally NOT changed appreciably since 1948."

thttp://onlinelibrary.wiley.com/doi/10.1002/2016JC012178/full

So it makes sense at this point to have a working hypothesis that sea level rise and storm surge may also be less than what these models have suggested. And that we need at least a decade of more information to evaluate the robustness of any predictions made by the range of models the CCC has embraced

4. Do you think that the SLR Scenarios the CCC asks us to consider are unlikely, or impossible? Given the precautionary principle, why not begin municipal planning early for a range of scenarios that are far off? As you point out, we don't have to ACT on them initially, and can adapt over time. This is a key feature of risk analysis. (We planned for nuclear attack, or at least we used to...!)

Given the precautionary principle, most people hedge their bets to the high and low side of any prediction. Why not consider the lowest end predictions? How much do we want to bet on extreme predictions? How many homes do we designate for sacrifice based on an extreme prediction. Are extreme predictions valid or just a Chicken Little claim? Are low end predictions just the result of people not caring or not wanting to spend? Unless the Working Group is going to debate the robustness of the most extreme hypotheses and all the scientific literature that is relevant to those predictions, why should we spend much time if any on debating how much "risk" we can tolerate based on those questionable models. We can avoid any debate regards climate sensitivity to CO2, and just focus on how sensitive is Greenland and Antarctica to those CO2-driven model predictions. There is a lot of unsettled science to debate.

1 (**C**ont.)

The CCC has highlighted the most extreme predictions, so we are well aware of what MIGHT happen. If we honor a commitment to protect Pacifica homes and we are currently armoring bluffs and ocean front property to protect against our current sea levels now, how difficult is it to increase that protection for another foot if and when we see sea level accelerate as some predicted?

5. Lastly, and perhaps most importantly, isn't it critical to the <u>LCP-SLR Update process</u> that the city (and our CWG) is following specific requirements mandated by the CA Coastal Act, overseen by the CCC? My reading of the **CCC Policy Guidelines** (1, citation below) for this process is that they are quite specific. It stipulates the need to consider "best available science" (which is defined), the time frame and SLR scenarios that must be considered (e.g. ΔSLR @ 2050 & 2100), the steps in the process, etc. The same constraints are clear in the **City's grant application** (2), and in the **grant award** (3).

Unfortunately the CCC's predictions are not based on the "best available" science but only a subset of the science that has pushed more extreme predictions. Dr. Eric Steig is a prolific Antarctic researcher and ally of Michael Mann's global warming theories. Yet Steig has stated that any evidence suggesting observed changes in Antarctica are the result of anthropogenic climate change is weak, and that the Antarctic research community is split on how sensitive Antarctica is and will be. For over 3 decades the research community has been divided between the "stabilists" and "dynamicists" regards Antarctica's sensitivity to natural climate change. Estimates of Antarctic ice effects on sea level vary, with some suggesting ice growth that is currently reducing sea level rise vs those who say melting is adding to sea level rise. All those predictions are based on 1) a net change calculation based on how various regions are

responding, and 2) which Glacial isostatic Adjustments are used. GRACE's processed but raw gravimetry data show no ice loss. Any contributions to sea level rise requires GIA adjustments that are debateable.

1 (Cont.)

If we were to propose in our LCP Update to do nothing for 10 yrs to see what happens, what are the chances the CCC would reject this as non-responsive? Might it not make sense to be more responsive – it is a 50-100 yr "plan" that will be revised, as you say – and begin the process of planning what Pacifica's strategy might be. Is this not the intent and rationale of what we are charged to do?

Again I NEVER proposed to do nothing. Please re-read the article. We can fortify the levy, improve armoring of the bluffs and analyze what are the best methods so that armoring does not cause more erosion in adjacent areas. We can choose to make improvements that also allow us to adjust accordingly as more reliable evidence accumulates.

Why would that be seen as non-responsive? Must we react to unsubstantiated extreme predictions to demonstrate our responsiveness?

From: Sent: To:	Gordon Tannura <gtannura@gmail.com> Wednesday, February 21, 2018 10:17 PM pguzmanus@yahoo.com; jamesnkremer@gmail.com; ms.mo.garcia@gmail.com; julie.a.lancelle@gmail.com; balesl@icloud.com; samuelcasillas@hotmail.com; ldcunha16@gmail.com; cala3319@gmail.com; Robine Runneals; Jim Steele; Connie themaykelfamily@sbcglobal.net; krishnaswamy.shalini@gmail.com; Eileen O'Reilly I</gtannura@gmail.com>	
Cc: Subject:	Your Personal Realtor; tynipac@gmail.com O'Connor, Bonny Fwd: Pacifica Sea Level Rise Webpage Update	

Fellow Community Work Group Members,

At our initial meeting, it was agreed that we would receive Members' input/comments/questions (perhaps aggregated, but verbatim) via email from the Planning Department. As the comment period for the Draft Assessment is closing next week, and I have not received any such information, I thought I would provide you with comments that I provided last week. If you have done something similar, I would appreciate your forwarding that to me for reflection and consideration before the comment period ends. As a Working Group, I believe we should take every opportunity to share our views, even as (per Bonny's notice a few days ago) our level of engagement and participation in the Plan is being reconsidered.

I was forwarded your application information containing your email addresses based on a public information request, and the distribution of my comments below have not, to my knowledge, been otherwise forwarded to you. Thus, I am taking the liberty to do so.

Thank you.

1

Sincerely,

Gordon Tannura

Begin forwarded message:

From: Gordon Tannura <<u>gtannura@gmail.com</u>> Subject: Re: Pacifica Sea Level Rise Webpage Update Date: February 13, 2018 at 1:17:05 PM PST To: <u>o'connorb@ci.pacifica.ca.us</u> Cc: <u>sealevelrise@ci.pacifica.ca.us</u>

Bonny,

I have the following comments and questions I wish to raise to all members of the Community Work Group, City staff, and the ESA consultants. As agreed upon at our initial meeting, such comments are to be provided, singularly or consolidated, verbatim, to all. I also request that they be provided before the 2/28/18 date that you have established to receive comments so that others may reflect upon and respond to if desired. In addition, as I Robine Runneals 395 Lakeview Ave. Pacifica, CA. 94044 415-370-0644 pacfam5r@pacbell.net

February 21, 2018

Pacifica Planning Department Tina Wehrmeister, Planning Director 1800 Francisco Blvd. Pacifica, CA. 94044

Pacifica City Manager Kevin Woodhouse 170 Santa Maria Ave. Pacifica, CA. 94044

Pacifica City Council 170 Santa Maria Ave. Pacifica, CA. 94044

1

- Re: Pacifica Local Coastal Plan / Sea Level Rise Study:
 - (1) Follow-up request for (i) a list of sea level rise-threatened Homes, residential, and commercial properties and
 (ii) public availability of ESA's GIS file-viewing "tool"; and
 - (2) Request for extension of deadline for public comment.

Dear Ms. Wehrmeister, Mr. Woodhouse, and City Council,

I am a homeowner and resident of Pacifica's West Sharp Park District, and also a member of Pacifica's Sea Level Rise Community Work Group. In these capacities, I write to urge the City and its consultant ESA to be more transparent and more forthcoming in the current sea level rise study process, and to make information available to me and to the public about the true extent of property vulnerability to sea level rise and flooding in West Pacifica.

The City and ESA have withheld – and misled and failed to disclose when I have directly asked for -- material information needed by me, my neighbors, and Pacifica residents generally, to protect our homes, families, businesses, and property values.

In my Feb. 12 letter and request for information (copy enclosed), I describe how I was rebuffed and misled by ESA and the City when I asked at the Jan. 23 Sea Level Rise Community Work Group meeting for a list of at-risk residential and commercial properties. ESA's Mr. Jackson said that ESA has all the property information, but he refused to make a list available. And he failed to tell me that ESA has provided Pacifica with online computer access to a high-tech "tool" to enable City Staff and others – including myself and others attending Community Work Group and Public Workshop meetings – to read and understand at-risk property data contained in ESA's GIS shape-files of the at-risk properties.

My Feb. 12 letter asked that the GIS-viewing "tool" be used at the Feb. 13 Sea Level Rise Study Public Workshop. According to ESA's "Approach and Scope of Work," the GIS fileviewing "tool" was used by ESA in similar stakeholder and public workshops for AdaptLA, a Los Angeles sea level rise study. But at Pacifica's Feb. 13 Public Workshop, the City and ESA failed to announce or describe or make ESA's GIS file-reading "tool" available. The City's and ESA's refusals to release property lists and to facilitate ready access to the data contained in ESA's "GIS files", contradict the "Enhance environmental Justice" goal proclaimed at page 2 of Pacifica's Coastal Commission Grant application, which says West Pacifica neighborhoods are characterized by older housing stock, low-income families, rental units, and high coastal hazard risk. At the Jan. 23 Community Work Shop I explained the need for user-friendly public information to ESA's Mr. Jackson, but to no avail. (See Pacific Coast TV video: (<u>https://www.youtube.com/watch?v=CIFu2ru76Ao&list=PLFUunuheJ0ZUIGLqLE-W-tomaYK-npq6j</u>, at1:04:22-1:06:00.)

Neither do the City's and ESA's actions meet the terms of Pacifica's Grant Application to the Coastal Commission, the City's Request for Proposals, and ESA's Contract for the current Sea Level Rise Study, all of which require that flooding risk to **homes, businesses**, and other properties -- under three different levels of potential sea level rise -- will be publicly evaluated and reported in the Vulnerability Assessment portion of the Sea Level Rise Study.

"City will evaluate how sea level rise and erosion will impact . . **homes, businesses**." (Page 2) and the consultant will prepare an "Assessment Preparation," collecting information "on how sea level rise can worsen existing issues and impacts from coastal erosion and flooding, [on] . . . **homes, businesses** [and other assets]". (Page 3)

See Pacifica's Request for Proposals, June 28, 2017, at pages 2-3. A similar provision is found at page 1 of Pacifica's SLR study Grant Application to the Coastal Commission. These documents are found at the City Council's Aug. 14, 2017Agenda Packet, pages 184-185, and 216: <u>http://pacificacityca.igm2.com/Citizens/FileOpen.aspx?Type=1&ID=1156&Inline=True</u>.

Clearly required by Pacifica's RFP and the Coastal Commission Grant application is an inventory and valuation of private homes, multi-family, commercial, and other properties. And Mr. Jackson said at the Jan. 23 Community Work Group meeting that ESA – and accordingly its client the City -- has "all the parcel data for the whole city and the associated value of those parcels, the businesses are included". (As quoted in my Feb. 12 letter from the Pacific Coast TV video of the Community Work Group meeting.) But the required detailed information is not found in the Draft Vulnerability Assessment published by the City in January, 2018.

Pacifica's Request for Proposals requires that the SLR Vulnerability Assessment "study three sea level rise scenarios: no sea level rise +1% storm (baseline); 3.3 feet of sea level rise (2050); and 6.6 feet of sea level rise." But ESA's Draft Vulnerability Assessment does not show that this required SLR vulnerability mapping has been done. The Hazard Map Appendices (<u>Appendices</u>) to ESA's Draft SLR Vulnerability Assessment, dated January, 2018 (<u>Draft Sea Level Rise Vulnerability Assessment</u>), appear to be copies of FEMA maps, showing 5.7-foot "coastal hazard exposures" (apparently without any consideration for the protection offered by existing sea walls and other coastal defenses), which are alternatively higher and lower than the above-described three sea level rise scenarios required by the Coastal Commission Grant, the Pacifica RFP, and ESA's "Approach and Scope of Work" for the current Pacifica SLR study.

Pacifica's Sea Level Rise study is running well behind schedule. The Workplan Table, at ESA's Approach and Scope of Work, page 2, shows respective "deliverable" dates of November 1 and December 1, 2017 for the Asset Inventory Memorandum and the Draft Vulnerability/Risk Assessments. But the Asset Inventory Memorandum did not appear until January 2, and was then revised a week later to add residential and commercial properties and other assets. (*Revised* Asset Inventory Memo (1/9/2018) The Draft Vulnerability Assessment did not appear on the Pacifica Planning website until January – more than a month late.

1 (Cont.)

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This lateness on ESA's and City staff's part is no excuse for shortchanging public participation on the key issues of full information, transparency, and the chance for informed public input. The deadline for public comment on the Vulnerability Study is now set for February 28. For the reasons discussed above, I respectfully request an extension of this date to March 31 – or 30 days after ESA's high-tech GIS file-viewing "tool" and a complete list of residential and commercial properties within the three required SLR forecast zones (baseline, 3'6", and 6'6", as discussed above) are made available for public use, whichever date is later.

Conclusion: Please provide more public information and time for comment on the Draft SLR Vulnerability Assessment.

I reiterate my public information request for the following:

(1) List(s) of all homes, residential and commercial, and other properties, located within each of the three different sea level rise scenarios required by the Coastal Commission Grant, the RFP and ESA's Approach and Scope of Work, showing all address, ownership, valuation, and other parcel information and associated values for these properties;

(2) Public availability and access to the GIS file-viewing "tool" described at Page 2-4 of the ESA Approach and Scope of Work for the Pacifica SLR study.

And in view of the lack of transparency and withholding of information to date at both the January 23 Community Work Group the February 13 Public Workshop meetings, I request an additional joint Community Work Group and Public Workshop meeting **on a Saturday** focused on the Asset Inventory and the Draft Vulnerability / Risk Assessment, to be held after public release of the above-requested information and not later than March 9.

Respectfully,

Robine Runneals

Community Work Group Member

encl.

cc (w/ encl.): Members, Pacifica SLR Study Technical and Community Work Groups San Francisco Recreation and Park Department Congresswoman Jackie Speier State Senator Jerry Hill Assemblyman Kevin Mullin San Mateo County Board of Supervisors California Coastal Commission, North-Central Coast District San Mateo County Office of Sustainability U.S. Army Corps of Engineers, Susan M. Ming, PE Pacifica Chamber of Commerce Pacifica Tribune

6

5 (Cont.)

From:	Jam
Sent:	Frid
То:	Sea
Subject:	Qs f

ames Kremer <jamesnkremer@gmail.com> riday, February 23, 2018 4:12 PM eaLevel Rise s for CWG discussion

Bonny,

1. I found this link on the CCC site. I haven't read it carefully yet, but it seems especially pertinent and wonder if it might be worth sharing with the CWG team? (I don't think it is posted yet!? Did I miss it?)

"Memo on Sea Level Rise Vulnerability Assessments and Lessons Learned"

https://documents.coastal.ca.gov/assets/climate/slr/vulnerability/CCC_Memo_on_SLR_Vulnerability_Assessm ents_FINAL.pdf

2. Here are some questions for the CWG collection. Most are for the VA, but some are on the larger process that I think are important even at this early stage.

Q. Please clarify the process & our role in more detail. Who/what entity will make decisions? Presumably the input of the CWG (& the TWG) will be considered in deliberations leading to decisions about what goes into the LCP Update? Does the Planning Dept. use all this info in writing their Update, which is then voted approval by the Council?

Relatedly, in considering alternative options for adaptation (e.g. what response option do we foresee for the <u>Pacifica State Beach</u> reach), what is the role of ESA? My understanding is that ESA produces evaluations for a number of options, but does not "decide." Is that right?

3 Q. How much should costs enter into our deliberations? Constraints of city budgets are severe, but outside sources may become available. We can't consider this realistically 30-70 yr ahead.

Q. The "valuation" of our beaches will always be underestimated. In fact beaches are PUBLIC TRUST lands in California, not actually owned by Pacifica. Since armored shoreline protection likely leads to erosion and total loss of a beach, how can we fairly consider such options?

Q. The SF Golf Course (and the berm itself?) are property of San Francisco. Is this even in our jurisdiction? How do we include this is our LCP? Related, the CCC retro-active permit for the berm and revetments was to Pacifica, not the city of SF, or somehow to both?

Q. How clear is it that armoring a beach is at best a short- to mid-term solution? I.e. how solid is the evidence that armoring to protect a beach eventually leads to its erosion and loss?

Q. Sharp Park Beach berm was installed late 1980s (?), yet that beach seems similar in width to historical photos pre-berm (30+ yrs). What shoreline retreat rate was chosen by ESA for the runs of the SFLC-RSMP

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6 (Cont.) and beaches? To me, this seems to contradict the scientific generality the armoring leads to erosion and loss of beaches?

Q. In proposing response options for specific reaches, can our LCP recommend "adaptive management", whereby we plan/propose an initial strategy subject to change, potentially shifting at an unspecified time as conditions evolve? (This seems sensible if not essential! Yet how will this be put into an LCP?)

Q. The CCC Guidelines and our Grant award letter specify the SLR scenarios we must consider. This seems to imply that recommended responses can't be very detailed, when 3 scenarios are to be projected? How complicated will our response plan have to be to handle this?

Q. If the plan anticipates private residences are potentially at risk, can the city consider regulatory incentives to make changes more affordable to owners? (e.g. Tax advantages or cost rebates) Is this within the purview of this LCP update?

That's all for now!

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-- Jim

James Kremer Pacifica, CA jamesnkremer@gmail.com

Click <u>here</u> to report this email as spam.

From:	Connie < constellation747@comcast.net>
Sent:	Monday, February 26, 2018 11:39 AM
То:	Robine Runneals
Cc:	Wehrmeister, Tina; Woodhouse, Kevin; O'Connell, Kathy; Patrick.Foster@coastal.ca.gov; lisa.wayne@sfgov.org; spencer.potter@sfgov.org; marc.hershman@sen.ca.gov; kevin.mullin@asm.ca.gov; dpine@smcgov.org; cgroom@smcgov.org; dhorsley@smcgov.org; wslocum@smcgov.org; dcanepa@smcgov.org; susan.m.ming@usace.army.mil; spanos888@gmail.com; shermfrederick@gmail.com; O'Connor, Bonny; pguzmanus@yahoo.com; jamesnkremer@gmail.com;
Subject:	samuelcasillas@hotmail.com; ldcunha16@gmail.com; cala3319@gmail.com; themaykelfamily@sbcglobal.net; krishnaswamy.shalini@gmail.com; tynipac@gmail.com; gtannura@gmail.com; jsteele3@ix.netcom.com; emkoreilly@gmail.com Re: Pacifica SLR Study -CWG Follow Up Requests

Dear City of Pacifica officials, representatives and SLR/LCP consultants, et al:

As a Pacifica resident and member of the Sea Level Rise Community Working Group, I concur with fellow member Robine Runneals' observations and analyses contained in her **February 21, 2018 letter** to Ms. Wehrmeister, Mr. Woodhouse and Pacifica City Council and <u>join her information & document requests, requests</u> for an additional joint CWG and Public Workshop meeting *and* for an extension of time for public comment.

Respectfully submitted, Connie Menefee

1

On Feb 22, 2018, at 10:18 PM, Robine Runneals <<u>pacfam5r@pacbell.net</u>> wrote:

To, The City of Pacifica City Manager, Planning Director, and City Council Members.

Thank you in advance for your attention to my letter.

Respectfully, Robine Runneals Pacifica SLR CWG Committee Member

<Ltr.R.Runneals.Ci.Pac.Plngre.LCPSLR.Study.2.21.18.DOCX> <Ltr.R Runneals CWG 2.12.18 Ci.Pac. req. SLR study info..DOCX>

Click here to report this email as spam.

From:	Eileen O'Reilly I Your Personal Realtor <emkoreilly@gmail.com></emkoreilly@gmail.com>
Sent:	Monday, February 26, 2018 1:19 PM
То:	Victor Spano
Cc:	Connie; Robine Runneals; Wehrmeister, Tina; Woodhouse, Kevin; O'Connell, Kathy; Patrick.Foster@coastal.ca.gov; lisa.wayne@sfgov.org; spencer.potter@sfgov.org; marc.hershman@sen.ca.gov; kevin.mullin@asm.ca.gov; dpine@smcgov.org;
	cgroom@smcgov.org; Don Horsley; wslocum@smcgov.org; susan.m.ming@usace.army.mil; Sherman Frederick; O'Connor, Bonny; pguzmanus@yahoo.com; jamesnkremer@gmail.com; Maureen Garcia; india a lan actus @ arracil acrus halad@inland acrus Carcus (Casilland Idams a 10 @ arracil acrus)
	Julie.a.lancelle@gmail.com; balesl@icloud.com; Samuel Casillas; idcunha16@gmail.com; Cindy Abbott; themaykelfamily@sbcglobal.net; krishnaswamy.shalini@gmail.com; tynipac@gmail.com; Gordon Tannura; Jim Steele
Subject:	Re: Pacifica SLR Study -CWG Follow Up Requests

Yes, I am also a member of the Sea Level Rise Community Working Group, I also agree with Robine Runneals request for an extension of time for public comment.

Sincerely,

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Eileen O'Reilly

Follow me on social media: <u>Check out my Current Listings</u> <u>Find your property value</u> Try my <u>Mobile App</u>

On Mon, Feb 26, 2018 at 12:58 PM, Victor Spano <<u>spanos888@gmail.com</u>> wrote: To whom it may concern:

I concur with and echo Connie Menefee's requests.

Victor Spano President, Pacifica Chamber of Commerce

On Mon, Feb 26, 2018 at 11:39 AM, Connie <<u>constellation747@comcast.net</u>> wrote: Dear City of Pacifica officials, representatives and SLR/LCP consultants, *et al*:

As a Pacifica resident and member of the Sea Level Rise Community Working Group, I concur with fellow member Robine Runneals' observations and analyses contained in her **February 21, 2018 letter** to Ms. Wehrmeister, Mr. Woodhouse and Pacifica City Council and <u>join her information & document requests</u>. <u>requests</u> for an additional joint CWG and Public Workshop meeting *and* for an extension of time for public comment.

Respectfully submitted, Connie Menefee

From:	Gordon Tannura <gtannura@gmail.com></gtannura@gmail.com>
Sent:	Monday, February 26, 2018 1:46 PM
То:	Eileen O'Reilly I Your Personal Realtor
Cc:	Victor Spano; Connie; Robine Runneals; Wehrmeister, Tina; Woodhouse, Kevin; O'Connell, Kathy; Patrick.Foster@coastal.ca.gov; lisa.wayne@sfgov.org; spencer.potter@sfgov.org; marc.hershman@sen.ca.gov; kevin.mullin@asm.ca.gov; dpine@smcgov.org; cgroom@smcgov.org; Don Horsley; wslocum@smcgov.org; susan.m.ming@usace.army.mil; Sherman Frederick; O'Connor, Bonny; pguzmanus@yahoo.com; jamesnkremer@gmail.com; Maureen Garcia; julie.a.lancelle@gmail.com; balesl@icloud.com; Samuel Casillas; Idcunha16@gmail.com; Cindy Abbott; themaykelfamily@sbcglobal.net; krishnaswamy.shalini@gmail.com; tynipac@gmail.com: Jim Steele
Subject:	Re: Pacifica SLR Study -CWG Follow Up Requests
Follow Up Flag:	Follow up
Flag Status:	Flagged

Also, as a Sea Level Rise Community Work Group member, I concur with and support Robine Runneals' requests in both her 2/12 and 2/21letters.

Gordon Tannura

1

On Feb 26, 2018, at 1:18 PM, Eileen O'Reilly I Your Personal Realtor <<u>emkoreilly@gmail.com</u>> wrote:

Yes, I am also a member of the Sea Level Rise Community Working Group, I also agree with Robine Runneals request for an extension of time for public comment.

Sincerely,

Eileen O'Reilly

Follow me on social media: <u>Check out my Current Listings</u> <u>Find your property value</u> <u>Try my Mobile App</u>

On Mon, Feb 26, 2018 at 12:58 PM, Victor Spano <<u>spanos888@gmail.com</u>> wrote: To whom it may concern:

I concur with and echo Connie Menefee's requests.

Victor Spano President, Pacifica Chamber of Commerce

From:	James Kremer <jamesnkremer@gmail.com></jamesnkremer@gmail.com>
Sent:	Monday, February 26, 2018 6:40 PM
To:	Robine Ruppeals
Cc:	Wehrmeister, Tina; Woodhouse, Kevin; O'Connell, Kathy; Patrick.Foster@coastal.ca.gov; lisa.wayne@sfgov.org; spencer.potter@sfgov.org; Brian.Perkins@mail.hous.gov; marc.hershman@sen.ca.gov; kevin.mullin@asm.ca.gov; dpine@smcgov.org; cgroom@smcgov.org; dhorsley@smcgov.org; wslocum@smcgov.org; dcanepa@smcgov.org; susan.m.ming@usace.army.mil; spanos888@gmail.com; shermfrederick@gmail.com; O'Connor, Bonny; pguzmanus@yahoo.com; ms.mo.garcia@gmail.com; julie.a.lancelle@gmail.com; balesl@icloud.com; samuelcasillas@hotmail.com; Idcunha16@gmail.com; Cindy Abbott; themaykelfamily@sbcglobal.net; krishnaswamy.shalini@gmail.com; tynipac@gmail.com; gtannura@gmail.com; jsteele3@ix.netcom.com; constellation747 @comcast.net: emkoreilly@gmail.com
Subject:	Re: Pacifica SLR Study -CWG Follow Up Requests
Follow Up Flag:	Follow up
Flag Status:	Flagged

I am a member of the CWG.

1

While I agree with some points being made in this email thread, I think there is another point of view that we may want to consider.

There is a chance that ESA has not placed a definitive value on each parcel in the risk zones. I do agree that they have not explained clearly what they <u>have</u> done, and that <u>they should do so</u>. But, the asset valuation step in the LCP Update may not actually benefit from such a detailed, granular assessment, and it may not be the way ESA totals were compiled. It may be sufficient, even preferable, to get totals by some method of approximation.

For the City's purpose here – long term contingency planning – what I think is needed is an approximate total value. It does not have to be accurate – rather, it should be meaningfully <u>accurate</u> but need not be very <u>precise</u>! I suggest we should consider if too much precision might be counterproductive? If such detail is not needed for a meaningful total estimate, it is misleading and damaging to suggest that the "value used for a parcel" was in any way intended to be a rigorous assessment. If doing so is unnecessary, it almost certainly would be misunderstood and misused, compared to its purpose in the LCP.

Ms. Runneals requested in her letter, "*List(s) of all homes, residential and commercial, and other properties, located within each of the three different sea level rise scenarios ... showing all address, ownership, valuation, and other parcel information and associated values for these properties*". What if such detailed info were completed and made public, when it was not what was used for the Asset valuation? We need to know how ESA reached its estimates, and why they feel it is appropriate.

Keep in mind, we also must place a value on other more uncertain assets, e.g ecological habitats, public recreation, even on beaches themselves. It is clear that this cannot be done with the precision that is possible with homes and businesses. So, just because such a detailed data base <u>could</u> be done does not mean is is necessary for the overall risk assessments, or even desirable.
Finally, I agree that more meetings and extending the comment period is good, but I really do not think a meeting should wait for Ms. Runneal's detailed requests. We should meet and discuss with ESA what they have done, what is the appropriate level of detail, and why. We should do that as soon as possible.

Respectfully,

-- Jim

James Kremer Pacifica, CA jamesnkremer@gmail.com

On Feb 22, 2018, at 10:18 PM, Robine Runneals <<u>pacfam5r@pacbell.net</u>> wrote:

To, The City of Pacifica City Manager, Planning Director, and City Council Members.

Thank you in advance for your attention to my letter.

Respectfully, Robine Runneals Pacifica SLR CWG Committee Member

<Ltr.R.Runneals.Ci.Pac.Plngre.LCPSLR.Study.2.21.18.DOCX><Ltr.R Runneals CWG 2.12.18 Ci.Pac. req. SLR study info..DOCX>

Click <u>here</u> to report this email as spam.

From:	Toni Boykin <tynipac@gmail.com></tynipac@gmail.com>
Sent:	Monday, February 26, 2018 2:08 PM
To:	Robine Runneals
Cc:	Wehrmeister, Tina; Woodhouse, Kevin; O'Connell, Kathy; Patrick.Foster@coastal.ca.gov; lisa.wayne@sfgov.org; spencer.potter@sfgov.org; Brian.Perkins@mail.hous.gov; marc.hershman@sen.ca.gov; kevin.mullin@asm.ca.gov; dpine@smcgov.org; cgroom@smcgov.org; dhorsley@smcgov.org; wslocum@smcgov.org; dcanepa@smcgov.org; susan.m.ming@usace.army.mil; spanos888@gmail.com; shermfrederick@gmail.com; O'Connor, Bonny; pguzmanus@yahoo.com;
Subject:	Casillas; Idcunha16@gmail.com; cala3319@gmail.com; themaykelfamily@sbcglobal.net; krishnaswamy.shalini@gmail.com; gtannura@gmail.com; jsteele3@ix.netcom.com; constellation747@comcast.net; emkoreilly@gmail.com Re: Pacifica SLR Study -CWG Follow Up Requests
Follow Up Flag:	Follow up
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As a member of the SLR Working Group, I concur with Robine's letters of 2/12 and 2/21. In addition, I would like clarification on the status of the berm which currently protects the golf course and some of the homes in the area. At our meeting it was stated that the Coastal Commission has "directed" the City of San Francisco to maintain the berm. However, that is not the interpretation of others who say that the language says that the City "may" continue to maintain the berm but is not required to do so. Semantics perhaps but the clarification is necessary if the public is to be fully informed. Thank you. Toni Boykin

On Thu, Feb 22, 2018 at 10:18 PM, Robine Runneals <<u>pacfam5r@pacbell.net</u>> wrote:

To, The City of Pacifica City Manager, Planning Director, and City Council Members.

Thank you in advance for your attention to my letter.

Respectfully,

Robine Runneals

Pacifica SLR CWG Committee Member

SLR PUBLIC COMMENT February 27, 2018

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My name is Connie Menefee, 26-year Pacifica resident and member of the City of Pacifica Sea Level Rise Community Work Group. I am confident of ample input regarding identification of and proposed safeguards to the City's environmental assets. I am, also, greatly appreciative of the vocal protectors of residential properties situated in Pacifica's coastal hazard zones.

My desired emphasis at this juncture is on Pacifica's economic assets, both existing and aspirational. Specifically, I wish to underscore the critical need for identification and protection of the Old Waste Water Treatment Plant (OWWTP) property, Beach Blvd. and Promenade, and the Palmetto Avenue Streetscape (Historic Palmetto District).

Pacifica cannot afford to create an economic wasteland west of Highway 1, where 80% of Pacifica's economic assets are located. Pacificans want improved infrastructure (fix the potholes!!), renovated libraries (plural!) and fully-funded social programs (i.e., assistance to the Pacifica Resource Center, renters facing eviction and the homeless). Yet Pacificans resist taxes and bonds needed to pay for these services.

Pacifica's very survival demands a viable, sustainable economic basis. I am concerned that City Council and its LCP consultants will make preliminary (and, arguably, premature) findings that commit this city to self-destructive public policy decisions from which there is no turning back. Before moving on to (future phase) SLR adaptation planning, the City must commit to protection of its economic assets, as well as its environmental assets.

Retreat and abandonment of commercial properties west of Highway 1 is municipal suicide. An historical perspective: in response to past smart-growth proposals in Pacifica, the opponents' rallying cry has predictably been, "We don't want to be another Daly City!" (Poor maligned Daly City!) However, if we as a City cannot promote and maintain economic vitality and independence, we may have little choice but to disincorporate and beg to be absorbed into another local municipality (or other governmental entity) just to be able to maintain basic, essential city services—ironically becoming the very thing that we have always feared!

"Saving Our Beaches" versus "Saving Our Businesses" should not be mutually exclusive concepts or solutions. Let's commit to utilizing state-of-the-art technology to accomplish both.

Respectfully submitted, Connie Menefee 10 Sequoia Way Pacifica, CA (650) 355-7327 Constellation747@comcast.net

From: Sent: To: Cc: Subject:	Gordon Tannura <gtannura@gmail.com> Tuesday, February 27, 2018 12:02 PM James Kremer Robine Runneals; Wehrmeister, Tina; Woodhouse, Kevin; O'Connell, Kathy; Patrick.Foster@coastal.ca.gov; lisa.wayne@sfgov.org; spencer.potter@sfgov.org; Brian.Perkins@mail.hous.gov; marc.hershman@sen.ca.gov; kevin.mullin@asm.ca.gov; dpine@smcgov.org; cgroom@smcgov.org; Don Horsley; wslocum@smcgov.org; dcanepa@smcgov.org; susan.m.ming@usace.army.mil; Victor Spano; Sherman Frederick; O'Connor, Bonny; pguzmanus@yahoo.com; ms.mo.garcia@gmail.com; julie.a.lancelle@gmail.com; balesl@icloud.com; samuelcasillas@hotmail.com; ldcunha16@gmail.com; Cindy Abbott; themaykelfamily@sbcglobal.net; krishnaswamy.shalini@gmail.com; tynipac@gmail.com; jsteele3@ix.netcom.com; constellation747@comcast.net; emkoreilly@gmail.com Re: Pacifica SLR Study -CWG Follow Up Requests</gtannura@gmail.com>
Follow Up Flag:	Follow up
Flag Status:	Flagged

Jim,

Thank you for your thoughts. I fully support and advocate your view that we "meet and discuss with ESA what they have done, what is the appropriate level of detail, and why. We should do that as soon as possible." and further, "We need to know how ESA reached its estimates, and why they feel it is appropriate." My greatest concern at this point in the process is the level of engagement that is not happening nor is planned. Here are my thoughts I expressed to the City Council during Oral Communications at last night's Council meeting:

"Good evening. My name is Gordon Tannura, and tonight speaking to you as a Sea Level Rise Community Work Group member. I would like to identify concerns and suggestions for a more engaging creation of the Coastal Plan Update. The current process relegates the Work Group to, at best, an editorial role without meaningful feedback, involvement and conversation. There are currently no opportunities between now and an unscheduled meeting in May to participate. At that point, we'll be provided the next draft of ESA's report.

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Nothing has indicated we would receive a revised assessment/work in progress of the first draft based on input sessions, and I fear the same for this 2nd report with expectations of the same for the final report in the fall. Entering a crucial element of the study, we are not afforded an opportunity to discuss important ingredients, aspects and criteria of the vulnerability assessment, particularly for valuation. We have no voice except to provide a critique when the cow is almost out of the barn. To my email comments sent 2/13 to staff, I have received no response other than staff is reviewing, with no estimated timeframe for a response to my several questions and concerns. Now the comment period is closing... with the unspoken reality of no iterative response and that we'll not have a dialog until the next draft is issued in May. This does not represent to me a functional working group.

My recommendations:

A message was received that staff are considering additional meetings. Fantastic! When might we hear of the results of that consideration? What will be done to, as at least a courtesy, accommodate participants' schedules, as well as have a meaningful dialog on a more defined process, partnership and collaboration in the process? Invest now in engagement.

Develop a more robust project plan with intermediate deliverables.

Distribute all communications broadly to the entire work group. I am doing so given info provided from a public information request. Facilitate that distribution, or at least endorse and acknowledge it.

Realizing that additional meetings may have a budget impact from initial costing, estimate that impact and discuss mitigating measures on expense and/or additional funding requests from the Coastal Commission and/or the city.

Engage ALL owners of vulnerable properties directly, in the fashion that the city uses today when development projects affect a neighborhood, particularly in the coastal zone.

A better, more engaging process now can only help insure a better result and community buy-in."

1 (Cont.)

As to a costing approach, I agree that it's difficult to develop a precise estimate, but an estimate must be created that is consistent, not only in property valuation but also all associated activities. Per my earlier email:

"Valuation methods (which are not known or at least published) need to be exposed and agreed upon. Such methods must be consistently applied by the various stakeholders who have been identified

- Stakeholders for private property (i.e., homeowners and businesses) should be actively engaged in the valuation process. That should include explicit notification to all those in the coastal hazard zone of the LCP update process, the valuation exercise, and its results

- Beyond property values, reconstruction, and modification costs, there are costs associated with relocation and disruption (e.g., moving costs, lost wages, funding for new locations) that must be accounted for in the event of abandonment to the estimated hazard exposure boundaries

- Further to abandonment, there needs to be modeling of lost tax revenue lost for such properties, and the impact of that on city funding. Perspectives on lost businesses, and their impact on tax revenue and local employment, should also be represented

- Similarly, there will be an impact to businesses that may be directly affected, but also those that may "survive". There should at least be be an acknowledgement of that

- In latest instances of apartments that were condemned and demolished on Esplanade, public funds were required to perform the task. There must be some allowance given in the cost assessment for such to re-occur, as I would expect many property owners will struggle with the extent of that expense

- There are substantial infrastructure projects currently in progress (i.e., the Palmetto Avenue Streetscape and Linda Mar Catchment facility), at least, that are at risk. In the case of the Catchment facility, if the risk of failure is recognized, you incur reconstruction costs, and potential fines that are substantial, as well as ecological impacts

- There are emotional impacts to those that will be directly affected by the assessment and adaptation plan. The pride, aspirations and determination of the community will be influenced by all scenarios. That aspect should be identified and accounted for in the assessment."

I'm sure there are other aspects to consider as well, as you have cited for "uncertain assets".

As to Robin's request, at least a broader, direct (e.g., mail) notification of the directly affected community in the coastal zone, and projected flood zone, that this effort is proceeding seems fair and prudent. Many Pacifica citizens have yet to hear of this initiative and its import, and while there should be other continuing efforts to bring attention of this to all, I believe the direct engagement of the affected stakeholders should be initiated.

Finally, I believe that your view that this effort's purpose is "long term contingency planning" is short sighted. Indeed it is appropriate for the City to consider what they may need to consider over many years, but the

1 (Cont.)

policies invoked by the Plan will also influence our community as soon as the Plan is approved by the Coastal Commission. The results can at least affect, in the near term, planning policies for all existing and new development and property valuation.

Gordon

On Feb 26, 2018, at 6:40 PM, James Kremer <<u>jamesnkremer@gmail.com</u>> wrote:

I am a member of the CWG.

While I agree with some points being made in this email thread, I think there is another point of view that we may want to consider.

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Respectfully,

-- Jim

James Kremer

From:	ron maykel <themaykelfamily@sbcglobal.net></themaykelfamily@sbcglobal.net>
Sent:	Tuesday, February 27, 2018 11:16 AM
То:	O'Connor, Bonny
Subject:	Follow up SLRC post workshop comments and or Questions.

Hi Bonnie

Here are my follow up and clarification comments to my targeted concerns regarding Sea Level Rise.....and Flooding in Pacifica's Coastal Zone. Subject to change of course?

Will the LCP update eventually be reviewed by the Pacifica Planning Commission with further public comments being available?

Rockaway Beach

Due to it's location and historic rip rap armoring, Rockaway's shoreline provides the opportunity to study the pro's and con's of protecting shoreline assets be they artificial or natural. The north beach of Rockaway is only a quarter of its original size. The slippage and shifting of boulders over time has considerably reduced beach size and access. The retaining/sea walls are aged, and becoming inadequate for the purpose of their initial intent. The southern beach of Rockaway compared to the northern beach provides a good look at the character and consequences of shoreline bouldering. The Sea Breeze Hotel Parking lot, Lighthouse Hotel and Moonraker Restaurant provide examples of wave impact damage and should be considered, if not already, with shoreline protection consideration.

Pacifica Staff might consider Exploring the possibility of relocating forward moving boulders back, rather than adding more boulders as has been done in the past. Explore other alternatives to shoreline protection other than rip rap armoring. Explore new technologies used worldwide for effective shoreline protection structures and applications.

Sharp Park,

Much of the flooding of Sharp Park and Lakeside Drive comes from the two water sheds that drain into the above mentioned areas. The Sharp Park Golf Course and adjacent areas are in a very active flood zone. The Salada Creek head waters are just west of Sweeney Ridge. The Salada Creek watershed is the third largest watershed in Pacifica. The other water shed is the Brighton Creek water shed. Brighton Creek head waters are below Sharp Park Road between Talbot Ridge and Gypsy Hill. Unfortunately much of the Brighton Creek Valley is developed having extensive non pervious surfaces. Brighton Creek is day-lighted in several areas between Francisco Blvd and the golf course property. It then enters a pipe that travels under the golf course and ends in a thick mass of bulrush and cattail vegetation that has invaded the marsh/lagoon. Open water and depth of the Lagoon has been reduced alarmingly due to vegetation invasion and thatch debris buildup. Consequently retention capacity is minimal.

The Sharp Park road widening that more than doubled in width of non pervious

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surface, drains into Sharp Park. It is unknown if some Cabrillo Highway storm runoff drains into Sharp Park? The East and West Fairway Neighborhood, and Mori Point are part of the Salada Creek watershed, and also drain into Sharp Park.

The Salada Lagoon is drained by a large sump pump located in a wetland area known as Horse Stable Pond. This artificial drainage system is inadequate to accommodate heavy rainfall. Recently the pump egress pipe on Sharp Park Beach was covered with 5 to 7 feet of sand with one incidence where water outflow appeared to be obstructed.

Pacifica staff might explore the restoration of Salada Creek to a natural connection with the ocean. The mouth of Calera Creek and San Pedro Creek are at the Oceans edge and have had no flooding issues from tides or storm surge. Pacifica staff should consider meeting with San Francisco staff to brainstorm Northwest Sharp Park flooding. Consideration for the introduction of dune grasses and other deep rooting dune plants to strategic areas of sharp park beach may aid in sand stabilization and retention.

The California Coastal Trail

The California Coastal Trail ,C.C.T, eclectic and enigmatic in character may very well be one of Pacific's most significant recreational trail assets. Although it's intended route is yet to be defined. Several areas of the CCT in Northern Pacifica have been impacted by coastal erosion. Pedestrian infrastructure provided for the CCT has taken place incrementally and slowly over many years with several locations forthcoming. From my observation, areas of concern regarding CCT SLR erosion activity are, Rockaway Beach, the Sharp Park Levee, Beach Boulevard Sharp Park, Esplanade Dr. to the Dollar Radio Station and possibly beyond to Mussel Rock?

Pacifica staff should define and establish the CCT route in it's entirety with alternate routes established in areas of need. The California Coastal Trail should be a asset element of the LCP update.

Ron Maykel

Sea Level Rise Community Work Group Committee member.

From:	Jim Steele <jsteele3@ix.netcom.com></jsteele3@ix.netcom.com>
Sent:	Wednesday, February 28, 2018 3:06 PM
То:	O'Connor, Bonny
Subject:	Re: Pacifica SLR Webpage Update - Extended Comment Period and GIS-Webviewer

HI Bonny,

I applaud the extension, but I am concerned that only the people on your email list will be aware. I have talked to several people who are in a zone that is in danger of being listed as vulnerable, yet they knew nothing about the working groups or their missions.

I sincerely believe the city needs to mail a notice to every residence that could lie within the proposed vulnerability zones. They are the people who will be affected the most by any decisions and the city should be certain that they are fully aware. Otherwise the extension will not serve the people who most need to have a say.

Sincerely,

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Jim Steele

-----Original Message-----From: o'connorb@ci.pacifica.ca.us Sent: Feb 28, 2018 2:19 PM To: o'connorb@ci.pacifica.ca.us Subject: Pacifica SLR Webpage Update - Extended Comment Period and GIS-Webviewer

Hello,

The City of Pacifica Sea Level Rise webpage has been updated with information regarding a two week extension to the Draft Vulnerability Assessment comment period. Please send comments to Bonny O'Connor, Assistant Planner at 170 Santa Maria Ave., Pacifica, CA 94044 or <u>sealevelrise@ci.pacifica.ca.us</u> by **March 14, 2018**. Additionally, a link to a GIS-webviewer containing GIS asset data and hazard zone has been made available for the public to search and view parcels or areas of concern. Please read the User Guide before accessing the GIS-webviewer link.

Please visit: www.cityofpacifica.org/SeaLevelRise for these updates and more information.

Thank you, Bonny

Bonny O'Connor, AICP Assistant Planner Planning Department City of Pacifica 1800 Francisco Blvd. Pacifica, CA 94044 www.cityofpacifica.org

Email: <u>o'connorb@ci.pacifica.ca.us</u> Phone: (650) 738-7341 Fax: (650) 359-5807

James Kremer <jamesnkremer@gmail.com></jamesnkremer@gmail.com>		
Friday, March 09, 2018 6:57 PM		
SeaLevel Rise		
Comment for the CWG & ESA		

Hi Bonny,

Here is a suggestion that I think would help defuse some of the most contentious public objections. It is a change in how we frame the scenarios, while remaining consistent with CCC Guidelines we must follow.

Please forward it to James Jackson at ESA. He/they may want to consider it soon -- I think perhaps a big benefit for a modest modification...

-- Jim

James Kremer Pacifica, CA jamesnkremer@gmail.com

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TO:CWG & ESAFROM:Jim Kremer (CWG member)DATE:March 9, 2018

I'd like to suggest 2 changes to the way we frame the SLR (Sea Level Rise) scenarios.

1) We should explicitly consider the baseline case, of no or minimal SLR, as was stipulated in the grant award.

2) We may want to specify the scenarios based on SLR *per se*, rather than pegging them to specific future times.

Were we to make both these changes, the focus shifts away from the very uncertain rates of rise into the future. Instead, we could set up a trigger-based response plan, starting with low SLR (baseline case) and progressing to higher level responses as needed, *whenever that is.* This is more flexible and quite appropriate given constantly changing state of SLR science & projections. Importantly, it also may be more acceptable to many of the public, and may defuse some of the worst points of contention. The ESA model runs remain useful, requiring changes in labeling and descriptions only. Baseline runs would be new.

Presently, ESA is considering only Mid, High, & Extreme SLR cases, but our award from CCC actually specifies the baseline case.

See: Grant Award (CCC LCP-16-01), p. B-3, Task 2 $\$ 2. "Utilizing the Our Coast Our Future tool, three sea level rise scenarios will be studied: No sea level rise + 1% storm (baseline), 3.3 feet of sea level rise (2050), and 6.6 feet of sea level rise."

CCC Guidelines specify it is OK to base scenarios on SLR *per se*, rather than a projected year. I think this is consistent with our Grant Award, although the original plan was scenarios by year, as ESA has done so

1 (Cont.)Instead, we would plan starting with zero SLR, and have response options for rates of SLR to be determined in an adaptive way.

See p. 5 of CCC's "Memo on Sea Level Rise Vulnerability Assessments and Lessons Learned":

"• Consider different approaches. Note that there are two basic approaches to handling SLR scenarios. One approach is to pick specific years to examine and provide ranges (medium and high) of SLR amounts that occur by those years, as shown in the NRC 2012 table. Another approach is to pick *SLR amounts* to examine, and then use the rates of SLR from the medium and high projections to deduce the range of years during which that amount of SLR could occur. Both approaches are effective."

URL:https://documents.coastal.ca.gov/assets/climate/slr/vulnerability/CCC Memo on SLR Vulnerability Assessments FINAL.pdf

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From:	Eileen O'Reilly I Your Personal Realtor <emkoreilly@gmail.com></emkoreilly@gmail.com>
Sent:	Tuesday, March 13, 2018 4:05 PM
То:	SeaLevel Rise; emkoreilly@gmail.com
Subject:	Sea Level Rise public comment

I am a member of the SLR Community Working Group and I want to share my comments about the situation and the process.

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I believe that the issue is way bigger and more complicated than perhaps the City of Pacifica had planned for. With 3 scheduled meetings, it doesn't seem as though there will be much time to learn what the broader plan is, or get more information.

It feels as though we are pushing forward with determining an outcome and the Coastal Commission hasn't weighed in on it yet with their Residential Adaptation Policy Guidance?. That seems premature to me and what is the hurry- as we have already been in a draft for over 20 years.

³ Why is the City using 9-year-old sea level rise data? Is there more updated information that can be used?

We are hearing about "Managed Retreat" as an option, but we haven't really heard much about what options are available to mitigate the issues and protect the coastline and the homes and businesses along it. Shouldn't that also be part of the study?

<u>Do NOT pursue "managed retreat."</u> As a City government, you should be protecting your residents, their homes and property, their greatest investment, by armoring the Coast, building sea walls, berms, or placing riprap wherever necessary. Ventura, Los Angeles, and San Diego are the most

⁵ heavily armored California counties to protect residents from the ocean. Why is San Mateo County not among those counties?

This is a much bigger problem that should be addressed by County, local City Government, and State Government. We need our Congress and State representatives to be involved in getting Federal money to be able to combat this at a larger level.

Some questions for property owners-

What are the exact street addresses of the properties that are located inside the red zones and have those property owners been notified?

What will happen to a home or business building once it is drawn into the red zone along the coast? Who will pay to move all of the infrastructure and utilities in West Sharp Park and where will they be moved to?

How will a property located in these zones still be able to get property insurance, which is a lender requirement?

How will the City handle the foreclosures when the banks foreclose on the properties located in these zones due to a "Managed Retreat plan from the City of Pacifica"

How are the property values being calculated? given the age of the properties, the assessed value is not an accurate means of property valuation. Fair market value is considerably higher and a more accurate representation

6 (Cont.)

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Will the City of Pacifica provide these property owners with a payout or purchase the properties from them?

Will the policies be different for homes or businesses in the red zone than from other homes and buildings in Pacifica?

What restrictions will be placed upon homes and businesses in any of the identified zones and what are those restrictions?

Will property owners in the red areas be able to maintain their properties to extend the life of their homes, get permits from the City, to remodel or replace their roofs or windows?

What does it mean for a property owner whose property is located in the storm-flood area? What policy differences will these properties face?

As a City, we already don't have enough of a budget to fund basic services and pensions and pave our streets, imagine what will happen when properties in these zones lose value because the City draws them into one of the vulnerability zones, the City will their lose a significant tax revenue and it will devalue the City as a whole. Property owners will appeal their tax rates and the City will bring in less revenue from taxes- basically strangling the life out of Pacifica.

I am interested to hear what the next phase of the project will be and if there will be any consideration of options beyond Managed Retreat.

Follow me on social media: <u>Check out my Current Listings</u> <u>Find your property value</u> **Try my** <u>Mobile App</u>

Click <u>here</u> to report this email as spam.

From:	Cindy Abbott <cala3319@gmail.com> Wednesday, March 14, 2018 5:35 PM</cala3319@gmail.com>	
Sent:		
То:	SeaLevel Rise	
Subject:	Draft Vulnerability Assessment Comments	

Dear City of Pacifica, Planning Department, City Manager's Office, and City Council,

I would like to first thank you for extending the period for comment on the Draft Vulnerability Assessment. Also for including communication about the draft in the "Connect with Pacifica" weekly email, on NextDoor and in the Tribune.

Also appreciative of the GIS view that has been made available to view the town under varying scenarios and various city features.

With the importance of this document and future SLR planning discussions, it is my belief that you cannot communicate enough. Though Pacifica has a sector of the community that is active in public engagement, many citizens are unfamiliar with the processes surrounding draft documents, public review and comments. While it is off the specific topic of the Draft Vulnerability Assessment, as a member of the Community Working Group, I would like to see:

- Additional clarity about the entire process shared widely (I don't recall if Charles Lester's talk at the public workshop was taped. It was a well stated, easy to follow summary of the LCP process that should be made available.)
- More visibility for the timeline and what the steps mean.
- More specificity about the role of the Technical and Community Working Groups

The draft vulnerability assessment cemented my thoughts that:

- 1. It's important for the community to recognize that the draft vulnerability assessment, as stated on page 2, is a "planning level assessment". This document will be used to inform the development of an Adaptation Plan (next step) and LCP policies (step after the Adaptation Plan).
- I support the goal of remaining consistent with the studies and data utilized for the county-wide study and other LCP plans in the State. This sets a level playing field for planning and comparison between plans. I believe it will also be valuable when requesting funding or other support from County, State and possibly Federal agencies.
 - 3. The variation of vulnerability in Pacifica are dramatic. From 140' 180' bluffs in Fairmont (northern Paifica) to being in a flood plain in Linda Mar (southern Pacifica). Dealing with erosion, tidal inundation, storm wave damage and flooding will all require different approaches to adaptation and LCP policies.
 - 4. I have a concern, with the visibility of the eroding bluffs, the damage that had occurred along Beach Blvd two years ago and focus on the berm in Sharp Park, that citizens do not recognize that the full extent of the coast will be impacted. This includes tidal inundation and flooding in Linda Mar potentially impacting Highway One.
 - 5. We need everyone informed and engaged. I would like to suggest, as noted above, a much broader outreach strategy including postcards sent to all addresses in the City to inform of meetings, information on the website, how to opt in for email updates, and again, clarification of the process (the FAQ is a nice start build on it).

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6. In the upcoming phases of the planning, with the unknowns created by continuing global warming, ice sheet melting, etc., getting stuck on the theory of which modeling tool is the "best", seems like we will not move important deliberations forward. I would like to see the facilitators guide the process with <u>scenario planning focused on triggers.</u> If there are two years of major storms in a five year period, DEF happens; if inundation reaches point XYZ, ABC will take be initiated. We will also need to know how long will measures take? What needs to begin sooner than later, knowing the length of time it take for projects to be approved and completed?

Thank you for your time and commitment to an informed process. Cindy Abbott Salada Avenue West Sharp Park,Pacifica Community Working Group Member

4

Click <u>here</u> to report this email as spam.

From:	Jim Steele <jsteele3@ix.netcom.com></jsteele3@ix.netcom.com>		
Sent:	Wednesday, March 14, 2018 9:35 AM		
То:	SeaLevel Rise		
Subject:	Comments on sea level rise		
Attachments:	Pacifica's Vital Sea Level Question.docx		

I have 2 concerns

One concern is that property owners who are in proposed inundation zones have not been adequately alerted with a mailing to their home address notifying them of any repercussions from whatever adaptation policy gets implemented.

Second speculation on the degree of sea level driven by a few extreme papers suggesting Antarctica is in danger of rapid melting, but there is no consensus. The Antarctic research is community is split, with half arguing that evidence for an anthropogenic in that region is very weak.

I addressed this issue in an op-ed to the Tribune and post it here pasted into this email and as an attachment.

Pacifica's Vital Sea Level Question

I am a member of the Pacifica Sea Level Rise Community Working Group and I'm concerned about how our time is being prioritized. Representative community input requires far more time than is allotted and it appears not enough time will be spent discussing the most pressing issue facing Pacificans. The vital question: is the city of Pacifica committed to a policy of protecting existing buildings and infrastructure, or will it adopt a policy of managed retreat that sacrifices those structures.

That policy must be clearly stated, no matter how sea levels change. The Community Working Group has been advised to evaluate Pacifica's risk based on a range of projected sea level scenarios. From the year 2000 to 2050, the low projection suggests Pacifica will experience a 1 foot increase, the medium–high projection suggests 2 feet, and an extreme projection of 2.7 feet.

In contrast San Francisco's tide gauge has recorded a steady 20th century sea level rise of just 0.07 inches/year which would project to a 50-year increase of 3.5 inches. Furthermore since 1980, local sea level rise has decelerated, rising no more than .04 inches/year projecting a 2-inch rise.

Hypotheses of how Antarctica and Greenland will behave are the key to understanding projections of accelerating sea level rise. Although there is a consensus in the Intergovernmental Panel on Climate Change (the IPCC) regards rising CO2 emissions and its effect on global temperatures, there is absolutely no consensus within the Antarctic research community on how Antarctica will respond.

Some climate models suggest warmer temperatures will increase water vapor causing ice sheets to gain ice. The IPCC deemed Greenland's ice sheet had been stable between 1960 and 1990. It then lost ice over the next 2 decades, but the rate of loss declined after 2012 and the Danish Meteorological Institute reported Greenland gained 50 billion tons of ice in 2017. Similarly, a 2015 NASA study argued Antarctica is still gaining ice, for now. So, if the experts cannot agree, then it is silly to expect our working group to fathom which projections we should be most concerned with. An additional decade of data is needed to more realistically judge.

3 (Cont.)

Prudently waiting for more data does not mean taking no action. The weakly cemented gravels and sands of Pacifica's coastal bluffs have been eroding since melting Ice Age glaciers moved the coastline from 5 miles west of the Farallones to our front doorstep. Houses built in the 1960s were unaware of future studies that revealed our bluffs are eroding at an "average rate of 1.5 to 2 feet per year over the past 146 years." And despite climate change, a 2017 Scripps study reported no trend in storm surge since the 1940s. So, we have enough evidence to know what to expect over the next 2 decades. Bolstering a sea wall, a levy or cliff protection can be put in place within 2 years, so we can rapidly respond to any short-term threats, while waiting for more scientific clarity.

The most extreme sea level rise scenarios are driven by a single model created by DeConto and Pollard. By amplifying dynamics that naturally cause glaciers to calve into the sea. They argue Antarctica's glaciers are far more sensitive to greenhouse warming than previously projected leading to possible collapses. However, they calibrated their model to reconstructions of climate 3 million years ago when sea level is estimated to have been 10 to 20 meters higher than today. Those ancient times are believed to have experienced CO2 concentrations around 400 ppm, like today. And based on that coincidence modelers assume we should expect similar temperatures and sea levels.

However, that ancient climate was otherwise very different than today. Although Antarctica's ice had existed for 30 million years, Greenland's icecap did not begin forming until 2.5 million years ago. Ocean currents differed as a newly forming isthmus of Panama would soon separate the Atlantic from the Pacific. Furthermore, the Pacific Ocean was in a perpetual state of El Nino-like conditions.

The Community Working Group should not use our time trying to decide how much risk we can tolerate based on a model tuned to a very different climate 3 million years ago. However, Pacificans can commit to protecting our structures. Natural variability plus warming suggests we should expect sea level, measured by SF tide gauges, to rise from its current .04 inches/year to about 0.12 inches a year. That would result in a very manageable 6 inches of rise 50 years from now.

If the more extreme projections are realistic, then much more rapid rates of rise will be clearly observed over the next 5 to 10 years. Pacifica's adaptation plan will be reviewed every 5 years, providing ample opportunity to adjust according to future evidence. Until then debating extreme hypothetical risks only diverts attention from the vital question. Do we commit to protecting Pacifica's structures or do we plan on managed retreat?

I would appreciate any feedback to better serve the Community Working Group.

Email sealeveljim@earthlink.net

Sincerely Jim Steele, Director emeritus Sierra Nevada Field Campus, San Francisco State University

From: Sent: To: Subject: James Kremer <jamesnkremer@gmail.com> Wednesday, March 14, 2018 12:42 PM SeaLevel Rise Input on Vuln. Assmt.

Bonny,

Thanks for all you are doing! I wonder how the task of collating all our input is coming along, and how staff and ESA will process them. I hope it is going well...

Here are two more items from me.

Request. Since the different models and data sources used in the Vuln. Assmt. have different assumptions, strengths, and weaknesses, it is important to know which source was used for the hazard maps for each reach of shoreline. Please be sure the final V.A. includes this.

Q. Some in the public and even on the CWG seem to think that the valuation of assets will be based on specific dollar values assigned to each asset, residence or business. It was stated in discussion at the CWG meeting that this is not the case ("the analysis does not usually go down to that level of detail" – J. Jackson). To help defuse this concern, please clarify how property values are estimated without assigning a specific value to every one?

-- Jim

James Kremer Pacifica, CA jamesnkremer@gmail.com

Click <u>here</u> to report this email as spam.

Letter C	WG25
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or Pao		Leller CWG2
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Affiliation:	CWG Member	
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Contact informa	tion (phone/email): Cala 33 Degmail. Com	

This form is designed to facilitate input on the draft vulnerability assessment for the Pacifica Sea Level Rise LCP update workgroup meetings on 1/23/2018. Please provide a map reference for each comment. Input is requested on the following topics:

- Identification of any data gaps and recommendations of data sources to fill gaps
- Identification of recreational areas/uses/facilities and public access (and data sources)
- Identification of ecological and marine assets (and data sources)
- Identification of other community use areas and areas of concern

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Recommendation/notification of preferred/existing adaptation plans within Pacifica

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Name: Sam Casillas		Initials:	SC
Affiliation: CWG wemb	er		
Contact information (phone/email):	150-534-4147/ Samuela	ingillard	hotmail.com

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Pacifica Sea Level Rise LCP Update Workgroup Meetings Mapping Exercise Handout 1/23/2018

Name: SHALINI DESPOCHES.

Initials:

Affiliation:	_		

Contact information (phone/email):_

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Letter CWG28 tynipac@qmail.c CITY OF PAC Pacifica Sea Level Rise LCP Update Workgroup Meetings Mapping Exercise Handout 1/23/2018 MANKEN GALLA + TONI BOYKIN Initials: Name: 6 your osc 05100 NT 3658 -359-6905 Affiliation: Contact information (phone/email): 15-823-7337 MS.MO.GANCIA Ca This form is designed to facilitate input on the draft vulnerability assessment for the Pacifica Sea Level

This form is designed to facilitate input on the draft vulnerability assessment for the Pacifica Sea Level Rise LCP update workgroup meetings on 1/23/2018. Please provide a map reference for each comment. Input is requested on the following topics:

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Pacifica Sea Level Rise LCP Update Workgroup Meetings Mapping Exercise Handout 1/23/2018

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Affiliation: SLR COMM	with wooksnip	
Contact information (phone/email)	650.50.3406	parmones & yaho.con

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Name: James Kre	mer	Initials: JK
Affiliation: Resident		
Contact information (phone/email):	amesnkremer@gm	ail.com 7658
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Contact information (phone/email):	650- 357-1137	

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Pacifica Sea Level Rise LCP Update Workgroup Meetings Mapping Exercise Handout 1/23/2018

DREILY ELLEEN Initials:_EOT Name: Affiliation:

Contact information (phone/email): 415-793-7535 emkoreilly@gmuil.com

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	Mapping Exercise Handout 1/23/2018	
Name: Robine Runneals		Initials: PR
Affiliation: Sharp Park	Resident	
Contact information (phone/email):	415-370-0644	

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CIT OF PACIFICS	Pacifica Sea Level Rise LCP Update Workgroup Meetings Mapping Exercise Handout 1/23/2018	Letter CWG34
Name: Gordon Tan	DWG	
Affiliation: Resident		
Contact information (phone/email):	650 719-9157 stan	NC. Demail Com

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From: Sent: To: Subject: Bonny,

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The Snowy Plover habitat at Pacifica State Beach is identified as CA-48 in Recovery Unit 4 of the USFWS Recovery plan and should be added as an asset.

Margaret Goodale

On Tuesday, January 9, 2018 3:14 PM, "o'connorb@ci.pacifica.ca.us" <o'connorb@ci.pacifica.ca.us> wrote:

Hello,

The City of Pacifica Sea Level Rise webpage has been updated with a *Revised* Asset Inventory Memo. Please visit: <u>www.cityofpacifica.org/SeaLevelRise</u> for more information. Thank you, Bonny

Bonny O'Connor, AICP Assistant Planner Planning Department City of Pacifica 1800 Francisco Blvd. Pacifica, CA 94044 www.cityofpacifica.org

Email: <u>o'connorb@ci.pacifica.ca.us</u> Phone: (650) 738-7443 Fax: (650) 359-5807

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Montgomery St., Suite 400, San Francisco, CA 94104 •

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January 22, 2018

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Pacifica City Planner Lisa Wehrmeister Pacifica City Manager Kevin Woodhouse 170 Santa Maria Ave. Pacifica, CA. 94044

Environmental Science Associates Attn: Bob Battalio, PE, and James Jackson, PE 550 Kearny St., #800 San Francisco, CA. 94108

Re: Draft Sea Level Rise Vulnerability Assessment, January 12, 2018 San Francisco Public Golf Alliance Comments

Dear Ms. Wehrmeister and Messrs. Woodhouse, Battalio, and Jackson,

San Francisco Public Golf Alliance submitted a preliminary comment letter, dated September 18, 2017¹ to Pacifica Planning Department and ESA and its associates Philip King and Kearns and West. That September 18, 2017 letter contained links to our prior letters dated February 8 and 19, 2016 and letters dated February 18, 2016 from the City and County of San Francisco and March 3, 2016 from Pacifica Public Works Director Van O'Campo, all of which letters were directed to the Coastal Regional Sediment Workgroup and US Army Corps of Engineers, commenting on the January, 2016 Draft Coastal Regional Sediment Management Plan for the San Francisco Littoral Cell, authored by ESA. The subject matter of that CRSMP Draft Plan and of the comment letters is closely-related to the sea level rise issues addressed in Pacifica's current Sea Level Rise study and Vulnerability Assessment. Accordingly, by the instant letter, we recall your attention to our letter of September 18, 2017 and its letter Exhibits.

In addition, we have the following comments on Pacifica's Draft Sea Level Rise Vulnerability Assessment, dated January 12, 2018.

We are a non-profit, pro-bono public benefit organization, with a diverse membership of 6,500-plus men and women public golfers, mostly residents of San Francisco and San Mateo County, including a very substantial number of Pacifica residents. Over the past decade we

¹ Letter, September 18, 2017, San Francisco Public Golf Alliance to City of Pacifica Planning Department, ESA, et al: <u>https://drive.google.com/file/d/1YVSFSsxhEOwCnH915qyYJSXRWmyFFoCZ/view?usp=sharing</u>

1 (Cont.) have been involved in the extensive public discussion and public processes at the historic Sharp Park Golf Course.

I. "Data Gaps" and hide-the-ball

The Draft Vulnerability Assessment fails to itemize or identify the affected residential, commercial, hotel, office, industrial, golf, or California red-legged frog or San Francisco garter snake habitat properties.

Although the Draft Vulnerability Assessment, at page 29, states generally that "Residential buildings," "commercial buildings," "hotels, offices," "industrial facilities," "Redlegged frog habitat," "SF garter snake habitat," and "golf course" are among the different types of Pacifica assets that are now or in the future will be vulnerable to SLR-caused flooding and/or erosion, none of the Draft Report's Asset Exposure Tables for the various Pacifica subareas – Tables Nos. 3 through 10 – contain a line item for any of these different type of assets. Nor does the Draft Vulnerability Assessment include a chart or list or any other itemization of the addresses or any other description of individual assets – residential or commercial buildings, hotels, offices, industrial facilities, red-legged frog habitat, SF garter snake habitat, or golf course. So there is no way for a property owner or other interested party to know with any certainty whether a particular piece of property is or is not considered by the Draft Vulnerability Assessment to be "vulnerable" to the different levels of projected sea level rise. Accordingly, intelligent public comment – by property owners or others – is impossible with respect to whether or not a particular property should or should not be included and ultimately valued as part of a final Vulnerability Assessment.

So that it can be understood and used by citizens, voters, and potentially affected persons and businesses, the Vulnerability Assessment must be made more transparent by adding this information in lists that can be readily accessed and easily understood by real people.

A. Residential Property

1. Pacifica's Draft Vulnerability Assessment does not account for residential properties counted in the San Mateo Sea Change Draft Report.

The Draft Vulnerability Assessment states, at pages 2 and 26, that one of its data sources is the Sea Change San Mateo County Report (actually, the April, 2017 Sea Change San Mateo County document should properly be called a "draft report," because as of the date of this letter a Report has not been published).² The Pacifica section of that April, 2017 San Mateo Sea Change Draft Report, at page 199, shows a "General Information" chart that counts 487 "Residential Parcels" at risk in the "Erosion Scenario," 51 in the "Baseline Scenario," 170 in the "mid-level scenario," and 527 in the "high-end scenario". None of these properties are named or listed or otherwise specifically identified in the Pacifica Draft Vulnerability Assessment.

² San Mateo County Office of Sustainability, Sea Change San Mateo Vulnerability Assessment Report (Draft, April, 2017), <u>FULL REPORT</u>, Chart, at p. 199.

2. Flooding at Sharp Park threatens residential neighborhoods both north and south of the golf course.

At page 15, the Draft Vulnerability Assessment states that "flooding at the Sharp Park Golf Course affects residences directly **north** of the course. . . (and) any shoreline management strategies taken for SPGC will have implications for the neighborhood **north** of and adjacent to the golf course." This statement is too limited. It is more accurate to say, as did the California Coastal Conservancy-sponsored 1992 Philip M. Williams Report, that "Flooding of the golf course and the **surrounding neighborhoods** [that is to say, not only north of the golf course but also the West Fairway Park neighborhood to the south] has been a problem since the 1940's."³ To the same effect is the March 3, 2016 letter from Pacifica City Engineer and Public Works Director Van O'Campo to Susan M. Ming of the US Army Corps of Engineers, objecting to the failure of ESA's January, 2016 Draft Coastal Regional Sediment Management Plan to account for potential flooding risk to "residential and commercial establishments **surrounding** [i.e., both north and south of] the golf course property."⁴

3. Coastal Commission Staff warns Commission that without the Sharp Park sea wall, flooding of the residential neighborhoods surrounding the golf course would be "a 100 percent certainty".

Dan Carl, Deputy Director of the Coastal Commission's North-Central Coast District (including San Mateo County), responding to a question from Commission Chair Dayna Bocho, testified to the Commission at its November 8, 2017 public hearing on San Francisco's Sharp Park Sea Wall Permit Application, that if the Sharp Park sea wall were to be removed, flooding of the **surrounding** residential neighborhoods would be "a 100 per cent certainty," and "to the extent you didn't want to protect the golf course, you would open up a whole new can of worms with respect to Highway One and the residential neighborhoods that are **surrounding** the golf course."⁵

B. Commercial Property

1. Sea Change San Mateo County Draft Report (April, 2017) counts 76 at-risk Pacifica commercial properties – none of which are listed, identified, or otherwise accounted for in Pacifica's Draft Vulnerability Assessment.

The San Mateo Sea Change Draft Report (April, 2017, not yet finalized) counts 31 Pacifica Commercial Parcels at risk in the "Erosion Scenario," 7 in the Baseline Scenario, 13 in the "mid-level scenario," and 25 in the "high-end scenario".⁶ Again, none of these properties

³ Philip M. Williams Associates, 1992, "Laguna Salada Resource Enhancement Plan," at page 3 <u>https://drive.google.com/open?id=0B1h0x8Eg99deVEJxN1Mtdmh1RTA</u>

⁴ Letter, Van O'Campo, PE, Pacifica Public Works Director, to Susan M. Ming, March 3, 2016, at p. 3: <u>https://drive.google.com/file/d/0B1h0x8Eg99deS1BkVzZzeEFIRGM/view?usp=sharing</u>

⁵ Cal-Span, video of Coastal Commission monthly meeting, Nov. 8, 2017, Permit Application No. 2-17-0702, Item. No. 9, <u>http://cal-span.org/unipage/?site=cal-span&owner=CCC&date=2017-11-08</u>, at 2:27:16-2:28:16.

⁶ San Mateo County Office of Sustainability, Sea Change San Mateo Vulnerability Assessment Report (Draft, April, 2017), <u>FULL REPORT</u>, Chart, at p. 199.

are named or listed or otherwise specifically identified in the Pacifica Draft Vulnerability Assessment.

C. California red-legged frog and San Francisco garter snake habitat

1. In light of all the Resource Agency, Local Coastal Plan, and other public information about frog and snake habitat at Sharp Park, the Draft Vulnerability Assessment seems curiously reluctant to admit their habitat.

About California red-legged frog and San Francisco garter snake habitat, the Draft Vulnerability Assessment at page 30 states: "it is our understanding that CA red-legged frog habitat exists in the Sharp Park golf course, but this is missing from the database. Also missing from the ECOS database is CA garter snake habitat."⁷ This is an odd statement, because California red-legged frog and San Francisco garter snake habitat in the Laguna Salada wetlands at the Sharp Park Golf Course is a well-known fact, declared in both Pacifica's existing Local Coastal Plan (1980)⁸, and Pacifica's Draft Local Coastal Plan Update (2014).⁹

The California Coastal Conservancy-sponsored 1992 Philip M. Williams Associates study is adamant about the need to maintain the Sharp Park sea wall to protect the California red-legged frog and San Francisco garter snake habitat at Sharp Park from the ocean:

"Severe flooding occurred in 1983 and 1986. During the 1983 event, sand and seawater washed over the low seawall, . . In 1986, severe rainstorms, combined with high tides and wave overwash, again caused extensive flooding. . Following the 1986 flooding, salinity measurements were made in the Laguna and the Horse Stable Pond. . . These salinities were apparently sufficiently high to eliminate or reduce [California red-legged frog] populations and consequently impact the [San Francisco garter snake]. Since the completion of the current seawall in 1989, no wave overwash has occurred, and salinities have dropped to the low levels . . . (Page 11)

⁸ Pacifica Local Coastal Land Use Plan (1980),

http://www.cityofpacifica.org/civica/filebank/blobdload.asp?BlobID=7043, at page C-41:

⁷ ESA's reluctance to inventory the San Francisco garter snake and California red-legged frog habitats at Sharp Park is apparent in its original Asset Memorandum, dated and published on the Pacifica Planning website on or about January 2, 2018, which failed to include Residential, Commercial, California red-legged frog habitat and San Francisco garter snake habitat properties among the categories of assets to be identified in the Vulnerability Assessment Report: https://drive.google.com/file/d/1pGawGYX03fH5QafUr92gmnfA5x-s7JmC/view?usp=sharing That Jan. 2, 2018 Asset Memorandum did include a category of CA red-legged frog Critical habitat – but that's not the same thing; the Jan. 2 memo was subsequently revised on or about January 9, 2018 to include the snake and frog habitat, and residential and commercial properties.

[&]quot;Sharp Park Municipal Golf Course.... A 50-foot berm protects the golf course and marsh from intrusion of salt water and humans, and ensures perpetuation of the freshwater marsh habitat which supports one of the largest known San Francisco garter snake habitats... Because of the sensitivity of the habitat, the need for dredging and berm protection, and the need to protect the snake population, the California Department of Fish and Game should undertake management of the garter snake habitat.... (At page C-41.)

⁹ City of Pacifica, Draft Local Coastal Land Use Plan (2014), Chapter 4, Environment and Resource Protection, <u>http://www.cityofpacifica.org/civica/filebank/blobdload.asp?BlobID=6586</u>, at page 4-15: "Seasonal wetlands and ponds at Mori Point and Sharp Park Golf Course support the California red-legged frog as well as the San Francisco garter snake."

"Seawater flooding has had . . . serious consequences for wildlife [at the Sharp Park Golf Course], particularly the [California red-legged frog] and [San Francisco garter snake]. Prevention of high salinity levels is justified for the preservation of these species. The newly-constructed seawall will dramatically reduce seawater flooding. . . The long-term stability of the seawall is obviously crucial to the prevention of salinity intrusion and sand transport to the ponds. . . We are assuming that the seawall will be maintained in perpetuity by the City. If this were not done, . . . conditions for endangered species would deteriorate." (Pages 40-41.)¹⁰

7 (Cont.)

8

Both the US Fish & Wildlife Service¹¹ and the California Coastal Commission (twice, in April, 2015¹² and again in November, 2017¹³) have found that California red-legged frog and San Francisco garter snake inhabit Sharp Park's Laguna Salada / Horse Stable Pond wetlands. And both agencies have ordered San Francisco to protect those freshwater wetlands by keeping the Sharp Park sea wall well-maintained and repaired. ¹⁴,¹⁵

D. Sharp Park Golf Course

Although the Pacifica Draft Vulnerablity Assessment states that it will assess the Sharp Park Golf Course, the course and its assets are described nowhere in the Draft Report or any of its charts.

¹² California Coastal Commission, Staff Report, April 3, 2015 and Addendum April 15, 2015: <u>http://documents.coastal.ca.gov/reports/2015/4/th8a-4-2015.pdf</u>.

"The Golf Course is interspersed with wetland areas, and in total Sharp Park Golf Course contains 27 acres of wetlands. These wetlands, as well as the upland areas surrounding them, support both threatened and endangered species of concern. Specifically, the California red-legged frog (CRLF) is federally listed as threatened and the San Francisco garter snake (SFGS) is federally listed as endangered." (Staff Report, April 3, 2015, at p. 13.) In its April 16, 2015 ruling granting San Francisco's application for a Coastal Development Permit for the Sharp Park Pump House Project, the Coastal Commission unanimously adopted the Staff Report and its findings. Id., April 3, 2015, at page 5.

¹³ California Coastal Commission, Staff Report, Application 2-17-0702, Oct. 27, 2017,

https://www.coastal.ca.gov/meetings/agenda/#/2017/11 (Nov. 8, 2017 meeting, at Item 9) "Sharp Park contains two species of particular concern: the California Red Legged Frog (CRLF), which is federally listed as threatened and a state Species of Special Concern, and the San Francisco Garter Snake (SFGS) which is federally and state listed as endangered. Areas within the Sharp Park complex and within the confines of the Golf Course, including Sanchez Creek, Laguna Salada Pond and Horse Stable Pond, are significant foraging areas for SFGS because these wetland areas are freshwater breeding habitat for CRLF and other species upon which the SFGS feed. According to the 2012 USFWS BO, CRLF egg masses were observed at Sharp Park Golf Course every year from 2004-2011 and the California Natural Diversity Database also reports known occurrences of CRLF at Sharp Park." (Oct. 27, 2017, at Page 35)

¹⁴ Biological Opinion Letter, US Fish and Wildlife Service, <u>supra</u>, Conservation Measure 31, at p. 19, incorporated into the USFWS' Incidental Take Statement, Terms and Conditions No. 1, at p. 41. <u>https://drive.google.com/open?id=0B1h0x8Eg99deRzZUWHFaLS1zcW8</u>

¹⁰ Philip M. Williams, <u>supra</u>, "Laguna Salada Resource Enhancement Plan," <u>supra</u> at pp. 11, 40-41 <u>https://drive.google.com/open?id=0B1h0x8Eg99deVEJxN1Mtdmh1RTA</u>

¹¹ Biological Opinion Letter, US Fish and Wildlife Service (USFWS), October 2, 2012, at p. 34 <u>https://drive.google.com/open?id=0B1h0x8Eg99deRzZUWHFaLS1zcW8</u>

¹⁵ California Coastal Commission, Staff Report Addendum, Application 2-17-0702, Nov. 7, 2017, <u>https://www.coastal.ca.gov/meetings/agenda/#/2017/11</u> (Nov. 8, 2017 meeting, at Item 9) Special Conditions 7 and 8, at pages 8-11

ESA disingenuously claims, in its January 9, 2018 "Revised Asset Inventory for Pacifica LCP Update memorandum¹⁶,¹⁷ that "ESA did not receive any responses from SF City staff regarding more detailed data within the golf course." In fact, as the drafter of the January, 2016 Coastal Regional Sediment Management Plan Draft for the San Francisco Littoral Cell¹⁸, ESA almost certainly received a copy of the San Francisco Recreation and Park Department's 8-page February 18, 2016 comment memorandum on the CRSMP Plan Draft¹⁹, which sharply criticized ESA's Draft CRSMP Plan for, among other things: failing to acknowledge the presence of the endangered San Francisco garter snake and California red-legged frog in Sharp Park's wetlands; failing to acknowledge the value of these endangered species; failing to note that San Francisco is under order from the US Fish & Wildlife Service and Army Corps of Engineers to protect the two species; and failing to acknowledge or place any value on the historic golf course, the public recreational value of the golf course, and the commercial business, with 50 employees, at the golf course.

8 (Cont.)

In any event, whether or not ESA received a copy of the Ginsburg letter and memorandum directly from the City and County of San Francisco, both ESA and the City of Pacifica Planning Department received a copy of the Ginsburg letter and memorandum as Exhibit C to the San Francisco Public Golf Alliance letter dated September 18, 2017.²⁰ Also attached (as Exhibits A and B) to that September 18, 2017 San Francisco Public Golf Alliance letter to ESA and Pacifica were copies of the Golf Alliance's February 8 and 19, 2016 letters to the Coastal Management Workgroup and Susan M. Ming at the Army Corps of Engineers; the February 8, 2016 letter conservatively estimates the value of the golf course, infrastructure, and public golf recreation at over \$42 Million.²¹

¹⁶ Memorandum, January 9, 2018 to Pacifica Planning Department from ESA's James Jackson, PE <u>http://www.cityofpacifica.org/civicax/filebank/blobdload.aspx?BlobID=13728</u>, at page 3

¹⁸ ESA. et al, San Francisco Littoral Cell Coastal Regional Sediment Management Plan, Draft-January 2016, <u>http://www.sfestuary.org/wp-content/uploads/2015/11/Draft_SFLC_CRSMP_20160104.pdf</u>

¹⁹ Letter, SF Rec & Park General Manager Phil Ginsburg to Susan M. Ming, et al, February 18, 2016, attaching 8-page memorandum: <u>https://drive.google.com/file/d/0B1h0x8Eg99deOHUxRWZOYmQ4UHM/view?usp=sharing</u>

²⁰ Letter, September 18, 2017, San Francisco Public Golf Alliance to City of Pacifica Planning Department, ESA, et al: <u>https://drive.google.com/file/d/1pGawGYX03fH5QafUr92gmnfA5x-s7JmC/view?usp=sharing</u>

²¹ Letter, February 8, 2016, San Francisco Public Golf Alliance to Susan M. Ming, et al, <u>https://drive.google.com/file/d/0B1h0x8Eg99deQ1c1Y2tRcmJscmM/view?usp=sharing</u>, at pages 16-19 (not counting the value of the architectural heritage of the historic Alister MacKenzie-designed golf course).
- II. In its final Nov. 8, 2017 decision approving San Francisco's Coastal Development Permit Application No. 2-17-2070,²²,²³ the California Coastal Commission made several key determinations about the Sharp Park sea wall.
 - A. The Sharp Park sea wall comes within the Coastal Commission's own retained permitting jurisdiction.²⁴
 - B. The Sharp Park sea wall is necessary to protect the public recreational resources of the golf course, flood control infrastructure, and the endangered San Francisco garter snake and California red-legged frog populations at Sharp Park.²⁵
 - C. Managed retreat is not a feasible alternative at the Sharp Park sea wall²⁶.
- III. Without the Sharp Park sea wall, Highway One would be at risk.

It is worth here repeating the public testimony of Dan Carl, Deputy Director of the Coastal Commission's North-Central Coast District, responding to a question from Coastal Commission Chair Dayna Bocho at the Commission's November 8, 2017 public hearing on San Francisco's Sharp Park Sea Wall Permit Application, No. 2-17-0702. Mr. Carl testified that if the Sharp Park sea wall were to be removed, flooding of the surrounding residential neighborhoods would be "a 100 per cent certainty," and "to the extent you didn't want to

²³ California Coastal Commission, Staff Report, Oct. 27, 2011, Application 2-17-0702,
<u>https://www.coastal.ca.gov/meetings/agenda/#/2017/11</u> (Nov. 8, 2017 meeting, Item No. 9),
Staff Report, at page 4 (by approving the application, the Commission adopted the Staff Report's Findings).

²⁴ California Coastal Commission, Staff Report, Oct. 27, 2017, <u>Id.</u>, at page 16, "Standard of Review"

²⁵ California Coastal Commission, Staff Report, Oct. 27, 2017, <u>Id.</u>, at page 20:

²² California Coastal Commission, Coastal Development Permit No. 2-17-0702, dated Dec. 13, 2017: <u>https://drive.google.com/file/d/1p0QqR5MfVzoEayj2e7zPXHBEpDKtBhTw/view?usp=sharing</u>

[&]quot;If the berm were to be removed, it would be expected that the Golf Course and its attendant development would be damaged and lost to storms and erosion in the very short term, as soon as winter storms this year. In addition, such an alternative would also result in significant risk to Sharp Park's biological resources and loss of access to infrastructure at the pumphouse, which is needed to control floodwaters in Sharp Park and in turn maintain playable greens and golfing infrastructure. In fact, the USFWS BO requires the Applicant to maintain a berm because the only vehicle access to the pumphouse infrastructure, which is used to manage floodwaters in the Golf Course is via the top of the berm along the publicly used accessway. The 2012 BO also reports that absent a functioning shoreline protective device at the project site, the SFGS and CRLF habitat in Laguna Salada and Horse Stable Pond wetlands will be compromised." (p. 20)

²⁶ California Coastal Commission, Staff Report, Oct. 27, 2017, <u>Id.</u>, at page 21-22:

[&]quot;The 'managed retreat alternative' would, like the 'no project' alternative, result in removal of the berm in its entirety and would eventually return the area currently occupied by the berm footprint to its natural topography... Although the 'managed retreat' alternative provides the opportunity for evaluation and possible long-term relocation of existing structures at the Sharp Park complex that are at risk of coastal hazards, this alternative is currently infeasible because it would be extremely costly (estimated in the tens of millions of dollars) and it is unclear if a golf course could even be relocated inland at this location. In addition, it is infeasible due to the mandates the Applicant is under to protect existing habitat for the CRLD and the SFGS... Therefore, the non-armoring solutions in this case are not currently feasible alternatives at this time." (pp. 21-22)

9 (Cont.) protect the golf course, **you would open up a whole new can of worms with respect to Highway One** and the residential neighborhoods that are surrounding the golf course."²⁷

IV. Pretzel Logic:

The Vulnerability Assessment's flood hazard maps and predictions wrongly fail to account for any flood protection from sea walls and levees.

The Draft Vulnerability Assessment's erosion maps are based on maps developed in 2009 by ESA for the Pacific Institute. These maps "do not account for existing coastal armoring structures,"²⁸ but instead are based on "modeling" a hypothetical situation in which Pacifica's existing sea walls, berms, and other shoreline protection infrastructure did not exist.

Shoreline erosion modeling based on a hypothetical "natural state" of erosion that ignores existing "shoreline protection infrastructure" is backwards-thinking. There is, in fact, shoreline protection infrastructure in place up and down Pacifica's shoreline, including at Sharp Park -- just as there is shoreline protection along San Francisco Bay from the Embarcadero to San Francisco Airport to the Bayshore Freeway and the coasts of every Peninsula city south to San Jose. If any assumption at all is made about future Pacifica shoreline management decisions, the assumption should not be that existing shoreline protection infrastructure will disappear, but rather that it will be continued – for the same reasons of protection of residential and commercial properties, public infrastructure, and recreational and natural resources for which the protective structures were built in the first place.

V. A poorly-designed City of Pacifica storm drain system appears to dump Pacifica street runoff into the golf course and Laguna Salada.

It appears from Appendix A-4 to the Draft Vulnerability Assessment that Pacifica's Sharp Park Road and Francisco Boulevard storm drains dump street runoff directly onto the golf course at a point about halfway between the golf course entryway and the intersection of Sharp Park Road / Francisco Boulevard.²⁹ Where the storm sewer lines enter the golf course property at the southeast corner of the clubhouse parking lot, there is a concrete junction box where a 30" storm sewer pipe enters from the east and and a 10" pipe exits to the west. In times of heavy runoff, the 10" exit pipe is overwhelmed and the junction box overflows and the stormwater simply flows out of the box, across the parking lot and then sheet-flows across the golf fairways towards Laguna Salada. The exit 10" pipe laid end-to-end, so the stormwater escapes at the seams and flows out onto the golf fairways, then to Laguna Salada.

²⁷ Cal-Span, video of Coastal Commission monthly meeting, Nov. 8, 2017, Permit Application No. 2-17-0702, Item. No. 9, <u>http://cal-span.org/unipage/?site=cal-span&owner=CCC&date=2017-11-08</u>, at 2:27:16-2:28:16.

²⁸ Pacifica, <u>Draft Sea Level Rise Vulnerability Assessment</u>, p. 32, and see page 3, "Pacific Institute Study".

²⁹ Pacifica Draft Vulnerability Assessment <u>Appendices</u>, Appendix A-4, Stormwater Infrastructure (blue lines)

VI. Sharp Park Golf Course has not been made part of The Sea Level Rise Community Work Group -contrary to the terms of Pacifica's Grant Application to the California Coastal Comission.

The instant Sea Level Rise study is funded in major part by a grant from the California Coastal Commission, in response to Pacifica's May 20, 2016 Grant Application.³⁰ That Grant Application states, at page 7, that the public process will include formation of Technical and Community stakeholder advisory groups, and that the Sharp Park Golf Course will be on the Community Advisory Group.³¹ This has not happened.

CONCLUSION

We thank you for your attention to these comments – and to the detailed comments in our prior letters on the subject, dated September 18, 2017, and February 8 and 16, 2016. We urge you to be more transparent and more forthcoming in the future. For our organization – and likely others with any interest in the future of Pacifica – it will be of utmost importance that you fully and in detail itemize and accurately value all properties and assets potentially affected, directly and indirectly, by potential sea level rise and the response to it.

Very truly yours,

San Francisco Public Golf Alliance

Richard Harris

Richard Harris, President

cc:

Pacifica City Council Pacifica Public Works Department San Francisco Recreation and Park Department Congresswoman Jackie Speier State Senator Jerry Hill Assemblyman Kevin Mullin Supervisor Don Horsley Supervisor Carole Groom California Coastal Commission, North-Central Coast District San Mateo County Office of Sustainability U.S. Army Corps of Engineers, Susan M. Ming, PE Bo Links

³⁰ California Coastal Commission LCP Planning Grant Application Form, signed by then-Pacifica City Manager Lori Tinfow, May 20, 2016: <u>http://pacificacityca.iqm2.com/Citizens/FileOpen.aspx?Type=1&ID=1156&Inline=True</u>, at page 215.

³¹ California Coastal Commission LCP Planning Grant Application, <u>Id.</u>, at page 7: <u>http://pacificacityca.iqm2.com/Citizens/FileOpen.aspx?Type=1&ID=1156&Inline=True</u>, at page 222.

From:	Bart <
Sent:	Tuesday, February 13, 2018 10:21 AM
То:	O'Connor, Bonny; Wehrmeister, Tina; Sue Digre (Contact); Mike O'Neill (Contact);
	Keener, John; Vaterlaus, Sue; Martin, Deirdre; Woodhouse, Kevin; Sherman Frederick
Subject:	ESA Draft Vulnerability Assessment
Attachments:	Pacific Institute Disclaimer.pdf

Ms. O'Connor

Essentially, reviewed and continuing to review the *ESA draft document January 2018* and there are considerable assumptions and even speculation contained in that document. Here is one example on page 11 Figure 8 there are photos of the sea wall at Lands End but it was not erosion that damaged the wall it was faulty construction due to the fact the contractor failed to follow the engineering plans at the time the wall was built. There are others as the list continues!

Next the 3 data sources used by ESA for this study is problematic (Pacific Institute, Our Coast Our Future, Sea Change San Mateo County Grand Jury Recommendations). I see no references from Scripps Institute of Oceanography, National Science Foundation, NOAA, NASA or even one of the best references US Naval Research Labs Marine Meteorological Division.

The Pacific Institute Study was used solely on the basis that ESA provided some type of memorandum to the Pacific Institute study that is referenced in the Reference Section but does not describe what the memorandum is or was. Moreover, the Disclaimer in the Pacific Institute Document (copy attached) that none of the material in the document has been determined for "Accuracy, currency, completeness or adequacy of the information in this paper" for all intent and purposes this is "JUNK" science. The Our Coast, Our Future document is nothing but speculative modeling on "what" might happen but does not explain how the modeling was characterized nor any references used for the models or how the modeling works.

Finally, the document Sea Change "Sea Level Rise Vulnerability Assessment" draft April 2017 by County of San Mateo Office of Sustainability prepared on recommendations by the County Civil Grand Jury uses the same modeling without explanation of that modeling by Our Coast, Our Future. As part of the Executive Summary of that document states *"Certain limitations exist in this Assessment because it had to rely on readily available data and modeling tools"*. Yet does not go on to explain how the data was arrived at or the modeling used. This is the alleged science information that is being used in the Pacifica LCP?

Next what really bothers me here is this. Fortunately, this is not rocket science I spent time at the South Pole Station in the late 70's involved in a National Science Foundation Grant on "Effect of Green House Gas on the Great Polar Plateau" so it is not hard for me to look forward to determine how this LCP document is going to be used. Essentially, there are 3 classifications in the LCP describe how property in Pacifica will be treated, **Protected, Managed Retreat and Adaptions**. Not sure what the "adaptions" will actually mean. Regardless, it is clear that the California Coastal Commission first position is managed retreat with everything West of Highway 1 vulnerable to erosion over time so protecting that property is subject to review and determination of actual location along the coast. ESA at the technical meeting had various maps hung on the wall of various locations of Pacifica and requested attendees to review and make additions or changes to those maps. What is foreseeable is that information will go to planning on whether property will be treated by one of the three issues and if "protected" will require some compelling reason for doing so (*i.e.* important infrastructure or large neighborhoods Shore View, Sharp Park and the likes) the remainder will be subject to Managed Retreat given the Coastal Commission stance on the issue and permitting requirements.

2

3

4

More to come as I continue to evaluate the documentation, methods and modeling along with references associated with the information. Essentially, Pacifica has no coastal engineer, no oceanographer and no coastal analyst on board to really make a critical determination of the issues being pushed forward by ESA.

Sincerely,

Bart Willoughby

DISCLAIMER

This paper was prepared as the result of work funded by the California Energy Commission, the California Environmental Protection Agency, Metropolitan Transportation Commission, California agencies"). It does not necessarily represent the views of the funding agencies, their respective officers, agents and employees, or the State of California. The funding agencies, the State of California, and their respective officers, employees, agents, contractors, and subcontractors make no warrant, express or implied, and assume no responsibility or liability for the results of any actions taken or other information developed based on this paper; nor does any party represent that the uses of this information will not infringe upon privately owned rights. This paper is being made available for informational purposes only and has not been approved or disapproved by the funding be used to assess actual coastal hazards, insurance requirements or property values, and specifically shall not be used in lieu of Flood Insurance Studies and Flood Insurance Rate Maps Department of Transportation, and the California Ocean Protection Council (collectively "the funding adequacy of the information in this paper. Users of this paper agree by their use to hold blameless each of the funding agencies for any liability associated with its use in any form. This work shall not agencies, nor have the funding agencies passed upon the accuracy, currency, completeness, or ssued by the Federal Emergency Management Agency (FEMA).



From: Sent: To: Subject:

1

Stan Zeavin < Wednesday, February 14, 2018 11:22 AM O'Connor, Bonny; Wehrmeister, Tina valuation of homes

Hi Bonny and Tina,

As soon as Stan and I can stomach reading the entire my turn article in last Wednesday's Tribune written by Stechbart and Wagner, Stan will write a rebuttal.

In order to counter the innuendo and misinformation about how homes are valued, we'd like to know what the process will be. The more accurate information that is available, the less opportunity people will have to speculate and create fears. We are also speaking next Tuesday at the "Progressives" meeting about the LCP process and would like to be able to help build a group of people who can assist to dispel the myths.

If you are willing and could meet with us even briefly before Tuesday, we'd hugely appreciate it. If a meeting is impossible, could you email us the information?

Thanks so much,

Margaret and Stan

From:
Sent:
To:
Subiect:

1

colleen golden < Thursday, February 15, 2018 8:11 PM SeaLevel Rise Questions being asked of "stakeholders"

Please send your name, phone number and email so you can receive notifications from the coordinators. Colleen Golden <u>colleengldn@yahoo.com</u>

Questions being asked of "stakeholders" 1. How do you use Pacifica's coastal area and where?

Beach Blvd, the Pier then leading to the berm and Mori Point is our gem, it is why people come to our town. We need to protect this area for Pacifican's, out of towners and wildlife. We need to utilize the upgrade on Palmetto as a means to have these visitors and locals spend money at restaurants both sit in's, and take out for the beach. Why not shops? Have you seen the number of walkers lately, it has boomed! These walkers are sure to be hungry and need a sweatshirt.

2. What concerns to you have related to coastal erosion, storm damage/flooding, sea level rise, and where?

Back to our gem, beach blvd, let's protect the sea wall. 3.What about Pacifica's coastline is important to you?

We are able to walk, hike and ride....and we have been discovered. I cannot believe how many people now walk Beach Blvd and the berm. This are is important and needs to be upgraded and protected. 4. Please list any concerns you have related to the development of the Local Coastal Plan - Sea Level Rise Adaptation Plan.

We have a sea wall in place, let's maintain and upgrade it, why let a structure which is already here deteriorate. Protect what we have.

5. Additional comments or feedback?

West Sharp Park is where visitors want to be. There is much possibility for tax revenue. Restaraunts and shops on Palmetto, development of the old sewer (imagine what could be built there). It is time to upgrade our popular coastal walk to include tax revenue options for all of us.

Letter P7



RECEIVED

FEB 2 0 2018

How do you use Pacifica's coastal area and where?

- Surfing (Rockaway and sometimes the north end)
- Painting of coastal scenes
- Walking on beach (where sand remains)
- Enjoying the coast visually

1

• Helping w/ snowy plover habitat at Pacifica State Beach

a State Beach City of Pacifica

What concerns do you have related to sea level rise impacts in Pacifica, and where?

My concern is general not specific. Can the City produce a progressive, visionary and fair element in the updated Local Coastal Plan that adequately confronts the reality of SLR? This will be no easy task. But the fact that the California Coastal Commission is encouraging coastal communities with grants so that a science based approach is taken is a positive development. My hope is that the current adversarial environment generated by real estate interests will give way to a spirit of cooperation. For some reason everything in this town seems to sort out into a binary 'us' vs 'them' standoff with City Council as the (partisan) arbiters. This is too serious for that.

If the science behind the ESA vulnerability assessments and recommendations become politicized, everyone will lose. Most of this isn't hypothetical. We already have a seriously retreat of our coast line especially in my part of town, West Fairmont. And it isn't hypothetical that storms and weather patterns are changing and becoming more erratic and disruptive. Years of drought and then in deluge the winter of 2015/16 was not normal nor is this year's warm winter. And armoring with rocks and seawalls, which is not recommended by experts as it causes a loss of sand and doesn't help in the long run anyway, is not even an issue. It has already been done. By the way how is that working?

With SLR as with climate change in general, accusing those wishing to aggressively revise our present unsustainable practices must confront forces that want to make everything into a zero sum game. If the LCP update becomes another political football we will all lose. Already the term 'managed retreat' has become a dirty word. If the flooding, tidal inundation, storm surges and melting bluffs continue to worsen as is scientifically predicted, whether we have a LCP that manages it for better or worse or not, it will still happen. This means major property and infrastructure loses. And at some point the market and insurance companies will react regardless of how deep a given community's heads are is the (ever lessening amount of) sand.

What about Pacifica's coastal zone is important to you?

My specific concern is the coastal ravine (actually two) at the northern end of town along the coastal zone of Fairmont West (see page 8 of ESA Sea Rise Vulnerability Assessment). These two ravines must have been geologically formed by drainage coming down form higher elevations prior to all major massive grading and land fill operations over the years that created the Doger's Daly City housing tracts and Highway 1 above, and below the 1903 Ocean Shore Railroad grade (that parts of Palmetto Avenue now rests on). The northern most ravine has already reached the spur road off of Palmetto Avenue that goes to the Mussel Rock parking lot. The southern most ravine (by the Dolar radio station house) is only 8-10 ft from Palmetto Avenue awaiting further erosion of the ice plant covered head of that (sandstone) ravine. If that erosion event was serious enough Palmetto Avenue

could be severed causing very serious disruption to West Fairmont and southern Daly City. Also diagram (see to Page 34 of the ESA report) shows major coastal erosion in Fairmont West by the year 2100. In fact it is an existential problem for the entire City of Pacifica. In Fairmont West it would eventually eliminate many as 157 presently located homes (including where I live). The last LCP (1980) will have been in effect for 40 years if the new one is ready by 2020. The new LCP plan must take into consideration erosion projections for at least that long, or up until 2060. How much of that zone indicated by the 2100 red line will be gone by then?

Please list any concerns you have related to the sea level rise adaption plan and LCP Update process.

The political and legal mechanics of this, even if everyone was in a cooperative mode, would be difficult. Discovering that your home is at risk couldn't be more alarming. The number concerns rightly should be interested in this update.

Those doing the workshop - the facilitator, ESA and the City Planning Department all did a fine job. It was especially fortunate that ESA was able to get Dr Lester, a former Director of the California Coastal Commission, involved. His stellar background, experience and expertise will be very valuable in this difficult process. Having the concerned citizens (who want someone or some entity to blame) to talk with experts at the various stations regarding what bothers them or scares them about the process and the risk to their neighborhood was a good idea. I hope a lot misconceptions were dispelled.

Do you have any additional feedback or comments?

V 2/15/18

I doubt if many coastal communities have yet tackled this painful reassessment of their ' place in the sun' as we move deeper into the Anthropocene geological era. I hope Pacifica can eventually provide a model.

1 (Cont.)

From: Sent: To: Subject:

1

Tanya <torbit{Constraints} > Saturday, February 24, 2018 4:10 PM SeaLevel Rise Pacifica Costal Plan

1. How do you use Pacifica's coastal area and where? I walk along path and own a home close to pier.

2. What concerns to you have related to coastal erosion, storm damage/flooding, sea level rise, and where? Very concern. Our home is less than 500 ft to water.

3. What about Pacifica's coastline is important to you? That this area by pier in Sharp Park is saved from rising sea levels.

4. Please list any concerns you have related to the development of the Local Coastal Plan - Sea Level Rise Adaptation Plan. Only interested in saving sea wall or building reef out in water to protect homes.

5. Additional comments or feedback? Sent from my iPhone

From: Sent: To: Subject:

1

jason Sunday, February 25, 2018 11:47 AM SeaLevel Rise Managed Retreat

Has the City taken into account the loss in tax revenue the City would see if the Pier / Sea Wall / Promenade / Gold Course are not defended? Allowing the Sea Wall to fail would also prevent anyone from putting in a hotel / resort at the old Waste Water facility.

Just my 2 cents, thanks

From:	Allison Zenner
Sent:	Monday, February 26, 2018 5:07 PM
То:	SeaLevel Rise
Cc:	Keener, John; Vaterlaus, Sue; Digre, Sue; O'Neill, Mike; Martin, Deirdre
Subject:	SLR Public Workshop Comments

Below are public comments from the Feb 13th SLR public workshop. All of City Council is cc'd, though this message should be directed to members who are in favor of "managed retreat"

1. How do you use Pacifica's costal area, and where:

I use all of the costal area from Linda Mar all the way to Muscle Rock. Daily I use Beach Boulevard promenade and the levy to Mori Point for walking with my dog and to socialize with neighbors.

2. What concerns do you have related to sea level rise impacts in Pacifica, and where:

Biggest concern:

1

- a city council that is not concerned about maininting or adding value to our beautiful Pacifica.

- The sea wall must be reinforced and maintained!

- City council should be investing in building restaurants and shops near Beach Blvd. On a nice day it is one of busiest parts of Pacifica. Tax revenue from sales could help keep Pacifica wonderful!

3. What About Pacifica's costal zone is important to you?

Maintaining them! Managed retreat is NOT an option.

4. Please list any concerns you have related to the sea level rise adaptation plan and LCP Update process.

- How the outcomes effect home values?

- This process could be more transparent and should involve more home owners and businesses located in the effected areas.

5. Do you have any other comments or feedback?

- I am having a hard time trusting this process. It seems the motives of the SLR committee, and too many members of city council is not for adaptation, but towards "managed retreat" which will only hurt Pacifica's infrastructure.

- Maintain the sea wall, protect home values, and bring new business to Beach Blvd.

Allison Zenner

Pacifica Home Owner

From:	david leal <	>
Sent:	Monday, February 26, 2018 11:0	3 PM
То:	SeaLevel Rise	
Subject:	Sea Level Rise Commentary	

Hello,

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I would like to start off by commenting that following the current local coastal plan update/sea level rise process has been very difficult to follow not only as a resident of Pacifica but as an actual homeowner of property which is included in some of the maps published.

When I initially looked at the maps posted to the city of Pacifica website, one glaring issue was the miscategorization of several sites in our community. I only focused in on my neighborhood of West Sharp Park and saw Multi-Unit Housing parcels designated as single family homes. That is only one example and I cannot imagine what other mistakes exist in the maps for WSP and other neighborhoods.

The other glaring omission is the opportunity cost and economic impact of these maps. The financial cost is much more than just current value. The costs need to include replacement costs of like housing as well as replacing the economic drivers for Pacifica. Where will replacement housing go? Will Pacifica rezone neighborhoods to allow for relocation of hotels and other economic contributors to the bottom line of the City's Budget?

Lastly, the models seem to assume that the current seawall and berm will not be maintained. Myself and residents of West Sharp Park, Fairway Park and other impacted neighborhoods would like to see models where the current infrastructure is not only maintained but also armored accordingly. Not doing so is only showing a one-sided view of this topic.

Thanks for your time, David Leal

Letter P11

To: Bonny O'Connor, Assistant Planner,

170 Santa Maria Ave., Pacifica, CA 94044,

sealevelrise@ci.pacifica.ca

Date: February 26,2018

From: Dave Plumb

Roberts Rd.,

Question #1. How do I use Pacifica's Coastline

Response: Hikes on Lindamar Beach, the beach trail over to Rockaway Beach the Mori Point trail and along the Promenade by Sharp Park Beach and walks on the pier. Bike rides along the coastal trail at Sharp Park Beach. We like to eat at Nick's and the Moonraker and Puerto 27 and enjoy the ocean view. We enjoy seeing Lindamar Beach and in the ocean off the beach the whales, dolphins and surfers out the windows of our home.

Question #2. What concerns to you have related to coastal erosion, storm damage/flooding, sea level rise, and where?

Response: Many concerns including: 1. high tide and breakers destroying Nick's and the Moonraker, 2. erosion of Lindamar and Rockaway beaches, 3. erosion along Beach Blvd. affecting the promenade, 2212 Beach Blvd, the homes along Beach Blvd and Esplanade, 4. Erosion of the earth berm protecting the golf course and the homes of West Sharp Park and Fairway Park, 5. Erosion that eventually would threaten Palmetto esp. in the newly renovated downtown area. 6. Erosion affecting the Recology yard and other businesses along Palmetto, erosion affecting our sewers, roads and infrastructure

Question 3. What about Pacifica's coastline is important to you?

Response: Homes and businesses are more important to me than protecting the beach at Sharp Park. Thousands of people live in the west Fairway Park and West Sharp Park neighborhoods. Their homes are more important to me than protecting the Sharp Park beach. Lindamar beach is important and the coastal trails along Lindmar, Rockaway, Mori Pt and the Sharp Park promenade. Building a new hotel at 2212 beach Blvd that uses the whole area left by the sewage treatment plant is important because it has the potential to generate \$900,000 in revenue for the City. The golf Course is more important than the Sharp Park Beach. Saving Highway One and our infrastructure is important to me. Getting \$16,000,000 from the federal government to armor the earth berm, sea wall and retaining wall is more important to me than being a sanctuary city.

Question 4. Please list any concerns you have related to the development of the Local Coastal Plan - Sea Level Rise Adaptation Plan.

Response: I'm concerned that ESA has a history of advocating managed retreat. I'm concerned that some council members have expressed a preference for retreat instead of protecting people homes, the golf course and our infrastructure. I'm concerned that if we did choose managed retreat at the golf course and flood many peoples homes, they would rightly have a very good case to bankrupt our city with rightful law suits. I'm concerned that ESA is not meeting the terms of it's contract with Pacifica to provide a more detailed map with addresses of each affected home. I'm concerned that not enough input from public is happening and not enough openness in the process.

Public Comment must be received by February 28, 2018 sealevelrise@ci.pacifica.ca.us Please send your name, phone number and email so you can receive notifications from the coordinators. Questions being asked of "stakeholders" 1. How do you use Pacifica's coastal area and where? 2. What concerns to you have related to coastal erosion, storm damage/flooding, sea level rise, and where? 3.What about Pacifica's coastline is important to you? 4. Please list any concerns you have related to the development of the Local Coastal Plan - Sea Level Rise Adaptation Plan. 5. Additional comments or feedback? The meeting tonight consisted of a PowerPoint presentation and the opportunity for everyone to put sticky notes on the coastal zone maps! Sticky notes!! No Q & A! If you have comments/concerns, please send them in asap. Please also copy the all Members of the City Council. Make sure your voice is heard!

13 Feb · 16 neighborhoods in General

From:
Sent:
To:
Subject:

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frank Monday, February 26, 2018 12:02 PM SeaLevel Rise Sea Level Rise committe -

I have no faith what so ever in the process that the city is going through. This "analysis" is being created/made up/reviewed by a group, ESA, who has already promoted the idea of a "Planned Retreat" process. This group was promoted by the majority of our current council members Keener, Martin specifically, who are antidevelopment of all types.

The city website does a great job of hiding that ESA, the same group who is running this "public" study group, was awarded the grant of \$188,000 for studying sea level rise in Pacifica.

Jim Steele who is on this committee and has an enormous amount of experience with this type of issue offers some absolutely fantastic input on the topic. Please review what he had to say in the My Turn article in the Tribune and comments he put forth in the committee.

I've been to many of these meetings so far. Questions put forth were leading questions and very much ridiculous and avoided the real topics here.

Another bad example of Pacifica's bad choices for city council and a result of a tainted election supporting Deidra Martin and forcing Mary Ann Nihart out of the election in 2016.

This council because of 3 members on the board will continue to make decisions that will hurt Pacifica's own stability for years to come.

Frank Vella

Starboard Commercial Montgomery St. Suite San Francisco, CA. 94103



From: Sent: To: Subject:

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Kevin McCluskey < com> com> Monday, February 26, 2018 5:22 PM SeaLevel Rise Sea level rise plan

As someone who owns a home in Fairway Park, I'm rather upset at the notion of "planned retreat". Why is the plan to simply surrender to the problem locally while the Chinese government is actively building islands in the sea and extending Hong Kong air port runways into the sea? The Netherlands have been successfully sculpting nature to fit its needs for many decades. They started with wooden windmills and simple canals. We have better technology than that.

Land this close to SF is far too valuable to just give up on.

From:	Kathleen Moresco <
Sent:	Monday, February 26, 2018 8:21 PM
То:	SeaLevel Rise
Cc:	Keener, John; Digre, Sue; Vaterlaus, Sue; O'Neill, Mike; Sue Digre (Contact); Martin, Deirdre
Subject:	Public Comment - Local Coastal Plan -
From: Kathleen Moresco Phone:	email:
1. How do you use Pacifica's coastal	area, and where:
We enjoy our beaches,our local resta All of the Pacifica coastline is beauti	urants and businesses. ful and attracts residents and visitors to enjoy nature and frequent our local businesses.
2. What concerns do you have related	to sea level rise impacts in Pacifica,
Concerned that The Plan will abando	n our homes and businesses in favor of managed retreat, forcing our city backward.
3. What About Pacifica's costal zone	is important to you?
What is important to me is the hope to consideration the value of our resider	hat the plan will be designed to protect people and property. I hope the plan will take into careful nts homes and businesses.
I worry about the adaptations that are strategy to prevent residents and busi	e under consideration, specifically managed retreat. I worry that managed retreat will be used as a ness owners from maintaining and improving their properties.
I am concerned that the current City businesses and actually force people become worthless. The designation v would be denied. Then what? Will the	Council will create policies that will cause our City be become less attractive to new residents and out. If homes and businesses are located in areas designated for managed retreat, they are will would be disclosed to potential buyers/financial institutions, permits for improving the properties he City buy them? Allow them to fall into disrepair and become inhabitable?
This City Council majority have alre money back!.) Everyday the commu	ady abandoned improvements to Highway 1 in support of "no growth" (They sent the Highway te is just miserable and they don't care! How can they be trusted to protect our community?

5. Do you have any other comments or feedback?

Yes, please consider how much our community has improved in the current economy. We have a desirable community, with increasing property values, new residents and new businesses. Homes are being improved, beautiful new homes are being built in West Sharp Park and Pedro Point.

These improvements should be seen as positive and worthy of protection.

Please do not destroy Pacifica!

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City council contact info: http://www.cityofpacifica.org/government/city_council/default.asp

To: Bonny O'Connor, Assistant Planner,

170 Santa Maria Ave., Pacifica, CA 94044,

sealevelrise@ci.pacifica.ca

Date: February 26,2018

From: Mary Ann Edson-Plumb

Roberts Rd.,

Question #1. How do I use Pacifica's Coastline:

Hiking on Lindamar Beach, Rockaway Beach, and the Mori Point trail and as well as along the Promenade by Sharp Park Beach and walks on the pier. Dining at Nick's, the Moonraker, and Puerto 27. In general, I enjoy the ocean view.

Question #2. What concerns to you have related to coastal erosion, storm damage/flooding, sea level rise, and where?

My concerns include:

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- 1. Ocean damage to Nick's and the Moonraker and possibly other businesses in Rockaway Beach.
- 2. Erosion of Lindamar and Rockaway beaches.
- 3. Erosion along Beach Blvd. affecting the promenade, Beach Boulevard and the homes along Beach Boulevard and Esplanade.
- 4. Erosion of the earth berm protecting the golf course and the homes of West Sharp Park and Fairway Park.
- 5. Erosion that eventually would threaten the new downtown area on Palmetto.
- 6. Erosion affecting our sewers, roads, and infrastructure.

Question 3. What about Pacifica's coastline is important to you?

Response: Protecting homes and businesses as mentioned above is more important to me than Sharp Park Beach. The pier and promenade will continue to make that area scenic. The beach itself is very exposed and lightly used. Saving Highway One and Pacifica's infrastructure is important to me. Pacifica needs to be liveable, not just some sort of environmental exemplar.

Question 4. Please list any concerns you have related to the development of the Local Coastal Plan - Sea Level Rise Adaptation Plan.

Response: I'm concerned that ESA has a history of advocating managed retreat and that a majority of our City Council selected ESA for precisely that reason. I'm also concerned that this will lead to a loss of home values in the affected areas. This could result in expensive law suits, bankrupting our already fiscally-endangered City.

I'm also concerned that the identification of hazard areas is not specific enough. Individual street addresses are not supplied. Asking homeowners to contact staff to find out if they are included seems like a rather secretive way to go about it.

From: Sent: To: Subject: Tiffany Seagren <tool>
Monday, February 26, 2018 8:09 PM
SeaLevel Rise
Concerned homeowner in vulnerability zone

My concerns are as follows:

Will I be able to make necessary improvements to my home that would require getting permits? Or will permits no longer be issued?

Will the city be liable for lost property value?

What is going to be done to protect homes from sea level rising?

Can there be an assessment be done on the economic prediction of the impact of manage retreat to our great city of Pacifica?

And lastly, can we revisit the Sea Level rising every 10 years to confirm that the predictions of water level is rising to great lengths? To abandon our city in such an abrupt fashion would be devastating to our local businesses, schools and community!

Sincerely,

Tiffany

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Sent from my iPhone

From:	Victor Spano <
Sent:	Monday, February 26, 2018 12:59 PM
То:	Connie
Cc:	Robine Runneals; Wehrmeister, Tina; Woodhouse, Kevin; O'Connell, Kathy;
	Patrick.Foster@coastal.ca.gov; lisa.wayne@sfgov.org; spencer.potter@sfgov.org;
	marc.hershman@sen.ca.gov; kevin.mullin@asm.ca.gov; dpine@smcgov.org;
	cgroom@smcgov.org; Don Horsley; wslocum@smcgov.org;
	susan.m.ming@usace.army.mil; Sherman Frederick; O'Connor, Bonny;
	pguzmanus@yahoo.com; jamesnkremer@gmail.com; ms.mo.garcia@gmail.com;
	julie.a.lancelle@gmail.com; balesl@icloud.com; Samuel Casillas; ldcunha16@gmail.com;
	Cindy Abbott; themaykelfamily@sbcglobal.net; krishnaswamy.shalini@gmail.com;
	tynipac@gmail.com; gtannura@gmail.com; jsteele3@ix.netcom.com; Eileen O'Reilly L.
	Your Personal Realtor
Subject:	Re: Pacifica SLR Study -CWG Follow Up Requests

To whom it may concern:

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I concur with and echo Connie Menefee's requests.

Victor Spano President, Pacifica Chamber of Commerce

On Mon, Feb 26, 2018 at 11:39 AM, Connie <<u>constellation747@comcast.net</u>> wrote: Dear City of Pacifica officials, representatives and SLR/LCP consultants, *et al*:

As a Pacifica resident and member of the Sea Level Rise Community Working Group, I concur with fellow member Robine Runneals' observations and analyses contained in her **February 21, 2018 letter** to Ms. Wehrmeister, Mr. Woodhouse and Pacifica City Council and <u>join her information & document requests</u>, <u>requests</u> for an additional joint CWG and Public Workshop meeting *and* for an extension of time for public comment.

Respectfully submitted, Connie Menefee

On Feb 22, 2018, at 10:18 PM, Robine Runneals <<u>pacfam5r@pacbell.net</u>> wrote:

To, The City of Pacifica City Manager, Planning Director, and City Council Members.

Thank you in advance for your attention to my letter.

Respectfully,

From:	Brenda Storey <
Sent:	Tuesday, February 27, 2018 8:52 PM
То:	SeaLevel Rise
Subject:	Pacifica Sea Level Vulnerability Assessment

To whom it may Concern:

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I wanted to ask some questions and express some concerns about the vulnerability assessment and the process of engaging the affected community.

While the addresses of the impacted homes have not been released, as homeowner in the Fairway Park neighborhood, it seems pretty clear from the maps shown that my home will be affected.

What is the scientific evidence and studies that have been used to identify these vulnerable areas? Why is the City using drafts as data sources such as the "army Corps of Engineers and Coastal Sediment Management Workgroup rather than established and adopted government data sources. The report is not considering the current mitigation efforts such as the Bern and the existing seawalls to evaluate vulnerability- why is this?

The zone that is considered vulnerable represents 80% of the economic base of Pacifica. How will Pacifica survive if it looses 80% of it's tax base? I will strongly suggest that the Pacifica City Council order a study of the financial impact . Why not consider armoring the areas by maintaining the Berm and having seawalls and as necessary bringing in sand for the affected beaches?

Is Pacifica planning to do an unjust taking of my property? Will the City Government use the Market Rate value of my home rather than the property value ? Will restrictions be placed upon my home and what will those restrictions be?

3 I urge the Pacifica City Council to slow down the process and let the Coastal Commission Come up with the Residential Adaptation Policy Guidance.

I also feel the public has not been informed about this process and many will be taken by surprise. It is the City Council's responsibility to conduct wide outreach to the home and business owners and renters that will be directly affected by this.

I eagerly await your response to my questions and the opportunity to be engage in significant discussions on this issue.

Sincerely,

Brenda Storey Fairway Drive

From:	Cherie Chan <c< th=""><th>com></th></c<>	com>
Sent:	Tuesday, February 27, 20	18 9:08 AM
То:	SeaLevel Rise	
Subject:	Public Comments on Dra	ft Sea Level Rise Vulnerability Assessment

1) How do you use Pacifica's coastal area and where?

I live within the Coastal Zone, on San Pedro Avenue in Pedro Point. We walk to the Linda Mar beach daily, using the long-standing path established during the parcel's original ownership by the Archdiocese of San Francisco.

We frequently host house-guests and friends from the inland areas, who seek use of Pacifica's cool, friendly beaches. Together, we frequent these visitor-serving businesses along the coast. When these businesses are not open, we take our visitors to spend money in Half Moon Bay or San Francisco.

2) What concerns to you have related to coastal erosion, storm damage/flooding, sea level rise, and where?

I want to ensure that the public continues to have access to the coast, that studies use more complete, publiclyavailable scientifically-vetted data when making its evaluation, and that we thoughtfully conduct long-term planning which takes into account such real threats.

The federal and state agencies charged with overseeing our coast and property already provide a number various risk assignment factors, which must be incorporated into this report.

3) What about Pacifica's coastline is important to you?

That its beauty and recreational value be a resource be developed to encourage remain an asset, economic engine and visitor-serving destination that is enjoyed by citizens throughout the Bay Area.

4. Please list any concerns you have related to the development of the Local Coastal Plan - Sea Level Rise Adaptation Plan.

A) Wetlands are Missing: Page 30 discusses Data Gaps, and notes that "ESA has information on shoreline habitats, wetlands, and streams from the County study (SMC2017) and the National Wetlands Inventory managed by USFWS." That said, the report doesn't include this readily-available, information, which can be easily obtained through publically-available shape files. At a minimum, the ESA report should include parcels from the National Wetlands Inventory (<u>https://www.fws.gov/wetlands/data/Mapper.html</u>) which maps out federally-designated wetlands, to be taken into account when updating any LCP. For example, the large vacant lot in Pedro Point is a federally-designated wetlands: an officially designated wetlands PEMAH/ PUSCh.* this should be included, as <u>wetlands are a critical component of flood mitigation (https://www.epa.gov/wetlands/why-are-wetlands-important</u>): overlooking this designation in favor of a new land use designation modified to allow for non-permeable development puts existing houses and properties at new risk which would not exist but for the removal of the critical wetlands protection.

If the following risks are not noted elsewhere in the GPU Update Draft, they should be included in this vulnerability assessment:

B) Known Liquefaction Risk Zones should be factored into the assessment:

<u>http://www.cityofpacifica.org/images/Departments/Police/seismic.jpg</u>. The City must include pre-existing, known, publicly posted risk factors such as the seismic risk factors map linked a above.

C) **Soil Types** should also be included as a factor to be considered and documented in this document, especially if it is not included in the GPU:

Pacifica features several areas with Soil Types D and E, which include water-saturated mud and artificial fill. These areas, according to the USGS, will experience amplified shaking due to the nature of the soils.** As

such, shaking on certain parcels will be significantly amplified due to soil types, and should be a consideration when devising a LCP and assessing risk.

2 (Cont.) D) Active Earthquake Faults should be included including Pilarcitos Fault, which runs through San Pedro Valley and exits at San Pedro Creek. (<u>http://earthquake.usgs.gov/regional/nca/soiltype/map/</u>) and the San Andreas Fault.

5. Additional comments or feedback?

The report cites difficulty obtaining information from PG&E, the local gas and Electric utility provider. The City of Pacifica should be encouraged to work with the City of San Bruno to compel PG&E to provide these documents, if indeed they are a vital part of ESA's Analysis.

Thank you, citizens and staff, for your hard work in helping protect our city and resources from the inevitability of climate change!

* PEMAH/ PUSCh.

**Description for code PEMAh :

P PALUSTRINE:

EM EMERGENT:

A WATER REGIME Temporary Flooded:

h SPECIAL MODIFIER Diked/Impounded: These wetlands have been created or modified by a man-made barrier or dam which obstructs the inflow or outflow of water.

PUSCh

US Class UNCONSOLIDATED SHORE:

C WATER REGIME Seasonally Flooded: Surface water is present for extended periods especially early in the growing season, but is absent by the end of the growing season in most years. The water table after flooding ceases is variable, extending from saturated to the surface to a water table well below the ground surface.

h SPECIAL MODIFIER Diked/Impounded:

**From maps of quarernary deposits and liquefaction susceptibility in the Central San Francisco Bay Region, California. Liquefaction Susceptibility geology by Witter, Knudsen, Sowers, Wentworth, Koehler, and Randolph, 2006. <u>http://earthquake.usgs.gov/regional/nca/qmap/</u>

Click <u>here</u> to report this email as spam.

From: Sent: To: Cc: Subject: Ciyavash Moazzami < Tuesday, February 27, 2018 8:07 PM SeaLevel Rise Tiffany Zammit Sea Level Rise & The Local Coastal Plan

Dear Bonny,

I write you on behalf of the Moazzami & Zammit family residing at Montecito Avenue in Pacifica. My wife and I recently moved into our new home after years in the making. My wife, Tiffany Zammit and I ,Ciyavash Moazzami, and our two children are proud to now call West Sharp Park our home. Tiffany was born and raised in Pacifica and we plan on raising our kids and hopefully grandchildren in this town.

We are writing to express our opinion and concern with a few of the potential outcomes that may come about as a result of the update to the local coastal plan and the city's position on Sea Level Rise.

In our humble opinion Sea Level Rise does not mean we to run to the hills or central valley and vacate our homes and assets. Not protecting the businesses and homes on our coastline only results in pushing people farther and farther out. Building on greenfield and our agricultural core means farther commutes, a decline in well being all while leading to more emissions and expediting global warming and sea level rise. Building in the urban core, protecting our shores (economic base), housing people closer to where they work, and being smart about consumption are by far better principals of environmental stewardship.

We also spend lots of our time enjoying the coastline and spend most of our money at businesses that are west of Highway 1.

Please protect our coastline, our livelihood and homes.

Best,

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Ciyavash Moazzami & Tiffany Zammit ■ Montecito Avenue Pacifica, CA 94044

From: Sent: To: Subject:

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Carol Zammit < Tuesday, February 27, 2018 8:39 PM SeaLevel Rise Rising levels on ocean

Hopefully our city will not abandon our coastal home and business owners without protection from the rising sea levels. This is not the response my town would give to it's property owners. My kids live in Sharp Park and this would impact them and many other people as well . Nicks restaurant and many other businesses would be affectedplease come up with s better plan. Regards,

Carol Zammit

From: Sent: To: Subject: Fran Quartini < net> Tuesday, February 27, 2018 7:41 PM SeaLevel Rise Comments

How do I use the coastal regions? I help the PBC clean up beaches which is important to me. I'm a retired Pac. Teacher and donate time weekly at Ocean Shore mainly environmental Ed/ocean study. Today we had 2 second grade classes on LM beach studying the snowy plover w/shorebird alliance. I walk the beaches (Shp Park too) often, I love the open spaces, as do my family and friends. We love that it's accessible. No developments/houses. Sea level rise? Hopefully we can maintain shore access. Walkers/bikers only. No cars. That's my 2 cents. Thank you for all you do.

Sent from my iPhone

From: Sent: To: Subject:

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Gina Zari Tuesday, February 27, 2018 7:47 PM SeaLevel Rise Questions and Comments on Vulnerability Assessment

I have the following comments and questions.

- 1. Why is Pacifica working on Sea Level Rise in its LCP when the California Coastal Commission has not even completed its Residential Adaptation Policy Guidance?
- 2. Why does the City use drafts meaning that they have never been adopted by a government agency as data sources, such as the "Army Corps of Engineers & Coastal Sediment Management Workgroup San Francisco Littoral Cell Coastal Regional Sediment Management Plan, DRAFT 2016"?
- 3. Why is the City's consultant, Bob Battalio, who's writing the Sea Level Rise Vulnerability Assessment, citing his own un-adopted policy from 2016?
- 4. The California Coastal Commission's Sea Level Rise Policy Guidance says that the "best available science on Sea Level Rise in California" is the National Research Council's (NRC) Sea Level Rise California, Oregon, and Washington Past, Present, and Future. Why doesn't Pacifica's Vulnerability Assessment use the NRC's study?
- 5. Why does Pacifica's Vulnerability Assessment fail to state that the CCC's decision on the Sharp Park Berm was to maintain it in the future?
- 6. What happens if a home is drawn into the red area along the coast? What policies will be different for homes in the red zone than from other homes in Pacifica?
- 7. Will restrictions be placed upon homes in any of the identified zones? What are those restrictions?
- 8. What does it mean if a home is drawn into the storm-flood area? What policy differences will these homes face?
- 9. What are the economic ramifications of being in the drawn into one of the zones by the City?
- 10. When properties lose value because the City draws them into one of the vulnerability zones, will the City also lose revenue?
- 11. Will the City be liable for lost property value?
- 12. Will homeowners in any of the red vulnerability zones be able to get insurance? Will they be able to get a loan? Will their property values drop?

1 (Cont.)

- 13. Can the LCP go to a vote of the people?
- 14. Armor the coast, protect the homes, truck in sand twice a year.
- 15. Why is the Vulnerability Assessment focused on Sea Level Rise, when the problem Pacifica has experienced is coastal erosion?
- 16. What are you going to do to protect the homes from Sea Level Rise?
- 17. Why has there been no discussion of armoring the Coast to protect the communities west of Highway 1?
- 18. Why did the Pacifica City Council hire a consultant, Bob Battalio, who had previously been recorded on video expressing his view that Pacifica should pursue "managed retreat"?
- 19. What mitigation will be under consideration to protect Pacifica homes from coastal erosion?
- 20. What armament can protect the coast from Sea Level Rise? Coastal erosion?
- 21. Ventura, Los Angeles, and San Diego are the most heavily armored California counties to protect residents from the ocean. Why is San Mateo County not among those counties?
- 22. How can the City close the public comment period when the City has not released the addresses or assessed values?
- 23. The Pacific Institute study was issued in 2009. Why is the City using 9-year-old data? Is there no newer information that can be used?
- 24. What is the next step in this process?
- 25. Will property owners in the red area be able to maintain their homes, get permits from the City, and remodel or replace their roofs?

Gina Zari

GOVERNMENT AFFAIRS DIRECTOR

Woodside Way, San Mateo, California 94401 www.samcar.org | www.facebook.com/samcar.fans



From: Sent: To: Cc: Subject: Joseph Erasmy Tuesday, February 27, 2018 1:08 PM SeaLevel Rise O'Connor, Bonny Pacifica Draft Sea Level Rise Vulnerability Assessment--Comments

Ms. O'Connor,

Subject to further study and public participation, I am strongly opposed to a "managed retreat" strategy within the red line areas west of Highway 1 as indicated in the draft Sea Level Rise Vulnerability Assessment prepared by ESA and dated January, 2018 for the following reasons:

1. Economic impact on the City of Pacifica relating to the loss of approximately 80% of the City's business community that is located within the red line areas.

2. Immediate loss in property values upon adoption of the "managed retreat" plan by the City of Pacifica.

3. Significant reduction in the availability of real estate financing and property insurance.

4. Loss of housing stock with no offset being proposed.

5. In effect, the unjust taking of private property without just compensation.

As a business owner in Pacifica, I believe a reasonable solution would be the shelving for a period of ten years of the proposed "managed retreat" in dealing with Pacifica's sea level rise vulnerability. This will allow adequate time to complete a more in-depth sea level rise study, increased public input, and most importantly, gives sufficient time to answer the question of Pacifica's financial vulnerability resulting from implementation of "managed retreat" and resulting loss of revenue. This is a key question that must be answered before any sea level plan is finalized by the City of Pacifica.

Joseph Erasmy Palmetto Ave. Pacifica, CA 94044

Click here to report this email as spam.

From:	Josh Richman <
Sent:	Tuesday, February 27, 2018 9:36 PM
То:	SeaLevel Rise; Keener, John; Vaterlaus, Sue; Digre, Sue; O'Neill, Mike; Martin, Deirdre
Subject:	Re: SLR Public Workshop Comments

1. How do you use Pacifica's costal area, and where:

I walk the pier / seawall / promenade daily from Paloma to Mori Piont. I use the pier to fish off of and watch the sea life. The Promenade is a social gathering place for neighbors, we watch sun sets, walk dogs, hike, it's the entire reason we live here, invest here and work near here.

2. What concerns do you have related to sea level rise impacts in Pacifica, and where:

My concern is that Pacifica city council is not interested, intune or instep with what makes Pacifica desirable and valuable or what its residents want.

The sole reason to even visit Pacifica is to walk along the pier / seawall / promenade. That's it. The idea of retreat is an alarmist defeatist approach that is out of touch with the value of Pacifica and it constituents. We don't want to hear managed retreat, we want to hear managed revitalization! We need an aggressive plan to reinvent, enhance, revitalize Pacifica.

Otherwise you drive past Pacifica to communities who know, see and capitalize on the value. Pacifica has the potential to be the "Carmel close to the City" but we have to act and invest. Make Pacifica even more desirable, accessible and beautiful. We want to attract better restaurants, like Oakland with their trendy food startups.

My concern is that Pacifican's and those in charge of it's growth are sorely missing the opportunity to make it a better place. The sea rise should not be the biggest concern on the radar with the growth and investment potential of and internationally desirable beach front.

Sea wall must be valued, maintained, improved upon and understood as THE single most important reason anyone comes to Pacifica and why we live here.

3. What About Pacifica's costal zone is important to you?

The entire costal zone is priority number one. Managed retreat is a terrible idea that screams we give up. Drop that plan and start a plan of managed revitalization!

4. Please list any concerns you have related to the sea level rise adaptation plan and LCP Update process.

- Protection, maintenance and reinforcement of the seawall / promenade
- Value of our homes

1

- The outcome will either drive people to Pacifica or away from it.

5. Do you have any other comments or feedback?

Bury all the power lines in west Sharp Park, which would make:

- Pacifica much more beautiful
- Immediately make it more desirable and valuable
- Value would increase and thus property values and property taxes would increase.

Joshua M. Richman UX Design Research & Strategy

USER EXPERIENCE | HUMAN FACTORS | VISUALIZATION

From: Sent: To: Subject: jim wagner < Tuesday, February 27, 2018 12:53 PM SeaLevel Rise comments on vulnerability phase

First of all this process feels rushed as if we are under a deadline. It should be made clear if we do or do not have a deadline.

How can you assess vulnerability if you don't know the properties involved. The boundaries included are vague. What will happen to a property next to a property inside your line? who makes these determinations? I see there are areas that are within the boundary that are high above the water line, i.e. Mori Point, Pedro Point. How is this reconciled? Have you taken into account the impact any official "designation" my have on insurability or ability to lend to properties within your zone? Who and how will you arrive at values?

Thank you,

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Jim Wagner

From: Sent: To: Subject: Marisa Beck < com> com> Tuesday, February 27, 2018 8:43 PM SeaLevel Rise Sea level concerns

Hi there,

1

I am very concerned about the rising sea levels. I live near the ocean on Shoreview Ave and love my neighborhood. We are so lucky to see and hear the ocean waves everyday. I love riding my bike, running and walking on the paths near the pier and out to Mori point. I really can't imagine life without access to these areas. I am hopeful that the local coastal plan will provide information and tell us how we can help save our community.

Thanks, Marisa



February 27, 2017

To. City of Pacifica

RE: Sea Level Rise Vulnerability Assessment

There has not been the time nor the effort by ESA or the City of Pacific to explain the consequences of this assessment, if passed, to the residents of Pacifica and certainly not to the businesses that will be directly affected. I would expect, for such an economically devastating plan, a 100% majority vote be needed to pass by the City Council.

There is no evidence that rising sea levels cannot be reversed by acting to combat global warming. Plus, it is a property owner's right to protect their property and by passing this, you take that right away.

Please be sensible and not rush this through. There may be compromises that we all can live with.

Marty Cerles

General Manager

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Lighthouse Hotel

Rockaway Beach Avenue, Pacifica, CA 94044

Reservations: (800) 832-4777 bestwesternlighthouse.com

From: Sent: To: Subject: Marissa Wat < Tuesday, February 27, 2018 7:53 PM SeaLevel Rise Sea wall

To whom It May Concern:

I am a resident of the fairway park neighborhood. I live close to Mori Point and i utilize the trails and the sea wall daily. I also see every weekend and holiday the large amount of tourists this area attracts.

>

Without the sea wall, a large amount of this recreational area will perish. I believe that is in the city's best interest to maintain the sea wall because it attracts a large number of people to Pacifica (good for businesses) and provides recreational activity for its residents (happy people).

Sincerely, Marissa

Sent from my iPhone
From: Sent: To: Subject: Paul Kuhn < Tuesday, February 27, 2018 8:44 PM SeaLevel Rise Input regarding the sea level rise plan

As a resident of Linda Mar and coastal citizen, I am alarmed that any course of action other than hard protection is being considered. There is no hard data for the amount of sea level rise. Any retreat strategy is flawed in its reasoning without actual hard actual data, provided by actual events. Any retreat strategy is prematurely condemning the property rights of those citizens and property owners in the entire community, and especially in the Linda Mar area. Should sea level rise actually occur consistently, opportunities for levees and pumping may be viable. If the Dutch can engineer solutions for their country, surely we as a city, county, and state can engineer a solution to this as yet to be realized possible event.

Sincerely, Paul Kuhn Oviedo Court Pacifica

Sent from my iPad

Sue Spicknall Eldredge Paloma Avenue, Pacifica, CA 94044 (M)

27 February 2018

Bonny O'Connor **City of Pacifica Planning Department** City of Pacifica City Hall 170 Santa Maria Avenue Pacifica, CA 94044 Via Email: <u>oconnorb@ci.pacifica.ca.us</u>

Re: LCP – Local Coastal Plan – Sea Level Rise Vulnerability Assessment

Dear Ms. O'Connor:

First off, I do want to thank you and all who work for the City of Pacifica. I am grateful for your service and believed that <u>you have always had ALL Pacifica residents and businesses best</u> <u>interest at heart</u>. Therefore, when I learned that the City of Pacifica is seriously considering a "managed retreat," which will SERIOUSLY jeopardize not only the homes that have been marked in the "red zone," but all homes and businesses from the highway to the beach – I was shocked and deeply alarmed.

I understand no addresses have been issued as to the zone in question; however, given my proximity to the ocean – I can only surmise that my home is in jeopardy. As a Pacifica resident for the last 18 years and now having suffered the loss of four of my family members (2 children, husband and mother) over the last two years – the one thing life has taught me is that sustaining life takes preeminence over all other considerations. Believe me if you have a choice between going to a beach for a leisurely outing or having one more meal with someone you love in your own home – there is no choice to make!

I am shocked that the concept of demolishing homes and businesses to provide more beach area is even a viable consideration. It's not like our weather is conducive to sunning ourselves on the beach for any given number of months out of the year. And even it that were the case – how can one's leisure habits take precedence over whether or not one has a roof over their head at night or a business that provides for the economic growth and sustainability of a community?

I do appreciate that you have agencies that you are responsible to and that are part of the oversight for the City of Pacific's well-being. However, based on the information I received, the studies that serve as the guidelines that these determinations are being based on, are not reliable, and are themselves only in the DRAFTING stage.

Ms. O'Connor City of Pacifica Planning Department 27 February 2018 Page no.2

It's my understanding that a study has not been done since the 1980s and now the City of Pacifica wants to implement this plan by the end of this year with no time to research and find truly reliable information – especially over time - makes no sense. What's the rush? By all means do a study. And have it reviewed again every five or ten years as conditions indicate. What is driving this push for immediacy? The sea level is certainly not going to rise to such incredible heights by the end of the year and in all likelihood not for several decades IF AT ALL. This is speculation.

I cannot understand how displacing hundreds of residents, who probably have worked very hard to even purchase and maintain their homes and businesses can be a win-win for Pacifica. How can this not even more severely impact Pacifica's economic growth? What inducement would Pacifica offer to the rest of the world to come here and live and build a home or business? How can this not produce panic? For one to lose their home's value, which is most of our biggest lifetime asset, have to pay increasing property taxes and then turn around and not even be able to repair the roof because the property has been labeled "non-conforming" and be additionally burdened with its tear down and removal– someone needs to explain how this in any way builds a community. To me it just spells fear and disaster.

There have to be other solutions available, but this "rush" to implementation without adequate time and information is egregious. At the very least the people of Pacifica should have a chance to be able to vote on this issue and not have such a huge impactive decision rest on just the shoulders of a few.

I implore you – please reconsider this plan of action. There have to be working groups that can be formed to help ascertain all the facts. There have to be ways to protect the homes along the coast. There have to be ways to re-invest into the people and businesses in the City of Pacifica that can build rather than destroy.

Sincerely,

Sur fillduke

Sue S. Eldredge

From:	
Sent:	
To:	
Subject:	

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Tuesday, February 27, 2018 8:14 PM SeaLevel Rise Pacifica Sea Level Rise Vulnerability Assessment Draft

Pacifica Sea Level Rise Vulnerability Assessment Draft Questions to the City Council Members:

- 1. Why isn't the city using actual "scientific studies" as compared to "drafts"? It seems to me that the city would want to use scientific and verifiable studies (like the National Research Council) and a significant number of similar studies to get a sense of consistent predictions among them, which would enable planning for possibly more options that might be based on different levels of severity—why isn't the city doing something like this?
- 2. Is sea level rise the only issue that Pacifica might face? Why is the city only planning for one issue?
 - 3. To what extent is the city planning to keep its citizens aware of the scientific updates regarding what is possible or the consequences of climate change? And, to what extent is the city planning to keep its citizens aware of the different options to address the consequences of climate change that are available to us from around the world?
 - 4. What cities, either in the state of California or other nearby states, have created plans that incorporate or allow for both the protections of beaches and the armoring of the coast?
- 5. Why isn't the City Council doing more to advertise this process, so many neighbors are totally unaware of this issue?
 - 6. Why isn't the city waiting until the California Costal Commissions Sea Level Rise Policy guidelines are clearly articulated and submitted to the municipalities before engaging in this process?
 - 7. Why is the city using Bob Battalio as both a consultant and as the sole reference for the adoption of policy?
 - 8. Will the people be able to vote on the final policies regarding this matter?

Click <u>here</u> to report this email as spam.

From: Sent: To: Subject: B. Bodisco < Wednesday, February 28, 2018 6:40 PM SeaLevel Rise response to Pacifica SLRVA Draft

Hello,

1

I have several comments with regard to the Sea Level Rise Vulnerability Assessment Draft.

Here are my comments:

1) What happens if property and business' are drawn into the red area along the coast? How will the policies for the red-zoned properties differ from the rest of Pacifica?

2) Will restrictions be placed upon homes in any of the identified zones? What are those restrictions?

3) When the properties lose value because the City draws them into one of the vulnerability zones, will the City also lose revenue?4) Will the City be liable for property and business loss?

5) What will the City do to protect the homes from Sea Level Rise? Should people sell homes and my business' right away?

6) I don't know of any discussion of how the City will armor the coast to protect communities west of Highway 1. Right now it looks to me that it's a Managed Retreat or a Do Nothing approach. Either option does nothing to protect property rights and will surely bankrupt the City.

7) Will property owners in red zones be able to maintain their homes?

8) What is the next step in this process?

I believe Pacifica is held captive economically by a core group of unreasonable environmentalists who do not want to deal with intellectual honesty. Sea levels have risen and fallen long before modern man, industrialization, and blaming global warming on man's actions. No one can determine sea levels now or in the future not even the "experts" let alone this City.

I would like to be advised of all news related to the SLR Vulnerability Assessment draft. Thank you for your time.

Brett Bodisco Alicante Drive

Click here to report this email as spam.

From: Sent: To: Subject: Bill Chan Wednesday, February 28, 2018 9:10 AM SeaLevel Rise re: Managed retreat

Officers,

1

I think that the idea of allowing our community to fall into the ocean is ridiculous!

It is the city's responsibility to defend the ocean side against natural forces. And this program is completely premature being that it is years before the sea level rises to harm anything.

Please do everything you can to avoid rubbing home owners & business owners of their property rights, depleting their property value & help us defend the shoreline!

Bill Chan

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From: Sent: To: Subject: Carol Camacho < Wednesday, February 28, 2018 10:02 AM SeaLevel Rise Sea Level Rise

Hello,

1

In moving forward with the LCP, I hope that strategies taken, in compliance with the Coastal Commission under the Coastal Act, will also take into consideration more effort in strategies on the future economy of the city and it's infrastructure which seems not mentioned or addressed enough in public.

Compassion is definitely absent here and that is what our residents need more of from the council and the consultants driving this plan for adoption. You really need to whole heartedly address your citizens when asked to and not evade them when things get tough or too hard to answer. Do not assume they are stupid because that is the perception from some. Be prepared for the hard questions, not just the ones you are being prepped for.

Seems the ultimate far future of this city may not exist one day, but currently not in our lifetime or *unpredictably* beyond.

I've always thought that the CCC has too much power and should be more supervised by the government.

Thank you, Carol Camacho

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From:	
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Subject:	

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Wednesday, February 28, 2018 5:00 PM SeaLevel Rise Sea Level Rise Comments/Questions

Hello City of Pacifica,

I saw the maps in the Vulnerability Assessment, but the maps were too small to make sense of the exact boundary lines. That makes it unclear who's property falls into the Coastal Hazard Exposure zone. If people don't know whether they're affected, how can they be expected to become involved in trying to protect their interests? Can you please present a map with the exact boundary lines which are clearly visible by street names?

There is a tremendous cost to property and business owners from potential sea rise. A sea wall at the most vulnerable areas would benefit property owners as well as the City. It seems logical that the City would first calculate the potential financial losses in each zone, and then work with the at-risk homeowners and business groups to create a sea wall. Wouldn't a comprehensive financial impact study be necessary in order to make the best decisions regarding how to protect property/businesses?

Some are concerned that a seawall would move sand away from the beaches in a way that would be undesirable for beachgoers. How much would it cost to truck in the sand that a seawall would displace on a semi-annual basis? Wouldn't that be far less expensive than losing homes and businesses in impacted areas?

If the City doesn't build a sea wall to protect the vulnerable property, and the full vulnerable zone is permanently flooded, what would be the City's loss in property tax, sales tax and other business taxes? By comparison, what would be the cost of building a sea wall, and then trucking in sand every 6 months?

Estimates of the speed of sea level rise are all over the map, mostly depending on who sponsors the study. The sea level rise estimates in the Vulnerability Study show a slow rise though 2017, then a very sharp rise starting in 2018 for the next 200 years. Many scientists believe that the sea rise is cyclical, and will likely slow and/or reverse over the coming decades. Pacifica seems to be leading the charge to define vulnerability zone, which could drastically reduce property values in the zone. Owners might not be able to borrow against their properties, or sell them without great difficulty. Shouldn't the sea level rise be closely tracked for at least another 10 years before taking such drastic steps? Can't his issue be revisited by the City periodically, such as every 10 years, rather than defining a Vulnerability zone now?

I'm told that the existing calculation of potential financial losses uses <u>assessed</u> values for buildings in the proposed vulnerability zone. Many of the structures were purchased decades years ago, which means the assessed values are far below their market values. In order to be meaningful, shouldn't all assessments be indexed to a measure of housing inflation (not a more general CPI which would be lower)?

The 300 block of Esplanade has already lost residential rental property. If that cliff is not reinforced, it will continue to erode and reach the apartments on the other side of Esplanade. I own one of those buildings, and would like to see how the property owners can extend the life of the cliff, and by extension, my property. Several of these rentals serve lower income residents of Pacifica. Owners would undoubtedly be interested in some cost sharing with the City in order to extend the lives of the buildings. What would be the best way to explore our options?

Thank you,

Chuck Rategan

1

From:	Cheryl Yoes
Sent:	Wednesday, February 28, 2018 11:27 AM
То:	SeaLevel Rise
Cc:	O'Neill, Mike; Digre, Sue; Vaterlaus, Sue; Keener, John; Martin, Deirdre
Subject:	Sea Level Rise

Dear Pacifica Sea Level Rise Committee,

Please stop Managed Retreat. We are very concerned about the possibility of adopting such a policy in the coastal residential and commercial areas of Pacifica – Pacific Manor, Sharp Park, Fairway Park and Linda Mar. We understand that there are areas that will not be protected, such as coastline below Mori Point, but to put our community west of Highway 1 at risk is criminal.

Managed Retreat may be less expensive in the short-term but will be very, very expensive in the long-term. The willful failure by the City of Pacifica to protect the infrastructure it created to support and make possible private property ownership is a lawsuit waiting to happen. Who is going to pay for it? Who is going to pay for the loss of property and property values promised by the City's infrastructure?

Why have the possibilities been kept at such a low profile? This concerns all Pacifica residents; they need to know the fiscal ramifications of the City of Pacifica adopting such a policy.

Thank you for your consideration.

Pete and Cheryl Yoes West Sharp Park Property Owners

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From: Sent: To: Subject: Anderberg Family Wednesday, February 28, 2018 4:47 PM SeaLevel Rise stakeholder comment

To whom:

1

We live in West Sharp Park and walk and ride by our beach daily from the Promenade at beach Blvd down to Mori Point. We are concerned that the city has not maintained the seawall which allows erosion to undermine its safety. We are not nearly as concerned about sea level rise as the 100 year projections of 8 inches to 2 feet will have little to no impact if the erosion is dealt with properly. We believe that Pacifica's low lying coastline (as opposed to that of the cliffs) should be maintained and protected as a place for homes and businesses and recreation as people enjoy their right to life, liberty and pursuit of happiness.

Just as any interstate or bridge needs maintenance to continue being useful, the man-made structures in our area need basic maintenance to continue protecting the properties and public access surrounding our area. We find it shocking and angering that officials would ever consider abandoning general maintenance! "Managed retreat" is a vast over reaction to the normal erosive storm systems that have been hitting our coast as long as it existed.

While our City may balk at the cost of maintenance, the opportunity cost of abandonment or managed retreat will be far greater. Our city owns prime property that has sat vacant for years, undeveloped and an eye sore, but still costs tax payers to maintain. If abandoned, the city can never recover those costs. Property values will plummet if resale value of properties is called into question by managed retreat policies, not to mention the lost city investments in the coast trails and endangered species protective fencing, man-made ponds, etc. There are quite a few endangered species that enjoy the protection of the levee that would be lost to a brackish lagoon if the levee is no longer maintained and allowed to fall into disrepair.

People have been able to make this area well balanced for nature and people to live in harmony and still maintain beautiful aspects of both. We've been excited as we were beginning to see progress in this direction with the Palmetto Beatification Project and many more property owners investing in and improving their properties. Now is not the time to give up. As Engineering and technological innovations continue, there are always possibilities for replacement with better structures in the instances of sea wall failure.

In areas located in and around forests, the cities must plan for the likelihood of fires and take preventative action. It doesn't mean that people living there and owning property will no longer be able to enjoy the protection of city services. Such is the necessity for our area dealing with coastal erosion and the possibility of slight sea level rise.

In the Netherlands they have carved out an ability to win land from the vicious North Sea. They have adjusted as their needs have directed them, some suggesting that they will allow more lakes to catch sea water and river rises, but they will in no way abandon their innovative efforts saying it would be better if it all went back to swamps. Here in Pacifica we are not "taking land" from the sea. We are not below sea level. We are not dealing with a meandering river. We are merely asking the city and state to continue maintaining the land already here as is their ability and duty to do so.

Sincerely, Jeff and Pam Anderberg

Click <u>here</u> to report this email as spam.

From:	Lorraine Bannister
Sent:	Wednesday, February 28, 2018 7:26 PM
То:	SeaLevel Rise
Subject:	Pacifica Sea Level Rise Vulnerability Assessment

To whom it may concern,

1

I am writing to express my deep concerns for all homeowners of Pacifica. Why are these proposals, based on drafts and incomplete studies, being pushed through without a study of the economic impact such a proposal would have on our city? What happens if someone's property falls within these zones? Will restrictions be placed on said homes? If so, what will they be? As a local Realtor, it is my experience that very few of my fellow Pacificans are even aware of what is being proposed. Asking people how they enjoy are beaches is hardly an appropriate question especially If they realize by answering, walking their dog, they are putting their property in jeapardy. Please ask the LCP to go to a vote of the people. Respectfully, Lorraine Bannister Pacifica Resident

Lorraine Bannister Realtor Cal BRE#01119097 Better Homes and Gardens/JFF Realtors mobile

www.LorraineBRealEstate.com Facebook|Linkedin|Twitter

Click <u>here</u> to report this email as spam.

From:	
Sent:	Wednesday, February 28, 2018 9:23 PM
То:	SeaLevel Rise
Subject:	Pacifica Sea Level Rise Vulnerably Assessment Draft concerns

Dear Sirs and Madam,

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We are writing today with our deepest concerns on what this will mean to the loss of equity in our home and the financial impact this would have on small City of Pacifica.

We recently moved to this area in 2017 because of the beauty of the coast line and a safe place to raise our Family . We are concerned that the quality of life for all residents impacted and for the future of the Community and have some questions .

When Property values fall (severely plummet) on my street because of this red zone will the City also lose tax revenue?

Will restrictions be placed on my home in the red zone ? If so what ?

Will the City of Pacifica and County of San Mateo repay us for the loss of our property and our neighbors property values ?

Thank you for your time and please reconsider to revisit sea level issues only every 10 years, but we believe this is not the correct way or time to address this complex problem.

Sincerely , Pacifica Homeowners

Lance Sorensen Mindy Qiu ■ Carmel Ave Pacifica Ca

From: Sent: To: Subject:

1

Shanon Christiansen Wednesday, February 28, 2018 9:42 PM SeaLevel Rise Sea level rise

As a local resident for 10 years one of the major pluses of Pacifica is the area along Beach Blvd. What would Pacifica be without it. Not nearly as much. We need to develop a plan to save Beach Blvd and the residences and business in that area. The hotel project will bring needed revenue to the city and enhance the Main Street area

Shanon Christiansen Sent from my iPhone

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From:	Shirlee >				
Sent:	Wednesday, February 28, 2018 4:13 PM				
То:	SeaLevel Rise				
Subject:	West sharp Park area				
My husband, and now family, have invested in West Sharp Park since the early 1960's. We've been down-graded, and merged on several properties, etc. Many times we have wished we had made investments in Millbrae or Burlingame!					
As defined by the California Coastal Commission: "relocate or remove structures out of the hazard area" Where and at who's expense?					
"hold up permits for renovation in the area" We continuously upgrade our propertiesroofs, plumbing, electrical, etc. Does this mean our requests will be denied?					
Re-assessing our properties. At whose determination? How do we find out the correct assessment?					
We are extremely worried about th Living here since before incorporat in this "our" community, paying tax in schools and service organization leave an inheritance for our childre	is "managed retreat". tion, we have invested es and being involved ns. Our hope was to en.				
Can you realize how concerned we	e are?				
Shirlee Gibbs Brighton Road Pacifica, CA 94044					

Letter P43

RECEIVED FEB 2 8 2018 Xtv of Pacifica

Tom Thompson

Date: February 28, 2018

To: City of Pacifica 170 Santa Rosa Ave. Pacifica CA 94044 Attention Bonny O'Connor, Assistant City Planner

RE: Pacifica Sea Level Rise Vulnerability Assessment Local Costal Plan Update

Subject: My Public Comments and Questions

I have been a Pacifica Property Owner and Taxpayer for over 30 years. The following are my Public Comments and Questions regarding the Pacifica Sea Level Rise Vulnerability Assessment.

First, I am concerned about the Sea Level Rise Vulnerability Assessment currently underway in Pacifica. Indicators cause me to believe our city council may have approached the sea level rise study with a pre-determined outcome on the sea level rise study. That outcome possibly being adoption of Managed Retreat as a matter of policy in Pacifica. If official Pacifica policy is "Managed Retreat" we could be forced to sit and watch while sea rise and ocean storms intrude into our neighborhoods. Thus we might let the ocean destroy homes, apartments, businesses, jobs, golf course, recreation access, roads and extensive infrastructure. Adopting Managed Retreat in the revised Pacifica Local Costal Plan would mean environmental, economic and social bediam for Pacifica.

Second, please consider and respond to the following comments in the form of public comments and questions.

- 1) There was unprecedented secrecy in selecting members for Sea Level Rise Community Working Group.
- Why is this?

Why was it done this way?

- 2) The Sea Level Rise Working Group appears to be stacked with a majority of folks inclined to favor Managed Retreat.
 - Why?
- A representative of Kearns & West, the city's Sea Level Rise Vulnerability Assessment Consultant, has already stated in a video he supports Managed Retreat for Pacifica.
 - Why then were they chosen?

How were they chosen?

How much are they being paid?

- 4) The so called three "public meetings" on the Sea Level Rise Vulnerability Assessment have yet to allow for open public questions in any meaningful way, or for that manner in a way that actual public discussion(s) can occur on sea level rise.
 - Why not? Will meaningful public discussions ever occur? If so, when? If not, why not?
- 5) The potential affected areas shown on Kearns & West maps by possible sea level rise include literally everything West of Hwy 1 (Not a typo, everything West of Hwy 1). Additionally, other large areas East of Hwy 1 are included too, such as a huge portion of Linda Mar East of Pacifica State Beach. This all includes thousands of privately owned properties including homes, apartments, and businesses as well as publically owned golf course, recreation access, roads and massive infrastructure.

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February 28, 2018

Pacifica Sea Level Rise Vulnerability Assessment Local Costal Plan Update Tom Thompson Public Comments and Questions

Page 2 of 5

This is a staggering number of properties with a likely market value of possibly tens of billions of dollars (\$10,000,000,000++) that could effectively be condemned by a policy such as Managed Retreat. The city has so far actively resisted inventorying all the properties that could effectively be condemned by Managed Retreat. Why has the city thus far not provided an inventory & market value (NOT assessed value) valuation of the

5 (Cont.)

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properties shown in these maps? Why is the city closing public comment before the list of potentially effected properties has been released? Will public comment be re-opened when a list of effected properties is released?

Will the city provide such an inventory including market values of these properties? If so, when?

If not, why not?

6) It appears that Kearns & West consultants actively omitted existing resources from their maps that I reviewed online and at a public meeting. For instance I saw no Sharp Park Golf Course berm and no sea walls along Beach Blvd on the maps. It is hard to imagine consultants inadvertently forgot to show massive armoring such as 20+ feet berms as well as seawalls... in a sea level rise study.

Why were assets critical to armoring against sea level rise such a golf course berm, sea wall along Beach Blvd. and rip-rap actively omitted?

Will such critical assets be added to future maps?

If so, when?

If not, why not?

Will their maintenance costs be added to the study?

If so when?

If not why not?

7) In the event that the official policy of Pacifica was to become Managed Retreat, is it possible that Pacifica would no longer protect properties West Hwy 1 from ocean storms and sea level rise?

In case a policy of Managed Retreat is considered by Pacifica, I make the following observations and ask the following questions.

8) Properties with government financing in the potential new flood zones could possibly then face exorbitant annual flood insurance premium payments.

Would the city reimburse property owners for these costs?

- If so, where would the money come from? If not, why not?
 - 9) I have been told that permits for work on existing homes as well as permits to build new businesses and homes could be denied by both Pacifica and The Coastal Commission if they are within Managed Retreat maps. Is this possible?

Would the city reimburse property owners for resulting economic costs?

When?

How?

10) The properties in Managed Retreat flood zones would certainly become much less valuable. Financial losses to owners from devaluation could be enormous.

Would the city reimburse property owners for these losses? When?

How?

11) If Managed Retreat is considered, will the cost to property owners be calculated?

When?

How?

February 28, 2018

Pacifica Sea Level Rise Vulnerability Assessment Local Costal Plan Update Tom Thompson Public Comments and Questions Page 3 of 5

- 12) If Managed Retreat is considered, will cost to taxpayers for alternate infrastructure destroyed by managed retreat be calculated?
 - If so, how?
 - If not, why not?
- 13) Property and business tax revenues to Pacifica would certainly plummet as well if Pacifica adopts Managed 9 (Cont.) Retreat.
 - Has the city calculated potential loss in tax revenue over time from Managed Retreat? If not, why not?

If so, when will this critical information then be released?

14) Managed Retreat could mean the city might just watch sea level rise and storm damage happen and do nothing. The number one job of local government is supposed to be protecting us. Protecting our homes, kids, lives and property is supposed to come first. A policy of Managed Retreat could change all that. Please respond to how the city would deal with this should managed retreat be adopted.

Another concern is how to really measure past and future sea level rise. It appears to me that the RECENT SLR Graph and SLR Projections are both inaccurate and seriously exaggerated. I did extensive research and learned the following:

15) The best and closest proximity real data is from The San Francisco Tide Gauge Station near the mouth of the Golden Gate, in continuous operation since 1854. They have scientifically measured sea level at the Golden Gate for over 150 years. Their findings are that over the past century sea level at the Golden Gate has steadily and consistently risen just .19 millimeters per year. This is the equivalent of less than 8 inches of Golden Gate sea level rise every 100 years! Not a typo... less than 8 inches every century. I have enclosed a 4 page report on this United States Coast Survey and their data results, which show less than 8 inches sea level rise per century at the mouth of the Golden Gate. As we all know the Golden Gate is in extremely close proximity to Pacifica. I request this historical Golden Gate Sea Level Rise data and the enclosed report be made an official part of the Sea Level Rise Vulnerability Assessment and that the following be addressed in the report: Why was this critical, local and reliable ongoing data for 150+ years omitted originally by the consultants? How could this happen?

Is this possibly due to a bias to pre-select Managed Retreat? Or was it just another oversite?

16) The consultants SLR Graph shows that the lion's share of potential sea level rise comes from ice melt in Antarctica. However, a 2015 NASA study proves just the opposite is true. NASA is universally known to have the finest and most reliable scientists on our planet. *The NASA 2015 study proved Antarctica increases in ice are actually subtracting annually from sea level rise.* Not a typo, subtracting sea level rise! I request the enclosed summary NASA Study: Mass Gains of Antarctica Ice Sheet Greater than Losses be made an official part of the Sea Level Rise Vulnerability Assessment and that the following be addressed in the report:

Why was this critical 2015 scientific data from NASA omitted originally by the consultants? How could this happen?

It disproves erroneous assumptions by the consultants.

Is this possibly due to a bias to pre-select Managed Retreat?

Or was it another oversite?

Note: I had the fortunate opportunity to visit Antarctica in 2016. There, I went out in boats daily with scientists to study wildlife and the ocean changes. As for Antarctic ice melting, I learned that yes, sea ice does predictably melt every year when the weather warms. This is a necessary occurrence for the massive wildlife reproduction that occurs there. Then, sea water freezes again when it gets cold again (70 below zero is common). This freeze-thaw-freeze process repeats annually. The main Antarctic ice mass is several miles thick... and getting thicker every year (not thinner, thicker!). In a nutshell, with my own eyes, those onsite scientists verified to me the NASA study is accurate that net ice is increasing annually in Antarctica.

February 28, 2018 Pacifica Sea Level Rise Vulnerability Assessment Local Costal Plan Update Tom Thompson Public Comments and Questions Page 4of 5

- 17) It is thus guite troubling to me that Kearns & West apparently used both false data on Antarctica SLR as well as omitted Golden Gate actual measurements of sea level rise in their report. Including these two highly respected scientific studies (Golden Gate SLR Metering Station Report and NASA Antarctica Ice Report) containing the most 11 (Cont. reliable and convincing data would surely result in a much more conservative estimate of future sea level rise. Will these two reports (enclosed) be included? Will sea rise guestimate projections be revised based on the reliable data in these two reports? If so, when? If not, why not? 18) Many California counties, including Ventura, Los Angeles and San Diego are heavily armored to protect people and property from both sea level rise and ocean storms. This is a common sense approach to the primary role of government, protecting people and property. Likewise, this is the opposite of Managed Retreat. Will the Pacifica Sea Level Rise Vulnerability Assessment consider, study and include Armoring as an option in the Pacifica Sea Level Rise Vulnerability Assessment? 12 When will this be done? How will this be done? If so, when? If not, why not? 19) The City use drafts - meaning that they have never been adopted by a government agency - as data sources, such as the "Army Corps of Engineers & Coastal Sediment Management Workgroup San Francisco Littoral Cell Coastal Regional Sediment Management Plan, DRAFT 2016"? Why use drafts? Will this be corrected? If so, when? If not, why not? 20) The City's consultant, Bob Battalio, appears to be writing the Pacifica Sea Level Rise Vulnerability Assessment, is citing his own un-adopted policy from 2016? Why use Mr. Battalio's own un-adopted policy? Isn't this self-serving? Will this be corrected? If so, when? If not, why not? 21) The California Coastal Commission's Sea Level Rise Policy Guidance says that the "best available science on Sea Level Rise in California" is the National Research Council's (NRC) Sea Level Rise - California, Oregon, and Washington Past, Present, and Future. Why doesn't Pacifica's Vulnerability Assessment use the NRC's study? Why was such a big and critical decision excluded? Will this be corrected? If so, when? If not, why not?
 - 22) The California Coastal Commission's Sea Level Rise Policy Guidance to cities is currently under revision. Will Pacifica wait to get the CCC revised guidance before proceeding with the Sea Level Rise Vulnerability Assessment? If not, why not?

February 28, 2018

Pacifica Sea Level Rise Vulnerability Assessment Local Costal Plan Update Tom Thompson Public Comments and Questions Page 5 of 5

23) Can Pacifica's LCP go to a vote of the people of Pacifica?

If so, when and how would this work? Please include timelines and process. If not, why not?

- 24) What mitigation will be under consideration to protect Pacifica homes from coastal erosion? I request all such considerations be listed.
- 25) The Vulnerability Assessment is focused on Sea Level Rise. However, the core problem Pacifica has experienced is coastal erosion?

Why has the study ignored costal erosion?

20 (Cont.)Will this be corrected?

If so, when?

If not, why not?

26) What armament methods and improvements might be utilized to protect the coast from a) Sea Level Rise? andb) Coastal erosion?

List armament methods and other improvements methods that could be used to protect Pacifica from Sea Level Rise.

List armament methods and other improvements methods that could be used to protect Pacifica from Costal Erosion.

Show examples of other California communities that have utilized these methods.

longton

Tom Thompson Pacifica Property Owner for 30 Years

Attachments for inclusion along with these comments & questions in Pacifica Sea Level Rise Vulnerability Assessment NASA Study: Mass Gains of Antarctic Ice Sheet Greater Than Losses (3 pages) National Oceanic Service Article and Golden Gate Sea Level Trend Report (4 pages) Oct. 30, 2015

NASA Study: Mass Gains of Antarctic Ice Sheet Greater than Losses



A new NASA study says that Antarctica is overall accumulating ice. Still, areas of the continent, like the Antarctic Peninsula photographed above, have increased their mass loss in the last decades. *Credits: NASA's Operation IceBridge*



Map showing the rates of mass changes from ICESat 2003-2008 over Antarctica. Sums are for all of Antarctica: East Antarctica (EA, 2-17); interior West Antarctica (WA2, 1, 18, 19, and 23); coastal West Antarctica (WA1, 20-21); and the Antarctic Peninsula (24-27). A gigaton (Gt) corresponds to a billion metric tons, or 1.1 billion U.S. tons. *Credits: Jay Zwally/ Journal of Glaciology*

A new NASA study says that an increase in Antarctic snow accumulation that began 10,000 years ago is currently adding enough ice to the continent to outweigh the increased losses from its thinning glaciers.

The research challenges the conclusions of other studies, including the Intergovernmental Panel on Climate Change's (IPCC) 2013 report, which says that Antarctica is overall losing land ice.

According to the new analysis of satellite data, the Antarctic ice sheet showed a net gain of 112 billion tons of ice a year from 1992 to 2001. That net gain slowed to 82 billion tons of ice per year between 2003 and 2008.

"We're essentially in agreement with other studies that show an increase in ice discharge in the Antarctic Peninsula and the Thwaites and Pine Island region of West Antarctica," said Jay Zwally, a glaciologist with NASA Goddard Space Flight Center in Greenbelt, Maryland, and lead author of the study, which was published on Oct. 30 in the *Journal of Glaciology*. "Our main disagreement is for East Antarctica and the interior of West Antarctica – there, we see an ice gain that exceeds the losses in the other areas." Zwally added that his team "measured small height changes over large areas, as well as the large changes observed over smaller areas."

Scientists calculate how much the ice sheet is growing or shrinking from the changes in surface height that are measured by the satellite altimeters. In locations where the amount of new snowfall accumulating on an ice sheet is not equal to the ice flow downward and outward to the ocean, the surface height changes and the ice-sheet mass grows or shrinks.

But it might only take a few decades for Antarctica's growth to reverse, according to Zwally. "If the losses of the Antarctic Peninsula and parts of West Antarctica continue to increase at the same rate they've been increasing for the last two decades, the losses will catch up with the long-term gain in East Antarctica in 20 or 30 years -- I don't think there will be enough snowfall increase to offset these losses."

The study analyzed changes in the surface height of the Antarctic ice sheet measured by radar altimeters on two European Space Agency European Remote Sensing (ERS) satellites, spanning from 1992 to 2001, and by the laser altimeter on NASA's Ice, Cloud, and land Elevation Satellite (ICESat) from 2003 to 2008.

Zwally said that while other scientists have assumed that the gains in elevation seen in East Antarctica are due to recent increases in snow accumulation, his team used meteorological data beginning in 1979 to show that the snowfall in East Antarctica actually decreased by 11 billion tons per year during both the ERS and ICESat periods. They also used information on snow accumulation for tens of thousands of years, derived by other scientists from ice cores, to conclude that East Antarctica has been thickening for a very long time.

"At the end of the last Ice Age, the air became warmer and carried more moisture across the continent, doubling the amount of snow dropped on the ice sheet," Zwally said.

The extra snowfall that began 10,000 years ago has been slowly accumulating on the ice sheet and compacting into solid ice over millennia, thickening the ice in East Antarctica and the interior of West Antarctica by an average of 0.7 inches (1.7 centimeters) per year. This small thickening, sustained over thousands of years and spread over the vast expanse of these sectors of Antarctica, corresponds to a very large gain of ice – enough to outweigh the losses from fast-flowing glaciers in other parts of the continent and reduce global sea level rise.

Zwally's team calculated that the mass gain from the thickening of East Antarctica remained steady from 1992 to 2008 at 200 billion tons per year, while the ice losses from the coastal regions of West Antarctica and the Antarctic Peninsula increased by 65 billion tons per year.

"The good news is that Antarctica is not currently contributing to sea level rise, but is taking 0.23 millimeters per year away," Zwally said. "But this is also bad news. If the 0.27 millimeters per year of sea level rise attributed to Antarctica in the IPCC report is not really coming from Antarctica, there must be some other contribution to sea level rise that is not accounted for."

"The new study highlights the difficulties of measuring the small changes in ice height happening in East Antarctica," said Ben Smith, a glaciologist with the University of Washington in Seattle who was not involved in Zwally's study.

"Doing altimetry accurately for very large areas is extraordinarily difficult, and there are measurements of snow accumulation that need to be done independently to understand what's happening in these places," Smith said.

To help accurately measure changes in Antarctica, NASA is developing the successor to the ICESat mission, ICESat-2, which is scheduled to launch in 2018. "ICESat-2 will measure changes in the ice sheet within the thickness of a No. 2 pencil," said Tom Neumann, a glaciologist at Goddard and deputy project scientist for ICESat-2. "It will contribute to solving the problem of Antarctica's mass balance by providing a long-term record of elevation changes."



2004: 150th Anniversary of the San Francisco Tide Gauge

On June 30, 1854, the United States Coast Survey, the oldest federal scientific agency, installed a self-recording tide gauge in San Francisco Bay, This station has measured the rise and fall of tides continuously ever since, making it the nation's oldest continually operating tidal observation station. This location also has the longest continuous tide record in the Western Hemisphere. The gauge even survived the earthquake of 1906.

The San Francisco tide station plays an important role in navigation, ocean science, and climatology today as it has



The San Francisco tide station has measured the rise and fall of tides continuously since June 30, 1854.

San Francisco Bay Tide Gauge Slide Presentation (pdf, 4.3mb)

<u>Access San Francisco Tide</u> <u>Gauge Data</u>

<u>150 Years of Tides on the</u> <u>Western Coast</u> (pdf, 1.6mb)

throughout its 150-year history. Besides guiding mariners to safe passage, the station monitors sea level change and tsunamis and helps measure the effects of the *El Niño* and *La Niña* global climate phenomena on sea level. Soon after its installation in 1854, the gauge measured tsunami waves generated by an earthquake in Japan. This helped to estimate the average depth of the Pacific Ocean.



The San Francisco tide gauge is housed in this structure near California's Golden Gate Bridge (in background). (Photo: Center for Operational Oceanographic Products and Services, NOAA) The station is part of the National Water Level Observation Program, which consists of 175 continuously operating water level measurement stations along the U.S. coasts and the Great Lakes regions. The normal tidal range (difference between high and low tide) during a full moon at the San Francisco station is approximately 5.8 feet.

(top)

Error processing SSI file

NOAA Sites

9414290 San Francisco, CA

Home (/) / Stations (stations.html) / 9414290 San Francisco, CA Favorite Stations -

Station Info - Tides/Water Levels - Meteorological Obs. (/met.html?id=9414290)

Phys. Oceanography (/physocean.html?id=9414290)

PORTS® (/ports/ports.html?ld=9414290)

San Francisco, CA - Station ID: 9414290

Station Info Photos Today's Tides Sensor Information Observations Directions and Map Available Products 163 years Established: Jun 30, 1854 Time Meridian: 0° E Present Installation: Aug 13, 1988 Date Removed: N/A Water Level Max (ref MHHW): 2.82 ft. Jan 27, 1983 Water Level Min (ref MLLW): -2.88 ft. Dec 17, 1933 4.09 ft. Mean Range: Diurnal Range: 5.84 ft. 37° 48.4' N Latitude Longitude 122° 27.9' W NOAA Chart#: 18649 (http://www.charts.noaa.gov/OnLineViewer/18649.shtml) Met Site Elevation: 9.0 ft. above MSL

Today's Tides (LST)

	6:24 PM	
12:48 AM	high	5.1 ft.
6:00 AM	low	2.0 ft.
12:07 PM	high	5.6 ft.
6:24 PM	low	0.0 ft.



Sea Level Trends

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SEA LEVEL TRENDS	Relative Sea Level Trend	Interannual Variation	Average Seasonal Cycle		
Home/Map (sltrends.html)	Variation Of 50-Year Pre- RSL Trends	vious RSL Trends			
U.S. Stations (sltrends_us.html)	Relative Sea Level Trend 9414290 San Francisco, California				
	9414290 Sar	n Francisco, California	1.94 +/- 0.19 mm/yr		
Global Stations (sltrends_global.h	0.60 - Linear Relative Sea Level Trend - Upper 95% Confidence Interval - Lower 95% Confidence Interval - Lower 95% Confidence Interval - Monthly mean sea level with th average seasonal cycle remover 0.15	he ed			

Apparent Datum Shift

1910

1920

1900

Trend $\frac{19}{9}$ 0.00Tables-0.15Selec:-0.30-0.45

-0.60

1850

1860

1870

1880

1890

U.S. Trends Map (slrmap.html)

EXPORT TO TEXT (DATA/9414290_MEANTREND.TXT) EXPORT TO CSV (DATA/9414290_MEANTREND.CSV)

1930

1940

1950

1960

1970

1990

1980

I

1

2000

2010

2020

SAVE IMAGE (PLOTS/9414290_MEANTREND.PNG) U.S. The relative sea level trend is 1.94 millimeters/year with a 95% confidence Regional interval of +/- 0.19 mm/yr based on monthly mean sea level data from Trends 1897 to 2016 which is equivalent to a change of 0.64 feet in 100 years. Selec . The plot shows the monthly mean sea level without the regular seasonal fluctuations due to coastal ocean temperatures, salinities, winds, atmospheric pressures, and ocean currents. The long-term Global linear trend is also shown, including its 95% confidence interval. The plotted values are relative to Regional most Sea Level the recent Mean datum established by CO-OPS Trends (https://tidesandcurrents.noaa.gov/datum options.html). The calculated trends for all stations are (/sltrends/globalregionalspraseisabletml)millimeters/year and in feet/century (mslUSTrendsTable.htm) (0.3 meters = 1 foot). If present, solid vertical lines indicate times of any major earthquakes in the vicinity of the Anomalies station and dashed vertical lines bracket any periods of questionable data or datum shift. Selec v Comparison of northern Atlantic station trends (regionalcomparison.html?region=USNA)

Comparison of northern Pacific station trends (regionalcomparison.html?region=USNP) Comparison of tropical and Gulf of Mexico station trends (regionalcomparison.html?region=USTG)

(https://tidesandcurrents.noaa.gov/redirect.shtml? url=14)

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Information	Products	Programs	Partners	Revised: 10/15/2013
About CO-OPS	PORTS	Mapping and	Hydrographic	NOAA (http://www.noaa.gov) /
(/about.html)	(/ports.html)	Charting	Survey Support	National Ocean Service
Take Our	OFS	Support	(/hydro.html)	(http://oceanservice.noaa.gov)
Survey	(/models.html)	(/mapping.html)	Marsh	Web site owner: Center for
(/survey.html)	Tide Predictions	Maritime	Restoration	Operational Oceanographic Products
Disclaimers	(/tide_predictions.h	tn Services	(/marsh.html)	and Services
(/disclaimers.html)	Currents	(/maritime.html)	GoMOOS	
Contact Us	(/cdata/StationList?	COASTAL	(/gomoos.html)	
(/contact.html)	type=Current+Data	&(ilderastetitner)n1)	TCOON	
Privacy Policy	More about	More about	(/tcoon.html)	
(/privacy.html)	products	programs		
	(/products.html)	(/programs.html)		

From: Sent: To: Subject: Carol Zammit Thursday, March 01, 2018 10:27 AM SeaLevel Rise Sea level

Please do not stop aiding our coastal neighbors properties as WE all will take a negative hit on this. We must do our best to aid property owners on the coast and allow them as well to protect their interest!!! Where do we live that we want to remove our aid as well as their right to protect! What's next??

Regards,

Carol Zammit

1

From: Sent: To: Subject: Jung Lee < Friday, March 02, 2018 3:19 PM SeaLevel Rise Sea level rise

Hello,

1

As a citizen of West Sharp Park, I think it is vital that we protect our coastline and Beach Blvd in particular. The coastline is a vital part of our community and an important driver for bringing visitors to our city. West Sharp Park is also home to thousands of Pacifica citizens. The idea of "managed retreat" is abhorrent to me. Pacifica should use its resources to protect the existing coastline and seawall. Resources should also be used to revitalize the Palmetto Street corridor so that business can thrive is downtown Pacifica. Please don't abandon the citizens and businesses that live near the coastline.

>

From: Sent: To: Subject:

1

3

Frank Vento < Friday, March 02, 2018 1:45 PM SeaLevel Rise Sea level rise

Hello, as a realtor in San Mateo County, with clients in the city of Pacifica. The proposals that are being put out by the city raise many concerns.

>

What studies and by who are being referenced in determining areas that will be in or out of a hazard zone? Once a property owner is in the hazards of what impact will that have on their property values, insurance rates, 2 abilities to remodel or maintain their homes?

Has the cities finance department calculated the amount of loss you may create by redlining areas of your city into erosion zones and devaluing the properties in that zone and loss of tax revenue. Also how that will impact Home values in the surrounding area?

Would it be safe to guess no driving these proposals own homes in the impacted areas?

Especially when it's a Projected issue. For somebody that's live in San Mateo County all of my life, and on the coast since 1978. I understand erosion happens.

Frank Vento

Dre#01321362

Especially when it's a Projected issue. For somebody that's live in San Mateo County all of my life, and on the coast since 1978. I understand erosion happens.

Want to reach me fast? Text @

Frank Vento, Broker Intero Real Estate Services BRE#01321362

Click <u>here</u> to report this email as spam.

From: Sent: To: Subject: Jennifer Martin Friday, March 02, 2018 10:22 PM SeaLevel Rise Save Beach Blvd

I will start with it's vital to save Beach Blvd. This area is such an interval part to the city of Pacifica. Further no other cities are discussing managed retreat in areas that are populated with homes, families, shops, etc. Pacifica has a housing shortage already thoughts of displacing large swaths of the community seems unnecessary and cruel. Please support the families of this city they love.

>

Sincerely,

1

Jennifer Lee

From: Sent: To: Subject:

1

Robert Bloomer < Thursday, March 01, 2018 7:04 PM SeaLevel Rise Sea Level

Please let common sense prevail on the sea level issue. It seems like you are on a one way track to destroying
Pacifica.
Why ?

>

Robert Bloomer

Click <u>here</u> to report this email as spam.

From:
Sent:
To:
Subject:

1

Ron Granville <r Friday, March 02, 2018 9:10 AM SeaLevel Rise Pacifica Sea Rise

I am very concerned about the City of Pacifica's plans to damage the properties near the Coast by not pursuing aggressive steps to protect them against potentially rising sea levels. I would appreciate answers to the following questions:

- 1. Do NOT pursue "managed retreat." Instead, you should be protecting your residents, their homes and property, their greatest investment, by armoring the Coast, building sea walls, berms, or placing riprap wherever necessary.
- 2. Why is Pacifica working on Sea Level Rise in its LCP when the California Coastal Commission has not even completed its Residential Adaptation Policy Guidance?
- 3. Why does the City use drafts meaning studies that they have never been adopted by a government agency - as data sources, such as the "Army Corps of Engineers & Coastal Sediment Management Workgroup San Francisco Littoral Cell Coastal Regional Sediment Management Plan, DRAFT 2016"?
- 4. Why is the City's consultant, Bob Battalio, who's writing the Sea Level Rise Vulnerability Assessment, citing his own un-adopted policy from 2016?
 - 5. The California Coastal Commission's Sea Level Rise Policy Guidance says that the "best available science on Sea Level Rise in California" is the National Research Council's (NRC) Sea Level Rise - California, Oregon, and Washington Past, Present, and Future. Why doesn't Pacifica's Vulnerability Assessment use the NRC's study?
 - 6. Why does Pacifica's Vulnerability Assessment fail to state that the CCC's decision on the Sharp Park Berm was to maintain it in the future?
 - 7. What happens if a home is drawn into the red area along the coast? What policies will be different for homes in the red zone than from other homes in Pacifica?
- 8. Will restrictions be placed upon homes in any of the identified zones? What are those restrictions?
- 9. What does it mean if a home is drawn into the storm-flood area? What policy differences will these homes face?

1 (Cont.)

- 10. What are the economic ramifications of being in the drawn into one of the zones by the City?
- 11. When properties lose value because the City draws them into one of the vulnerability zones, will the City also lose revenue?
- 12. Will the City be liable for lost property value?
- 13. Will homeowners in any of the red vulnerability zones be able to get insurance? Will they be able to get a loan? Will their property values drop?
- 14. Can the LCP go to a vote of the people?
- 15. Armor the coast, protect the homes, truck in sand twice a year.
- 16. Why is the Vulnerability Assessment focused on Sea Level Rise, when the problem Pacifica has experienced is coastal erosion?
- 17. What are you going to do to protect the homes from Sea Level Rise?
- 18. Why has there been no discussion of armoring the Coast to protect the communities west of Highway 1?
- 19. Why did the Pacifica City Council hire a consultant, Bob Battalio, who had previously been recorded on video expressing his view that Pacifica should pursue "managed retreat"?
- 20. What mitigation will be under consideration to protect Pacifica homes from coastal erosion?
- 21. What armament can protect the coast from Sea Level Rise? What about coastal erosion?
- 22. Ventura, Los Angeles, and San Diego are the most heavily armored California counties to protect residents from the ocean. Why is San Mateo County not among those counties?
- 23. How can the City close the public comment period when the City has not released the addresses or assessed values?
- 24. The Pacific Institute study was issued in 2009. Why is the City using 9-year-old data? Is there no newer information that can be used?

1 (Cont.)

25. What is the next step in this process?

26. Will property owners in the red area be able to maintain their homes, get permits from the City, and remodel or replace their roofs?

Ron Granville Pacifica Property Owner

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From:	
Sent:	
To:	
Subject:	

1

TOM GARCIA net> Friday, March 02, 2018 7:43 AM SeaLevel Rise Local Coast Program comments

These are good points you should consider and use in your decision process.

- 1. Do NOT pursue "managed retreat." Instead, you should be protecting your residents, their homes and property, their greatest investment, by armoring the Coast, building sea walls, berms, or placing riprap wherever necessary
- 2. Why is Pacifica working on Sea Level Rise in its LCP when the California Coastal Commission has not even completed its Residential Adaptation Policy Guidance?
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1 (Cont.)

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- 24. The Pacific Institute study was issued in 2009. Why is the City using 9-year-old data? Is there no newer information that can be used?
- 25. What is the next step in this process?
- 26. Will property owners in the red area be able to maintain their homes, get permits from the City, and remodel or replace their roofs?

Thank you!

Sincerely,

TOM R. GARCIA SAN BRUNO, CA. 94066

From: Sent:	John Mikulin Saturday, March 03, 2018 11:05 AM
То:	SeaLevel Rise
Subject:	Pacifica Sea Level Rise Vulnerability Assessment - Property Owner Comments
Importance:	High

Dear City of Pacifica Staff - I am a homeowner in Pacifica. Thanks for the opportunity to comment on the draft sea level rise vulnerability assessment for our city.

I strongly encourage the city to consider greenhouse gas (GHG) emission reduction regulatory measures and voluntary projects, as well as adaptation strategies to address anthropogenic climate change impacts, including sea level rise. Given current global concentrations of CO2 (409 ppm as of 3/1/18) and the inevitable surface warming associated with this atmospheric condition regardless of future emission reductions, it's prudent to plan for sea level rise impacts in Pacifica.

The city should utilize sea level rise scenario analyses as justification to prohibit further coastal development in Pacifica. The construction of additional commercial and residential infrastructure along the city's coast line (e.g., Esplanade Avenue, Beach Boulevard, & Rockaway Beach) will put more property and people at risk, and would increase the city's liability for property damage repairs from inundation and erosion over the coming decades.

The GIS tool associated with the draft vulnerability assessment should include additional layers representing the range of sea level rise scenarios issued by the California Natural Resources Agency and the California Ocean Protection Council. The city should plan for the worst case rise scenario to ensure minimal future liability.

3 See p.19 @ <u>http://www.opc.ca.gov/webmaster/_media_library/2017/11/State-of-California-Sea-Level-Rise-Guidance_draft-final_11.15.17.pdf</u> See p.25 @ <u>http://www.opc.ca.gov/webmaster/ftp/pdf/docs/rising-seas-in-california-an-update-on-sea-level-rise-science.pdf</u>

I hope that you find these comments useful. Good luck finalizing the vulnerability assessment in a comprehensive and timely manner.

Sincerely,

John Mikulin Monterey Road Pacifica, CA 94044

From: Nextdoor Pacific Manor <reply@rs.email.nextdoor.com>
Sent: Wednesday, February 28, 2018 7:03 PM
Subject: City of Pacifica Sea Level Rise Draft Vulnerability Assessment Comment Period Extended to March 14

2

1

From: Sent: To: Subject:

1

KRISTA < com> Saturday, March 03, 2018 8:59 AM SeaLevel Rise Sea Level Rise Plan

City Council members of Pacifica,

Can you be serious about even considering sea level rise "management?" Many neighborhoods in our town would be decimated by this plannot by any future sea level rise but by your actions! Will you put in writing that you will buy new homes in Pacifica for all those displaced by implementation of this faulted idea? Or would you force many of our coast side friends and neighbor's into homelessness??

I cannot imagine that the natural sea level rise, which each household must deal with in its own way would be worse than your idea of presumptive action.

Please turn away from this craziness.

Krista Markowitz, Pedro Point

Sent from my iPad

From:	Jeff Lockhart <j< th=""><th>></th></j<>	>
Sent:	Sunday, March 04, 2018 2:14 PM	
То:	SeaLevel Rise	
Subject:	Local Coastal Program update co	omments

To whom it may concern:

1

Regarding the consideration of "managed retreat" as part of the Local Coastal Program update, as a Pacifica property owner I hope the city is properly considering the significant potential impacts on Pacifica's economy, property owners, and residents, not to mention the city treasury, of these policies. We have already experienced a condemnation of residences along Esplanade Avenue, resulting in continuing litigation with a bankrupt property owner, hundreds of thousands of dollars in costs to the city, and loss of affordable housing for residents, including Section 8 voucher recipients. The city of Half Moon Bay attempted to restrict development along the coast and ended up with a \$36.8 million judgment against it for taking of property; a similar claim could face Pacifica if it attempts to prevent development or maintenance of property where a vested right exists. Sincerely,

Jeff Lockhart (Owner APN 009-200-

February 27, 2018

Bonny O'Connor Assistant Planner, Pacifica Planning Department 170 Santa Maria Ave. Pacifica, CA 94044

Re: Sea Level Rise Vulnerability Assessment

To Bonny O'Connor:

1

We are writing to remind the City of Pacifica and those involved in the development of the Local Coastal Plan (LCP) of the importance and contributions of the Pacific Coast Fog Fest (Fog Fest), hosted in the Palmetto/Sharp Park Historical District, to the economic base of the City of Pacifica and the 52 non-profit Pacifica community groups.

Palmetto/Sharp Park Historical District has been the site for the Fog Fest for 32 years. In recent years, the Fog Fest Organizing Group (FFOG) has experienced an increase in local sponsorship contributions, which has helped underwrite the expenses of the Fog Fest. As a result, each year, all profits from the Fog Fest are given back to the community groups who participate. The number of community groups that participate and benefit from the Fog Fest increases each year and is now up to 52. The Fog Fest now contributes over \$100,000 to the community groups every year. The FFOG also created a Gift to Pacifica Fund, which holds over \$30,000, currently slated for a beautiful amenity commemorating the Fog Fest on the newly completed Palmetto Streetscape.

FFOG remains the longest running group of community volunteers to produce the Fog Fest and relies on the collaboration of the City of Pacifica and the businesses on Palmetto Avenue. The Fog Fest draws over 100,000 visitors to Pacifica during the Fog Fest weekend. In the past, other sites in Pacifica have been considered to host the Fog Fest but none have the required size, central location, accessibility, and business benefits. Protecting both the businesses and the Fog Fest is essential to the community groups in the City of Pacifica. The potential economic loss would be substantial if the Fog Fest and Palmetto Avenue were impacted by the Coastal Plan. Whatever decisions made regarding the LCP and West Sharp Park must include consideration of the Fog Fest, one of Pacifica's largest economic engines.

Pacifica needs multiple thriving commercial districts to survive. Most remain in the coastal zone. We simply cannot afford to lose any of them. Please consider the economic and community impact of the Pacific Coast Fog Fest when considering assets in the Coastal Zone.

Sincerely.

Larry Passmore President, Fog Fest Organizing Group

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General Comments

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Forms can be returned to staff tonight, emailed to <u>sealevelrise@ci.pacifica.ca.us</u>, or mailed to Bonny O'Connor, Assistant Planner at 170 Santa Maria Avenue, Pacifica, CA 94044. Comments must be received by February 28, 2018.

Thank you for your input!



Thank you for excellent web information! Wish it were easier to find!

Comment Form

City of Pacifica Sea Level Rise Public Workshop Tuesday, February 13, 2018

-Goodale Margaret Phone No.: Name: **Email Address:**

Sea Level Rise mailing list and I have provided my email address above.

Location-Specific Comments

How do you use Pacifica's coastal area, and where? Linda Mar, Rockaway, Sharp Park SURVEUS Snowy Plovers (Charadr prover monitoring of Parifica 1 (Cont.) ployer recovery sile intitled dovers SUMDI)N for school children held studies -lox Noweschool temily tield hips tide Opol/beach Studies restorationt toration; Kochawan head ; Sharp Park + Rockaway Headlands for Whete + Bird watching What concerns do you have related to sea level rise impacts in Pacifica, and where? MAM STRUCTURE hability todetend 01 City footbail tields that about 8 Mation Cra golf berm Since 1980 2028) Decaused ORCARD need to be charad + knowledgeal LIMANS This ? acifica of the future toa COMMI be maintanied coastlie eva Where can housing ΩD tuter,

selfish interest is exploring local tidepools to marvel at the many creatures adapted to survive This extreme environment ind marvel at the prids that endured 2000 mile journeys to fu 1 (Cont.) And mavel at the Beaches Food here in winter, help prevent erosion R General Comments What about Pacifica's coastal zone is important to you? iorebids mara e DV with end Spec ips Red-lean ead f 5)(1 -# Shake + value clean beaches + water earn about NP d (1 11 A To Connec Please list any concerns you have related to the sea level rise adaptation plan and LCP Update process. down in acremony hmart Main Coucer apovoce hom MATRINOST < Unat the city will engage an INIC reom acitica a whole as as federal, state up the ndma vi Do you have any other comments or feedback? DUPPES Des must be consider SA P and avoinc lovi Point beach ave na north ñ

Forms can be returned to staff tonight, emailed to <u>sealevelrise@ci.pacifica.ca.us</u>, or mailed to Bonny O'Connor, Assistant Planner at 170 Santa Maria Avenue, Pacifica, CA 94044. Comments must be received by February 28, 2018.

Thank you for your input!



Comment Form

City of Pacifica Sea Level Rise Public Workshop Tuesday, February 13, 2018

Name: STAN ZEAVIN

Phone No.:

Email Address:

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Yes, I would like to be added to the Sea Level Rise mailing list and I have provided my email address above.

Location-Specific Comments

How do you use Pacifica's coastal area, and where?

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What concerns do you have related to sea level rise impacts in Pacifica, and where?

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General Comments

What about Pacifica's coastal zone is important to you? BEACHES: FOR ENJOYMENT, BIRDING, HIKING FOR MIGRATORY RIRDS PROTECTION 1 (Cont.) NEEDEN TOURIST INETLANDS & LAGUNA SALADA. Please list any concerns you have related to the sea level rise adaptation plan and LCP Update process. AT THIS PT., ITHINK THE CITY + ESA AREDOING IDON'T PEEL EITHER THE INFO. OR PROCESS TISN HOW THE 510 EUE PACIFICA TIAL ATRNE FOR IT'S VERY IMPORTANT INVOLUE OSE PACIFICANS WHÓ ARE NIR NOT TLV ζ TED Do you have any other comments or feedback? MONEY WILL BE USED ON THEIR SHARD TO COME BY CONEEN PUT TO G SHOUL RF THE 5 OF PRIM CONSEWSU CITY NEEDS ZE TO E MAKINE Forms can be returned to staff tonight, emailed to sealevelrise@ci.pacifica.ca.us, or mailed to LIMIT TE Bonny O'Connor, Assistant Planner at 170 Santa Maria Avenue, Pacifica, CA 94044. Comments AVAILA BLE MONIES . must be received by February 28, 2018. BGNEN THAT WE ARE IN THE PROCESS OF LOSING THE ONE BEACH THAT NOT ONLY CAN LAST A WHILE, BUT ALSO, THE ONE BEACH THAT NOT ONLY CAN LAST A WHILE, BUT ALSO, THE ONE BEACH THAT NOT ONLY CAN LAST A WHILE, BUT ALSO, Thank you for your input! SHARP PARK BEACH -NATERBILETT IE S.F. PULLS OUT

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Location-Specific Comments

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General Comments

What about Pacifica's coastal zone is important to you? . Please list any concerns you have related to the sea level rise adaptation plan and LCP Update 1 (Cont.) process. Do you have any other comments or feedback? Wð rade

Forms can be returned to staff tonight, emailed to <u>sealevelrise@ci.pacifica.ca.us</u>, or mailed to Bonny O'Connor, Assistant Planner at 170 Santa Maria Avenue, Pacifica, CA 94044. Comments must be received by February 28, 2018.

Thank you for your input!

From: Sent: To: Subject: Tina Abuyaghi com> Wednesday, March 07, 2018 7:30 PM SeaLevel Rise Beachfront preservation

To whom it may concern,

I wanted to express my views on the importance of preserving the beach front properties in Pacifica.

As a lifetime resident of the peninsula and a 4 year property owner and resident along the beach front in Pacifica I feel it is extremely important to preserve this land. Not only for the property owners but for the community as well as residents of San Mateo county.

The city should really invest in maintaining and strengthening the sea wall to ensure the preservation of the beach front along Beach Blvd. The area is always busy with locals and tourists and there is so much potential to expand and make the beach front a very well manicured destination and possibly add retail space for more food options behind Beach Blvd along palmetto.

As the housing market grows Pacifica is a go to city for younger working families. It's still somewhat affordable which makes it a strong market for first time home buyers. To implement a retreat plan would risk losing potential home buyers and it would negatively impact the city's overall revenue.

Please consider investing in maintaining the beach front properties as this area is the heart of Pacifica and shouldn't be left to wither away.

Thank you, Tina Arroyo

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Sent from my iPhone

Lenda Bruno MAR 0 8 2018 Door Bonnie, Barch Blud City of Pacifica my næme is Lunda Bruns. I have | Parifice, Ca 94044 lived in Pacifica for going on Letter P60 37 years now, fust at 1 Carmel #2 now 2338 Beick Blod. Slept Toldo, Ohid for a life near the Ocean. Pacifics, appealet to me, because I love and desire Open Space (Mori Point, Sweeny Ridge, Rockaway Beach & Luck Mar) Our Gult Course Leve triel...., These places are all near the Ocean. I am not The only one who loves this feature about Pacepica. Look at The Valume of Strolling Crouds of People, who come from all over to Appreciate This beauty that Our City an provide. I do thick a huge mostake occurred when the Sea Wall was constructed many years ago. Onyone who looks can visibly see they lowered the heylt of the Sea wall Carl.

on the South Side of the fishing fier. OOPS! Well that said, There are a number of Solutions. Turneling the sand his been helpful, classing the sugedrain has been effective, Sanddure mounds were also useful. all those efforts are most appreciated. 1 (Cont.) Please Continue Chat effort, I do Support a Hotel at The current treatment plant even though I hate to see More Traffic. I think that would be an asset to our community. Please Do NOT abandon the majority of our Sharp Park residents by letting these efforts go and Sacrifice our community and our Beach Promenade, We are not on the cliff like the Esplande. Mere are solutions to make a deflerence and mointain this

Beautiful Promenade and Beach walk. We live in a unque and beautiful place. Let us work together to preserve what we have, for ourselves, and future generations to come. This Beach walk is an important tourist attraction to over commenting I would appreciate this planning committees to correct the mistake that was made in the initial construction of the sea wall. and preserve our sharp Park neighborhood. Thankyon for your support on this usue. Jonan Bruno

1 (Cont.)

From: Sent: To: Subject: Theresa Alas Andrews Thursday, March 08, 2018 6:34 PM SeaLevel Rise Local Coastal Plan- sea level rise in Pacifica

Hello,

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I'm a homeowner that lives where this coastal plan -sea level rise in Pacifica. I stress that it's a high importance to focus and address the issues of this area and to put in action a plan that will protect homes and not have us abandon our homes where so many of us have been leaving for years and have contribute into this city with tax dollars. To do nothing and let it go for some kind of hybrid is ludicrous.

I stress the importance to reinforce coastal sections to protect homes and not have us homeless! Pacifica is place for families to grow and stay, not to be pushed away. I was raised here and now my child has been raised here and I would hope my child would someday raise his family here. Let's make Pacifica strong!

From homeowner: Beach Blvd, Pacifica CA

Theresa Alas Andrews

From: Sent: To: Cc: Subject: Ebi Saturday, March 10, 2018 12:27 PM SeaLevel Rise Shanon Christiansen Pacifica Coastal Protection Plan

Dear Ms. O'Connor:

I am a 20-year Pacifica resident and homeowner at Beach Boulevard for the past almost 19 years. My wife and I love our home and community by the sea and can not imagine abandoning either. We were always encouraged by Pacifica's strong stance in protecting us from the threat of rising sea levels. We were therefore shocked when we heard rumors that the City is considering planning options that would call for retreating, i.e., abandoning Pacifica homes to the sea, instead of focusing exclusively on protective measures. I strongly encourage you & our elected city officials to stand by Pacifica's longstanding policy of doing everything possible to protect our homes and lives here. I want to work with the City to look at every possible option that would ensure our longterm survival here.

Thank you for registering my comments and concerns. Kindly let me know what else I can do to make sure the City continues it's policy of protection against rising sea levels over options that involve retrenchment.

Sincerely,

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-Eberhard Fiebig, MD

Beach Boulevard Pacifica, CA 94044-2700

From: Sent: To: Subject: Tavasci, Marc Monday, March 12, 2018 2:28 PM SeaLevel Rise Attn: Bonny O'Connor

Ms. O'Connor:

My name is Marc Tavasci and my wife and I live at Beach Boulevard in Pacifica, just down the street from the pier and almost next to the golf course. We have lived here for almost 17 years and thoroughly enjoy living by the ocean. While it does create its own challenges, I can't imagine living anywhere else.

I was made aware of the meeting held recently about Sea Level Rise and was told that there's the possibility of not doing anything to reinforce the existing structures along the beach and eventually just abandoning all the houses and businesses between the ocean and Highway 1. I surely hope I was informed incorrectly as I find it alarming to think the City of Pacifica would do nothing to protect the lives and homes of its residents.

I'm not sure what weight this message will have in the grand scheme of things, but please note my "vote" for doing whatever it takes to reinforce the beach and seawall areas to protect our homes and businesses.

Thank you.

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Marc & Sandra Tavasci Beach Boulevard Pacifica, CA 94044

Please consider the environment before printing this email.

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From: Sent: To: Subject:

1

Joann Reeves Monday, March 12, 2018 10:40 AM SeaLevel Rise Sea level rise

The Sharp Park promenade, sea wall, and pier are priceless treasures adding to the incredible beauty of Pacifica. They should be preserved at any cost. A hotel across from the pier could provide extra revenue for this.

>

Joann Reeves

Sent from my iPad

 From:
 Cheryl Henley
 >

 Sent:
 Tuesday, March 13, 2018 9:45 PM
 >

 To:
 O'Connor, Bonny; SeaLevel Rise
 >

 Subject:
 Re: LCP – Local Coastal Plan – Sea Level Rise Vulnerability Assessment
 O3112018 Bonny O'Connor City Planning re LCP Sea Level Rise Vuln Assess.docx; ATT00001.htm

 Cheryl Henley
 Paloma Avenue, Pacifica, CA 94044

 Image: 13 March 2018
 Image: 13 March 2018

Bonny O'Connor

City of Pacifica Planning Department

City of Pacifica City Hall

170 Santa Maria Avenue

Pacifica, CA 94044

Via Email: <u>oconnorb@ci.pacifica.ca.us</u>

Re: LCP - Local Coastal Plan - Sea Level Rise Vulnerability Assessment

Dear Ms. O'Connor:

I became aware of the city's Sea Level Rise Adaptation Planning efforts from my neighbors who reached out to me quite alarmed by what they had heard. What concerns me most is that the city council is considering a policy of "managed retreat".

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To give you a little background on myself, I grew up in the south bay, went to college at SFSU, and got a job in San Francisco with the Environmental Protection Agency. After a few years of living in SF, I moved to Pacifica with my partner. We were initially renters but loved it here so much, we decided to buy a house in the early 1990's and make this town our permanent home. I'm now not far from retirement.

1 (Cont.)

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We've spent most of our lifetime in this community and invested a lot of our time and income improving our home. Our 1949 bungalow, in terrible disrepair when we bought it, shocked our friends and family but now many people passing by on Paloma tell us they love our home! I could not imagine being anywhere else.

Our community revolves around the Pacifica Promenade and the levee to Mori Point. Each day we are out there with our dog with many walkers, runners, bikers, dog owners, etc. enjoying the natural beauty of our town. I implore the city to protect this unique and irreplaceable asset. It is the jewel of this town (along with Pacifica State beach in Linda Mar) and without it, I don't know what would draw people to Pacifica. In my decades living here, I have never seen so many people making use of this area as I have these past few years.

Upon hearing that managed retreat was a point of discussion for our community my first thought was, "will we be able to maintain our home and investment with support from the city?" My second thought was, "wait, we've spent over 25 years paying taxes to the city to maintain its infrastructure and schools. Would the city now consider abandoning our neighborhood and all its residents and businesses?" I can't imagine MY city even having this discussion.

This all seems very rushed. When I looked at the web map, I read the lengthy disclaimer stating the map is for planning purposes. At the same time, it states the models are subject to uncertainty, and that the input data is limited and incomplete. And the city is using this data for planning purposes?! I wonder how you can plan with any degree of certainty with data that has no information about what went into creating it. If the city does have this information, I think it should be made public.

As a career professional in the field of GIS who builds these applications, I immediately looked for metadata for the Coastal Erosion Hazard Area (2100) along with the 5.7' SLR layers and there was none. Providing metadata with data layers, especially when viewed by the public, is essential to knowing what we're looking at. It's relatively easy to construct web maps and apps and I've seen all sorts of interesting data thrown together for planning and even public display. It's all meaningless without metadata. I would go as far as to call it irresponsible to allow this mapping application to be shared with the public and assume that a lengthy disclaimer makes it ok. Maps can be very powerful and very often they are assumed correct. It concerns me greatly if this data is being relied on by the City of Pacifica to make a determination about sea level rise

vulnerability that stands to literally ruin the lives of those impacted by such decisions.

The purpose of city government is to protect city residents - all residents. In the most challenging times is when we hope our city will be there for us. I do not think managed retreat is viable, responsible, or fair to residents

4 (Conty)ve invested in this city, in good faith, many for a lifetime. I urge the city council to make shoring up our coastline a number one priority in their next agenda planning.

Sincerely,

Cheryl Henley

From: Sent: To: Subject:

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Tuesday, March 13, 2018 4:11 PM SeaLevel Rise taxpayer comment on planned retreat

Hello, as an income tax and property tax payer, I am against planned retreat and allowing the seawalls and berms in Pacifica to fail. I see it as a responsibility of the city government to maintain the city and release funds so that its employees (primarily public works) maintain seawalls and other applications that will protect the property along the ocean- including the Sharp Park golf course. Naturally, animals and species will move on or adapt if they require a better habitat then as they now exist and in no circumstance, should the golf course be sacrificed- and I am not a golfer.

That's my two cents for now.

Sincerely, Cindy Madden Sharp Park

From:	
Sent:	
To:	
Cc:	
Subject:	

David Chamberlin Tuesday, March 13, 2018 6:02 PM SeaLevel Rise Keener, John; Vaterlaus, Sue; Digre, Sue; O'Neill, Mike; Martin, Deirdre Local Coastal Plan comments

Hello,

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My name is David Chamberlin and I am a resident of Beach Blvd. I attended the public workshop on Feb 13 at Council Chambers, I have read through the material on the city's site, and I have been following discussions on social media such as nextdoor.

Obviously, as a resident of Beach Blvd, I have a more direct vested interest in the results of the LCP than others who are not so directly impacted. However I continue to try and view the subject from multiple viewpoints, including those who are further from the potential hazard areas.

I feel strongly that the city needs to demonstrate substantial support for protecting property and assets and to show a commitment to areas such as Beach Blvd. Without this show of support, there will be significant impacts not only to the residents and businesses in potential hazard areas, but for the entire city of Pacifica. A lack of confidence in the city's determination to protect residents and businesses will make it significantly more difficult to attract and retain investment in these areas, which will in turn lead to loss of valuable revenues for the city.

I am a strong believer in climate change and the potential for significant sea level rise. That being said, there is still quite a bit of speculation and variation about how much sea level rise will likely occur. It's also unknown how much humanity might be able to alter the course of these changes over the coming years.

Therefore it seems unwise to recommend, promote and/or implement policies which will cause immediate and direct harm to the people of Pacifica based on speculation of what might happen in the future. While much has been said to allay fears around the term "managed retreat", and certainly there has been a lot of misinformation regarding what that really means, it still has the implication that the plan is to retreat. Therefore a managed retreat plan will inherently inspire a lack of confidence for any properties within the "retreat zone", causing loss of value, loss of investment and lost revenue to the city. This is direct harm to those in the areas, as well as residents outside of the area due to loss of funds to the city. Loss of revenues to the city impact the city's ability to support and protect all of its residents due to inabilities to fund police and fire services, community outreach, as well as reduces the city's ability to fund things such as the parks and recreation department, thus negatively impacting our

ability to keep our city, parks and open spaces clean and safe. This should not be undertaken or even promoted until or unless the inevitability of the problem (sea level rise, flooding, etc.) is far more clear.

I find it both disheartening and very disconcerting that it seems there is a strong bias towards retreat over protection. The city is posting on their website hazard maps which in many cases do NOT take into consideration the existing structures such as the sea wall along Beach Blvd. At best this is very deceptive, as it leads people to believe the situation is worse than it may actually be. The city spent a fair bit of money several years ago, in the context of the proposed development at the old sewer plant, to have a detailed study done of Beach Blvd by an engineering firm who *did* account for the sea wall. The conclusion of that report was that as long as the wall was maintained, the area along Beach Blvd should be OK. Yet information about that study does not appear anywhere. Instead, it seems that maps are being generated using Our Coast Our Future, which are general simulations and do not necessarily predict well what will happen locally. In fact their site specifically states that the information should not be directly used for planning purposes. Yet this is being used and promoted by the city to help residents decide how to think about the LCP? That feels disingenuous at best. There have also been comments made by council members and others about the cost on the city of protecting the hazard areas. Some of these statements seem to imply a level of knowledge about costs which I don't think is possible to possess at this point. Unless we know how much it will cost the city to relocate services out of the hazard areas, as well as how much revenue the city will lose, as well as how much it will cost to implement the protection strategies, as well as how much state and/or federal money we may get to assist in implementing our LCP, I don't see how it's possible to make statements implying there will be a cost on all residents of Pacifica until all of those numbers are known. So trying to "scare" the residents of Pacifica feels like an obvious ploy to get more comments/votes to support what is clearly their opinion of what the city should do.

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It is important for everyone - especially city council - to keep an open mind during the process. It is imperative that preconceived notions of what the "right" answers are should be set aside, and the data be viewed, as well as disseminated, as objectively as possible.

I take that to heart myself, even though I stand to personally lose a lot depending on the outcome of the LCP. If an objective analysis is performed using solid scientific evidence with realistic projections and it is deemed that the costs and risks of attempting to protect areas such as Beach Blvd outweigh the costs and risks of implementing a policy of retreating, then I would be OK with that because that would be what is best for the community.

But if instead we choose a policy based on what we fear might happen, or even due to a quaint notion of wanting "nature to take over", and implement a retreat policy, at potentially large cost to the city and the residents - only to find 50 years from now that things didn't end up being as bad as some may think - that would just be unacceptable in my mind. We would have negatively impacted so many lives for no good reason.

I believe our coastal plan needs to be based on what we can predict, with a fairly high degree of certainty, will happen in the relatively near future, then review that plan regularly. If at some point in the future, the degree of certainty increases on certain events and impacts, the plan can be revised at that point. Obviously we don't want to wait until buildings are falling in the ocean and/or we're getting flooded on a regular basis. But we also can't make decisions which are detrimental to the city in the near term just because we may (or may not) have a problem in the future.

I would also like to reiterate my earlier comment that I feel it is vitally important to consider the impact that confidence, or lack thereof, can have on the local economy. Even if the LCP is written in a way such that we don't immediately start implementing a retreat policy, if it is written in a way which implies retreat is, or likely will be, the eventual goal, it will almost certainly have an immediate negative impact on the areas involved. Markets both large and small are highly influenced by levels of confidence.

And one final comment I would like to make on the topic, which is that the "cost" of a planned retreat is more than just the financial cost.

We would likely lose a significant number of our residents and businesses in a retreat scenario. If the city is planning on retreating from an area, the value of the properties in that area will drop precipitously and the cost of housing outside that area will likely go up even higher. This will make it infeasible for many of our residents to stay in Pacifica, even if they were willing to move out of the retreat zone. The loss of people will likely have a large impact on the character and nature of our city.

A large part of the reason I moved to Pacifica was the character of the town and the people. I grew up in a small town in Pennsylvania, so when I initially moved to Silicon Valley, it was quite a culture shock. Neighbors who wouldn't even say hi if you wave at them. When I came to Pacifica it reminded me so much of what I had been missing. When I moved in to my house here, the neighbors all came over, introduced themselves, offered help and brought me food.

Personally, I am probably well enough off that I could afford to retreat further back from Beach Blvd if I had to. But I know this would not be feasible for many others. If the loss of people as a result of a retreat strategy changed the character and nature of the people in this community, I would strongly consider not staying here.

6 (CφRt/e this location and I love the people of this community. I sincerely hope whatever strategy the city chooses for its LCP does not unnecessarily jeopardize this community.

I apologize for the length of this email, but I believe this is such an important topic that it deserves a sufficient level of depth and breadth. I appreciate you taking the time to solicit and read all of the feedback on this issue.

Regards, David Chamberlin

From: Sent: To: Subject: Daniel Gould < The second seco

Hi, I am writing in regards to recent information I've heard from realtors in the area about the city's potential for enacting a "managed retreat" approach to permits in the coastal zone. My understanding is that permits for expansions to existing properties would no longer be approved, and the city would stop shoring up the coast with seawalls and rocks.

I love Pacifica and have been renting here for years - I was on the verge of buying a home on Esplanade but promptly stepped back when I heard this new.

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Please do not pursue a policy that will severely damage property values of thousands of people in Pacifica, and deter new buyers from entering the area. This will lead to a halt in a rising market (and rising tax base) for Pacifica, and a wave of lawsuits. Pacifica should be using tax dollars to shore up the coastline. I would not even buy a house outside the impacted zone if I thought my local tax dollars would not go to preserving the coastline through shoring up the bluffs. I use the trails and beaches regularly, and would value the predictability of usage even if I weren't living right by the ocean.

This misguided policy will negatively affect everybody in Pacifica, not just the residents in the coastal zone.

Best,

Daniel Gould

From: Sent: To: Subject: Dan Mail < Tuesday, March 13, 2018 9:07 PM SeaLevel Rise Sea wall needed for the people of Pacifica

1 Please help us protect our selves from losing our homes.

Sent from my iPhone

From: Sent: To: Cc: Subject:

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Delia McGrath < Tuesday, March 13, 2018 10:17 PM SeaLevel Rise Delia McGrath Comments on draft vulnerability assessment

Dear Bonnie O'Connor,

These are my comments and questions re: draft vulnerability assessment:

1. Where did/does the money come from for the several rescue projects the City has had to make over the last few years: a] removal of apartment buildings on Esplanade; b] emergency repairs to Beach Blvd; c] new retention basin behind the community center?

2 2. What plans are being made to avoid similar costs in the future?

3. I recommend that the City prohibit future development in those areas that may eventually become a cost to the City.

4. There is no single solution that will protect us. We need to be specific about where to start and we need to be clear about where to put our limited resources as more areas of Pacifica are threatened. Our challenges are varied from storm surges against the high eroding cliffs at the north end of town to the repeated flooding of homes at and below current sea level at the south end. As you are aware, there are numerous homes and businesses at risk along with wastewater and storm water pump stations in the Linda Mar area.

Thank you for your kind consideration of these questions and comments.

Peace always, Delia McGrath [40 year resident of Pacifica]

From: Sent: To: Subject:

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Tuesday, March 13, 2018 3:21 PM SeaLevel Rise Sea Level Rise

To Whom It May Concern:

I own property in the coastal zone and I am strongly against following the policy of "managed retreat". This concept is based on false science and is simply an attempt to take away my property without just compensation.

I want the City to develop a strategy of protecting my property through a Geologic Abatement District and issue bonds to install seawalls, rocks, barriers, better drainage anything to protect the properties and not to abandon them. Stop trying to take away my property!

I consider this to be an "Unjust Taking". So I ask the City "Is this an Unjust Taking of my Property?" I think it is.

Pacifica needs to abandon these socialistic activities of stealing property and instead start building housing, protecting what we have and shoring up the coast line. Any sea rise can be defended against. Look at the Netherlands which is below sea level and they reclaimed thousands of acres of land for good economic use. Stop taking our homes and business from us!

Dennis Thomas Owner, Esplanade, 12 units

From: Sent: To: Subject: David Tipton Tuesday, March 13, 2018 4:28 PM SeaLevel Rise Abandon all hope

Dear Sir or Madam -

The thought of using " managed retreat " to attenuate the concern about sea level rise in Pacifica, Ca is daft.

This crazy policy would destroy homes, existing infrastructure and investments. Really ? Is that the intent of our government agencies and elected leaders ?

This is bad science, bad politics and plain bad policy.

Fix the Streets ! Abandon Managed Retreat !

David Tipton

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From: Sent: To: Subject: Frankie Pun Tuesday, March 13, 2018 3:16 PM SeaLevel Rise PLEASE DO NOT do Vulnerability Assessment

I am a homeowner in Pacific Manor. Your Vulnerability Assessment map covers my home but my house is actually hundreds of feet above the sea level. Please do not start the process...

Here is a list of questions and comments:

1. Do NOT pursue "managed retreat." Instead, you should be protecting your residents, their homes and property, their greatest investment, by armoring the Coast, building sea walls, berms, or placing riprap wherever necessary.

2. Why did the Pacifica City Council hire a consultant, Bob Battalio, to work on the Local Coastal Program, who has previously, publicly expressed his opposition to seawalls and his view that Pacifica should pursue "managed retreat"?

3. Why is Pacifica working on Sea Level Rise in its LCP when the California Coastal Commission has not even completed its Residential Adaptation Policy Guidance?

4. Why does the City use drafts – meaning studies that they have never been adopted by a government agency - as data sources, such as the "Army Corps of Engineers & Coastal Sediment Management Workgroup San Francisco Littoral Cell Coastal Regional Sediment Management Plan, DRAFT 2016"?

5. Why is the City's consultant, Bob Battalio, who's writing the Sea Level Rise Vulnerability Assessment, citing his own un-adopted policy from 2016?

6. The California Coastal Commission's Sea Level Rise Policy Guidance says that the "best available science on Sea Level Rise in California" is the National Research Council's (NRC) Sea Level Rise - California, Oregon, and Washington Past, Present, and Future. Why doesn't Pacifica's Vulnerability Assessment use the NRC's study?

7. Why does Pacifica's Vulnerability Assessment fail to state that the CCC's decision on the Sharp Park Berm was to maintain it in the future?

8. What happens if a home is drawn into the red area along the coast? What policies will be different for homes in the red zone than from other homes in Pacifica?

9. Will restrictions be placed upon homes in any of the identified zones? What are those restrictions?

10. What does it mean if a home is drawn into the storm-flood area? What policy differences will these homes face?

11. What are the economic ramifications of being in the drawn into one of the zones by the City?

12. When properties lose value because the City draws them into one of the vulnerability zones, will the City also lose revenue?

13. Will the City be liable for lost property value?

14. Will homeowners in any of the red vulnerability zones be able to get insurance? Will they be able to get a loan? Will their property values drop?

15. Can the LCP go to a vote of the people?

16. Armor the coast, protect the homes, truck in sand twice a year.

17. Why is the Vulnerability Assessment focused on Sea Level Rise, when the problem Pacifica has experienced is coastal erosion?

18. What are you going to do to protect the homes from Sea Level Rise?

19. Why has there been no discussion of armoring the Coast to protect the communities west of Highway 1?

20. What mitigation will be under consideration to protect Pacifica homes from coastal erosion?

21. What armament can protect the coast from Sea Level Rise? What about coastal erosion?

22. Ventura, Los Angeles, and San Diego are the most heavily armored California counties to protect residents from the ocean. Why is San Mateo County not among those counties?

23. How can the City close the public comment period when the City has not released the addresses or assessed values?

24. The Pacific Institute study was issued in 2009. Why is the City using 9-year-old data? Is there no newer information that can be used?

25. What is the next step in this process?

26. Will property owners in the red area be able to maintain their homes, get permits from the City, and remodel or replace their roofs

Thanks, Frankie

From: Sent: To: Subject:

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Gil Anda < Tuesday, March 13, 2018 2:59 PM SeaLevel Rise Comments regarding sea level rise in Pacifica - Gil Anda

The City of Pacifica needs to immediately address the current coastal erosion problems. I would say that a sea wall, similar to the sea wall protecting the great highway in San Francisco, should be built to protect from any future loss of property. We need to remind ourselves that it's not just the immediate property owners that would be affected, but all the properties that are 'next in line' as the erosion continues.

Please address this.

Gil Anda Cadillac Way, Burlingame, CA 94010
From: Sent: To: Subject: james ryan Sunday, March 11, 2018 12:47 PM SeaLevel Rise red lines

Hello,

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Let's not be hasty about drawing any red line and devaluating property on a 80 year assumption. A correct evaluated approach to a to a rising level that provides a true and valued approach to all properties. Providing a fix not a loss is the priority.

Regards

Jim Ryan

From: Sent: To: Subject: Kent Flinn Tuesday, March 13, 2018 3:21 PM SeaLevel Rise Vulnerability Assessment

To Whom It May Concern,

Pacifica is acting on the sea level rise way too soon. The Coastal Commission hasn't made it through their 2nd draft yet to determine what if anything needs to be done. The rise in sea level hasn't been determine as to any degree of rise. The are many reports and finding but it will take time and more studies before Pacifica should act, especially if the city take steps that would impact the City's financial future of not protecting homes, businesses, and beaches. You should not have to choose one over the other. Wiping out home and businesses as I have seen in your study you would not have a City anymore.

Sea level rise is not a Pacifica only study. The Pacifica Ocean covers not only West Coast of the USA, but 4 other continents. Wait for valid studies! This rise will not happen in my lifetime you do not need to take action now and cost the City of Pacifica time and money it can not afford.

Kent

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From: Sent: To: Subject:

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Kho Tuesday, March 13, 2018 6:59 PM SeaLevel Rise Sea level rise vulnerability study

If a disaster can be avoided by building sea walls 1 do not understand why City of Pacifica would prefer to drawing people's homes into a "vulnerability zone" and create a man-made disaster that massively harms their property values, makes it impossible to get insurance or a loan. Based on your study even under the worst case scenario it is projecting a 5-6 feet rise over 80 years, which is easily defendable with dikes or sea walls. City's responsibility is to protect the community by locating funds for shoreline protection, whether it is through State or Federal funding or raise local taxes. Drawing vulnerability zones only create fears that not only not help the situation, but also prematurely create a disaster that many residents will suffer. Please stop drawing zones that you cannot be in anyway certain and creates a lot of suffering.

Kenneth Ho Pacifica Resident and Property Owner

From: Sent: To: Subject: Leigh Ward Tuesday, March 13, 2018 2:52 PM SeaLevel Rise Sea Level Rise: Comments

Bonnie,

We live on Beach Blvd because we love Pacifica; the wondrous natural resources and the City's impressive legacy of protecting them. Over the last 29 years of living in this location we have supported the efforts to keep allowing our dogs to walk on the trails on Mori Point and we have supported local businesses and the beautification of Palmetto Avenue. We support the efforts Pacifica has made to improve and provide more assets (restaurants, hotels, visitor resources) in our city while protecting our natural environment. Protecting the environment is very important to us.

We vigorously oppose any RETREAT plans. Many cities around the world have worked with engineers and waterway specialists to build up their city structures to withstand oceans/rivers and bays. We support protecting Beach Blvd, the pier, the berm, Mori Point and all other ocean facing property in Pacifica.

We understand there are many challenges, ie erosion of cliffs and the overwhelming increase in the amount of sand on the Sharp Park Beach. We also see that the sea is rising and the beach is shrinking. But since the city has homes, a pier and hopefully a new hotel in this area, we believe **the sea wall north and south of the pier should be re-engineered to keep the ocean off Beach Blvd and continue to allow residents to live here and visitors to enjoy this jewel of Pacifica.**

Thank you,

Leigh Ward

From:	Mary Nappi
Sent:	Tuesday, March 13, 2018 5:44 PM
То:	SeaLevel Rise
Subject:	Response to Sea Level Rise by homeowner, Mary Nappi

To Whom it May Concern:

I am completely opposed to the Sea Level Rise proposal to effect a boundary line on the map of our personal land and rights.

It is not proven that this Sea Level rise is permanent or legitimate and I think there are no legal grounds to support it.

Please abort this action as I think it is an illegal maneuver to the property owners along the coast of Pacifica, Ca. It is starting to sound and look like a land grab to many residents here which could result in a class action suit against the city.

Thank you for your consideration to my request,

Mary Nappi

Sent from my iPad

From: Sent: To: Subject:

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Tuesday, March 13, 2018 3:52 PM SeaLevel Rise NO to "Vulnerability Zones"

Dear City of Pacifica, my family owns apartment buildings in Sharp Park and I am very concerned about this initiative to place certain coastal areas of Pacifica in a vulnerability zone due to sea level rise. Our family has owned property there since the 70s and 80s and have 40+ residents that love where they live (some for over 40+ years)! There is know way to know with certainty how much the sea level will rise. Instead of placing coastal properties in a vulnerability zone, it would make more sense to build additional sea walls and reinforce the ones we have! Placing properties in a vulnerability zone will cause harm to properties, businesses, property owners, their residents and the community at large. Let's work together to find a proper solution and not harm our community.

Thank you, Marianne

Marianne P. Osberg

From: Sent: To: Cc: Subject: Raheela Ghafur Tuesday, March 13, 2018 1:38 PM SeaLevel Rise @sbcglobal.net Pacifica Coastal Protection Plan

Dear Ms. O'Connor,

It is with utmost concern that I learned that the City of Pacifica is considering withdrawing its support to protect our homes & do everything to counter the rising sea levels. How is this possible, or for that matter morally and ethically acceptable, that the City we have called our home for decades, paid its taxes, and supported all its institutions with tremendous enthusiasm, would take such a cavalier approach to our safety and wellbeing.

We love our home in Pacifica, a castle it might not be, but it is our humble abode which provides us our only refuge. So you can well imagine our shock and horror when we heard that we might be "set out to sea", as it were. If this were true, I honestly cannot entertain, or believe the thought of such a cynical proposition. Surely you will not let that happen on your watch and will convey to elected city officials our strongest opposition to any planning option that involve retreating from currently

established defense lines against the sea. I would be forever grateful, if you kindly put all the weight of your personal good judgement, knowledge, and the office you hold to become the "sea wall", so to speak, for us homeowners at Beach Park Boulevard.

Please let me know if there is anything I can do to assist you in this what I consider a noble cause. For what good are we if we cannot stand shoulder to shoulder for the safety of our fellow citizens? That's what has made this country strong. And might I venture to quote from the poet Tennyson who you most likely have encountered in your casual reading when he evokes in us the ability "to seek, to find, & not to yield"...

Please do not yield to the threat of rising sea levels without seeking and finding a remedy. We will be with you when you take these bold steps to protect us.

Thank you for your kind consideration. I await your response with anticipation.

Sincerely,

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Raheela Ghafur

Beach Boulevard Pacifica, CA 94044

From: Sent: To: Cc: Subject:

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Roy Stotts Tuesday, March 13, 2018 3:09 PM SeaLevel Rise Roy Stotts Comments on the Pacifica LCP

Thank you for making public comment available. As a 42 year resident an investor in Pacifica, I have significant concerns of the path we have taken on this issue.

My concerns are as follows:

1. Why must we make the Pacifica LCP now – when we don't have the guidance from the Costal Commissions second draft of the Residential Adaptation Policy that has yet to be released? It would seem prudent to delay comments and input until we know what guidance the Coastal Commission is providing.

2. Why was a consultant selected that has a predisposition in favor of Managed Retreat? As a 42 year resident I do not want that option to ever be remotely considered. The Dutch have managed a far more precarious position for centuries and they have managed to thrive.

3. The materials circulated do not consider data addressing the various perspectives on sea level rise. If you submitted your report as it is currently written to a reputable peer reviewed research journal, I believe it would be rejected because it is not balanced, and leaves out critical information.

4. The diagram showing the current status does not include any of the existing barriers that protect the shore. Why?

5. How will "assets" be valued i.e., homes and businesses? I am hoping it is not the assessed tax value as a home that would today sell much less e.g., a Linda Mar rancher than today sells for \$800,000 - \$900,000 is assessed for tax purposes at \$89,000. Who has authority to set the value assets?

6. What is the estimated cost of the various options? What is the financial cost to individuals and businesses in the threatened area? I ask only about financial as most would agree there will be psychological and emotional impact as many people have spent their whole lives investing in their homes and businesses.

7. Why isn't the list of addresses of individuals and business in the vulnerable area available so people appreciate how serious the threat is to them individually?

8. Why are approaches to protect the coast not discussed or described e.g., build sea wall (as in Half Moon Bay), truck in sand, etc.?

9. What is the estimated financial cost to individuals and businesses that are **not** in the vulnerability area? Again with the same thinking about long term investment and potential for devaluation having serious psychological and emotional consequences as well as financial implications.

10. The consultant that was hired, cites their own "study" that has never been adopted by any city or organization. Why is this obvious red flag being ignored.

11. How will the city of Pacifica survive if/when a managed retreat approach/hybrid approach is undertaken? Since the majority of businesses are west of route 1, what will support the city? Why do we want to get rid of our tax base?

12. Why is the City of Pacifica in such a hurry to make this reckless approach when there is no settled data regarding the sea level rise.

13. Why haven't the State and Federal government been part of this entire process?

14. Finally, is there some reason that a study has not been conducted that has been conducted to evaluate the financial impact of the various approaches on the homes and businesses in Pacifica? Data based decision making seems critical in this situation.

Roy Stotts Glacier Ave. Pacifica, CA 94044

From: Sent: To: Subject: R WALKER Tuesday, March 13, 2018 1:52 PM SeaLevel Rise Local Coastal Program

I am concerned homeowner and have questions and comments in regards to the Local Coastal Program.

Once a property is determined to be in the coastal hazard area, how can the City protect the property owners' value?

>

What happens if property values drop drastically based on being located in a hazard area on the Vulnerability Assessment maps and these properties never experience any affects from seal level rise, coastal erosion, flooding or severe storms over the next 20, 50 or 100 years? How do you justify their investment loss?

For those property owners who lose property value by being designated in a vulnerability area, what recourse do they have? Will the City be liable?

What type of help would be offered to homeowners who are in the "vulnerability areas"?

What can property owners do to protect their investments if they are drawn into a vulnerability area?

My parents bought our family home in 1964 and it is located in West Fairway Park. I urge you to protect these homes and protect other Pacifica residents from coastal erosion and sea level rise and **not** adopt a managed retreat program. Please protect our largest investment by armoring the coast.

Thank you for your consideration.

R. Walker

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From:	Sean Cunningham
Sent:	Tuesday, March 13, 2018 9:59 PM
То:	SeaLevel Rise
Subject:	Please protect Pacifica properties, we already have a housing shortage

City of Pacifica,

I am a concerned resident who is concerned that we already have a housing shortage in Pacifica. We need the City to protect the current housing and to work with developers to create environmentally responsible new housing. The cost to purchase or rent in Pacifica is already skyrocketing and I feel the City of Pacifica needs to act responsible to increase not decrease the amount of affordable homes. We already have seawalls protecting parts of Sharp Park and I feel the logical solution to look at refurbishing the existing seawall to be taller. We have a lot of undeveloped coast land in Pacifica and I think it is important to preserve those areas but where we already developed the land we should protect those houses. Please focus on providing a real solution that protects these properties instead of risking removing any housing.

Thank You, Sean Cunningham PO Box Pacifica, CA 94044

From: Sent: To: Subject:

Tuesday, March 13, 2018 5:33 PM SeaLevel Rise Rebuild our coastline

The city takes our property taxes. Use it to protect our beautiful coastline in Sharp Park and all of pacifica! We deserve
 that! Protect the sea wall and beaches! Protect our property values and most importantly, protect lives.
 Sent from my iPhone

From:	
Sent:	
To:	
Subject:	

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Teresa Hoskins Tuesday, March 13, 2018 5:38 PM SeaLevel Rise Sea Level Rise

To Whom It May Concern,

Please Do NOT pursue "managed retreat." The city should be protecting your residents, their homes and property, their greatest investment, by building sea walls, berms, or placing riprap wherever necessary.

Bob Battalio is a bad choice as City Consultant in this matter as. He has previously expressed his opposition to seawalls and his view that Pacifica should pursue "managed retreat"? Therefore, he is biased and will not be objective. Also, Bob Battalio is writing the Sea Level Rise Vulnerability Assessment, citing his own unadopted policy from 2016? This is a deceptive practice giving Pacifica's the impression that the policy is legitimate.

There is no way to know, with certainty, to know how much the sea level will rise by a particular date. The only reasonable precaution that can be taken is to armor our coast, reinforce our sea walls, and protect many people's most substantial investment, their homes. If the City of Pacifica fears that the sea level will rise, it has only one option – <u>build additional sea</u> walls and reinforce the ones we have! Drawing people's homes into a "vulnerability zone" that massively harms their property values, makes it impossible to get insurance or a loan, and prohibits them from re-roofing, remodeling, or pulling a permit that in any way extends the life of their homes is not a viable answer.

Thank you, Teresa

Teresa M. Hoskins Barcelona Drive. Pacifica CA

From:	Amy Perez	>
Sent:	Wednesday, March 14, 2018 8:15 PM	
То:	SeaLevel Rise	
Subject:	Pacifica Sea Level Rise - My Comments	

To Whom It May Concern:

I have been reading on Nextdoor and the City of Pacifica website regarding the proposed Sea Level Rise Vulnerability Assessment. The information provided seems very vague and I'm really concerned about the outcome of this assessment. I have worked in commercial real estate for 15 years, and am very family with complex appraisal and environmental reports, yet I can't make sense of the information you are providing on the city website. What exactly is the proposal? There is a lot of rumor and concern about the possibility of Pacifica adopting a "managed retreat" philosophy. I will strongly oppose, protest, and vote against any Council Member that views this as an option for the residential or commercial areas of Pacifica. I feel the role of the City should be to encourage and facilitate protection and investment in our sea walls and berms, as would any other coastal town or city. Bringing in additional sand and boulders to protect our populated areas is an important and worthy expense for our community.

I am very concerned about the potential impact of this assessment on my home value and the ongoing development of the Palmetto business district. We bought our house on Santa Rosa Ave, 1 1/2 blocks from the pier, in 2007 and I have never experienced flooding on my block in all this time. Therefore, I want to ensure my home is not included in a red

2 flood zone that would likely decrease my home value dramatically. Why should my neighborhood of Sharp Park be singled out to limit additional home improvements, business development, and dramatically reduce the re-sale value of my home? My home is my savings and only investment. If the city's actions do reduce my home value, what actions will the city take to remedy my lost value?

I look forward to your response and a reasonable assessment that focuses on the protection of beautiful Pacifica.

Sincerely,

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Amy Perez

Santa Rosa Ave., Pacifica, CA 94044

From: Sent: To: Subject: Angel Riley < Wednesday, March 14, 2018 4:35 PM SeaLevel Rise Greetings

Hello,

My name is Angel Riley and I an a homeowner in Pacifica. I understand that Pacifica is currently undergoing assessment to label certain areas as "vulnerability zones" as a result of the rising sea levels.

1

Will this act lower my property value and as a result effect the revenue and decrease attraction of people to the city of Pacifica?

Thank you.

--Cina

Sincerely,

(SGT) Angel Yang Riley, Esq. 191st Army Band, Pianist and Assistant Operations

From: Sent: To: Subject:

1

B Gorn Wednesday, March 14, 2018 6:02 PM SeaLevel Rise Managed retreat

Dear sir or madam:

Seems unfair and i see no justifiable reason why the city council, and the people's "expert" (who is NOT effected by his ridiculous advise) feel it necessary to terrorize the homeowners of Pacifica without first providing input from other affected counties, the state government, and the coastal Commission. Why is the idea of strengething the existing retaing walls NOT even considered? This property is my only investment and my home. You are unilaterally deciding for me that my struggle to have a house in my chosen area is now thrown away and my entire investment is lost, can't sell, can't refinance. You are forcing homelessness on me. Please do not proceed with this outrageous "Managed retreat".

Thank you. B. Nordeman

From: Sent: To: Subject:

1

Eric Cox Wednesday, March 14, 2018 7:48 AM SeaLevel Rise Sea Levels...

Have been rising for the last twelve thousand years. This has been the result of the ending of the last Ice Age. We are in a interglacial era. The ice will come again and the oceans will dwindle as the glaciers grow.

Will this happen with the next 100 years? No one knows. Will this happen? It always has.

In the meantime, seawalls are simple in concept and relatively cheap to build. If large portions of Pacifica are written off, the tax rolls will be adjusted accordingly and the City will lose a lot of revenue.

If the city is unwilling to lead in protecting coastal properties, then they should be encouraging coastal property owners to form bond districts to protect their homes.

This is not rocket science. Ask the Dutch: "God built the Earth, but the Dutch built Holland". Go see Old Sacramento: it is all below the level of the river. Much of the San Joaquin Delta is only farmable because of their dikes.

Be proactive, but not stupid. / erc

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From:	Erin Macias <
Sent:	Wednesday, March 14, 2018 11:39 AM
То:	SeaLevel Rise
Subject:	comments on Sea Level Rise

Please identify all known and potential conflicts of interest and any bias in favor of managed retreat with the City's decision to hire consultant and Pacifica resident, Bob Battalio with knowledge of his publicly stated opinion on the "physically unlikely"1. ability to protect historic Sharp Park Golf Course and his public accusation of City of Pacifica's "mismanagement"2. of our shoreline.

1. https://www.youtube.com/watch?v=U6sWh29qp4k

2.<u>https://www.youtube.com/watch?v=omjUItNHtzg</u>

What financial resources are available outside of property tax dollars in the City of Pacifica to use during the likely event of private property lawsuits against the City for violating Coastal Zone Regulations Sec. 9-4.4400.b) Protect scale and character of existing neighborhoods, while also c) protect sensitive coastal resources and environmentally sensitive habitat?

What evidence either stated or implied does the City of Pacifica have in the General Plan that negates the philosophy and opinion of environmentally responsible and sustainable coexistence with nature as the overall consensus of the people?

Since Sea Level Rise is equally controversial and environmentally sensitive as Quarry development, wouldn't the best possible public input be a vote of the people to adopt or abandon Managed Retreat?

5 Has the Army Corps of Engineers been consulted to entertain the possibility of a large reinforced seawall and what were the findings?

Erin Macias Linda Mar

From:	
Sent:	
To:	
Subject:	

1

Ivy Ka Man Chan **Here (1997)** > Wednesday, March 14, 2018 1:13 PM SeaLevel Rise PLEASE DO NOT do Vulnerability Assessment

I am a homeowner in Pacific Manor. Your Vulnerability Assessment map covers my home but my house is actually hundreds of feet above the sea level. Please do not start the process...

Here is a list of questions and comments:

1. Do NOT pursue "managed retreat." Instead, you should be protecting your residents, their homes and property, their greatest investment, by armoring the Coast, building sea walls, berms, or placing riprap wherever necessary.

2. Why did the Pacifica City Council hire a consultant, Bob Battalio, to work on the Local Coastal Program, who has previously, publicly expressed his opposition to seawalls and his view that Pacifica should pursue "managed retreat"?

3. Why is Pacifica working on Sea Level Rise in its LCP when the California Coastal Commission has not even completed its Residential Adaptation Policy Guidance?

4. Why does the City use drafts – meaning studies that they have never been adopted by a government agency - as data sources, such as the "Army Corps of Engineers & Coastal Sediment Management Workgroup San Francisco Littoral Cell Coastal Regional Sediment Management Plan, DRAFT 2016"?

5. Why is the City's consultant, Bob Battalio, who's writing the Sea Level Rise Vulnerability Assessment, citing his own un-adopted policy from 2016?

6. The California Coastal Commission's Sea Level Rise Policy Guidance says that the "best available science on Sea Level Rise in California" is the National Research Council's (NRC) Sea Level Rise - California, Oregon, and Washington Past, Present, and Future. Why doesn't Pacifica's Vulnerability Assessment use the NRC's study?

7. Why does Pacifica's Vulnerability Assessment fail to state that the CCC's decision on the Sharp Park Berm was to maintain it in the future?

8. What happens if a home is drawn into the red area along the coast? What policies will be different for homes in the red zone than from other homes in Pacifica?

9. Will restrictions be placed upon homes in any of the identified zones? What are those restrictions?

10. What does it mean if a home is drawn into the storm-flood area? What policy differences will these homes face?

11. What are the economic ramifications of being in the drawn into one of the zones by the City?

12. When properties lose value because the City draws them into one of the vulnerability zones, will the City also lose revenue?

13. Will the City be liable for lost property value?

14. Will homeowners in any of the red vulnerability zones be able to get insurance? Will they be able to get a loan? Will their property values drop?

15. Can the LCP go to a vote of the people?

16. Armor the coast, protect the homes, truck in sand twice a year.

17. Why is the Vulnerability Assessment focused on Sea Level Rise, when the problem Pacifica has experienced is coastal erosion?

18. What are you going to do to protect the homes from Sea Level Rise?

19. Why has there been no discussion of armoring the Coast to protect the communities west of Highway 1?

20. What mitigation will be under consideration to protect Pacifica homes from coastal erosion?

21. What armament can protect the coast from Sea Level Rise? What about coastal erosion?

22. Ventura, Los Angeles, and San Diego are the most heavily armored California counties to protect residents from the ocean. Why is San Mateo County not among those counties?

23. How can the City close the public comment period when the City has not released the addresses or assessed values?

24. The Pacific Institute study was issued in 2009. Why is the City using 9-year-old data? Is there no newer information that can be used?

25. What is the next step in this process?

26. Will property owners in the red area be able to maintain their homes, get permits from the City, and remodel or replace their roofs

Thanks,

Ka Man Chan

1

From:	Judy Taylor
Sent:	Wednesday, March 14, 2018 4:37 PM
То:	SeaLevel Rise
Subject:	comments on vulnerability assessment

From what I understand, the maps indicate what would happen if the existing shoreline protections were not in place. That should be clearly noted.

If the assessment is for the purposes of saying what "might" or "could" happen, that is fine. If it is to indicate what the City plans to allow to happen, that is not OK.

2 Given that the data is still being collected, casting adaptation policies in concrete is very premature.

The assessment makes no accommodation nor mention of what could happen if the new technologies being applied in Venice and the Netherlands could be adapted to the California coast.

If a property owner finds their property in one of the vulnerability zones and there are unique conditions that make that3 specific property less vulnerable, there should be an appeal mechanism.

Before any assessment is complete, a property owner should be able to clearly identify their specific vulnerabilities. Thecurrent maps do not provide that clarity.

Judy Taylor BRE 00603297 Alain Pinel Realtors N Cabrillo Hwy Half Moon Bay, CA 94019

The economy is a wholy owned subsidiary of the environment, not the other way around. Gaylord Nelson

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From:	
Sent:	
To:	
Subiect:	

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Lawrence Bothen Wednesday, March 14, 2018 5:18 PM SeaLevel Rise Sea level rise strategy; attn: Bonny O'Connor

It should be obvious by now to all concerned parties exactly which areas of Pacifica are vulnerable to sea level rise, from our crumbling bluffs in the Manor to Linda Mar beach, and all points between. My concerns are two-fold.

First, the City has retained a consultant who has already staked out a preference for a managed retreat strategy, which appears to be supported by the Planning Department and at least two or three City Council members. I would point out that managed retreat is not actually a strategy but a commitment to do nothing other than waste taxpayer's money on a study which will not benefit anyone, least of all those who would be most affected by it.

Second, and the greater concern to those who would be affected by such a strategy, is the disastrous effect it would have on property values in the areas west of Coast Highway. If Pacifica chooses to passively allow the ocean to engulf our low-lying areas with no preventive action, particularly in Sharp Park, then it will not only decimate property values, it will make it impossible for those property owners to get insurance. This looks like an attempt by the city to low-ball property owners to avoid compensating them at fair market values. If that is the case then property owners would be justified in filing a class action lawsuit against the city to recover damages; something none of us can afford.

Two council members, Digre and Martin, even expressed opposition to letting San Francisco proceed with the repairs to the Sharp Park berm that were mandated by the Coastal Commission. This seems to be driven by an irrational desire to let nature take its course, either as penance for the greater sins of mankind (pollution, etc.) or because it's easier not to fight it. Rest assured it won't be easier or cheaper when the lawsuits start rolling in.

For the good of all Pacificans you must use every available resource to protect and preserve what has been built here. You cannot hope to grow the tax base if you can't maintain what you already have.

Respectfully,

Larry Bothen Troglia Terrace Pacifica (Rockaway)

From: Sent: To: Subject: Maria Martinez Wednesday, March 14, 2018 7:01 AM SeaLevel Rise Protecting your citizens

Hi city of Pacifica ,

Please Do NOT pursue "managed retreat." Instead, you should be protecting your residents, their homes and property, their greatest investment, by armoring the Coast, building sea walls, berms, or placing riprap wherever necessary.

Thank you for your attention to this,

Maria Martinez

1

Ps. I'm a Resident for more than 20 years!

Sent from my iPhone

1

2

From: Sent:	mark stechbart <> Wednesday, March 14, 2018 4:05 PM
То:	SeaLevel Rise; Wehrmeister, Tina; shermfrederick@gmail.com; NorthropWK Jane; mark stechbart
Subject:	LCP vul assess comments
Importance:	High

LCP comments, vul. assessment (VA)

1. VA disclaimer—why is this report not in public domain, since it was funded by taxpayer funds?? Appears to imply data is not reliable. Does the City agree with this vagueness? Does this disclaimer really exclude the public?

"Services provided pursuant to this Agreement are intended solely for the use and benefit of the City of Pacifica. No other person or entity shall be entitled to rely on the services, opinions, recommendations, plans or specifications provided pursuant to this agreement without the express written consent of ESA, 550 Kearny Street, Suite 800, San Francisco, CA 94108. This information is intended to be used for planning purposes only. All model results are subject to uncertainty due to limitations in input data, incomplete knowledge about factors that control the behavior of the system being modeled, and simplifications of the system. Site-specific evaluations may be needed to confirm/verify information presented in these data. Inaccuracies may exist, and Environmental Science Associates (ESA) implies no warranties or guarantees regarding any aspect or use of this information. Further, any user of this report and associated data, findings, recommendations, etc. assumes all responsibility for the use thereof, and further agrees to hold ESA harmless from and against any damage, loss, or liability arising from any use of this information. Commercial use of this information by anyone other than ESA is prohibited."

2. Draft report citation/reference must be removed. No other draft is used in the VA. "Coastal Regional Sediment Management Plan, San Francisco Littoral Cell (Draft) A Coastal Regional Sediment Management Plan (CRSMP) is a guidance and policy document that discusses how Regional Sediment Management (RSM) can be applied in a rapid, cost-effective, and resource-protective manner. ESA (2015) completed a Draft CRSMP for a segment of the San Francisco Littoral Cell along the San Francisco and San Mateo Counties Pacific coastline for the Coastal Sediment Management Workgroup (CSMW)."

Many commenters have questioned this "draft. USACE has not accepted it. This "draft" must be removed from the VA and not relied on in any fashion.

3. Technical data gaps—known from day one and not cured:

The City has failed to provide an attendance list for the Tech Working Group. Therefore I assume the following critical agencies did not attend nor submit data the public can evaluate. With incomplete data, public VA comments are meaningless on these huge costs and loss of services to the community:

Telcos—AT&T, Comcast, other

NCCWD

Caltrans (hwy 1 exposure)

PG&E

SamTrans (bus service)

Grocery stores (food delivery)

Ambulance service (emergency care)

Insurance companies (insurance denied in areas identified by City policy as threatened or unprotected)

"Drinking water – the <u>NCCWD</u> manages drinking water distribution for Pacifica, and is currently in the process of developing their GIS database. Therefore, drinking water distribution is not included in this draft assessment. ESA has requested paper or electronic maps of the distribution network in lieu of GIS data so that key infrastructure elements can at least be identified and included in discussions on vulnerability. Another surrogate for drinking water distribution is to use a map of fire hydrants and make assumptions on the type and location of pipe connecting them.

<u>AT&T communications</u> – AT&T provided electronic maps of their communications network, but not the underlying GIS data. We have not included these networks in the draft VA, and wish to obtain the GIS data. If these data are not obtained, we can include the network maps and discuss vulnerabilities qualitatively."

DRAFT Sea Level Rise Vulnerability Assessment for Pacifica LCP Update Pacifica LCP Update 30 ESA / D170663.00 SLR Vulnerability Assessment January 2018

3

DRAFT – Subject to Revision Natural gas and electricity – <u>PG&E</u> does not share data on their infrastructure network. If the City of Pacifica is unable to obtain these information, we must make assumptions and take a simplified approach to considering these assets. One potential workaround is to provide PG&E with shape files of the erosion and flooding hazard zones and ask them to tabulate or estimate the length of gas and electrical lines in each sub-area.

I did receive two emails, one from the water district and one from Caltrans. Neither is usable in its current level of detail.

From: mark stechbart
Sent: Tuesday, March 13, 2018 11:48 AM
To: Cari Lemke; mark stechbart
Subject: thanks-- Re: NCCWD Pipe Information

but this doesn't give me total value of installed NCCWD equipment west of why 1...

got a value for

- 1. pipe
- 2. other facilities
- 3. office building and yard?

now I know this will be rough-- no other place to put offices if threatened by slr.. costs to re-route piping east of hwy 1 means a lot of eminent domain... but anyway, a rough guess to above??

thanks/

From: Cari Lemke <clemke@nccwd.com> Sent: Tuesday, March 13, 2018 10:56 AM To: mark stechbart Subject: FW: NCCWD Pipe Information

Hi Mark – I wanted to follow up regarding your request for costs that we provided the City – below are the rough estimates per linear foot of pipe that we provided.

\$288/LF

\$336/LF

\$468/LF

Thank you

Cari Lemke

4" Ductile Iron Pipe in Roadway: \$271/LF

- 6" Ductile Iron Pipe in Roadway:
- 8" Ductile Iron Pipe in Roadway:
- 10" Ductile Iron Pipe in Roadway: \$387/LF \$416/LF
- 12" Ductile Iron Pipe in Roadway:
- 14" Ductile Iron Pipe in Roadway:

From: Sartipi, Bijan@DOT <bijan.sartipi@dot.ca.gov> Sent: Wednesday, February 28, 2018 7:23 AM To: mark stechbart Subject: Re: pacifica coastal plan update & hwy 1 matter

Thank you for contacting us regarding our involvement with the City of Pacifica and their ongoing efforts to update their Local Coastal Plan and develop a Sea Level Rise Adaptation Plan. Caltrans District staff are engaged with the City of Pacifica on this study, and they are participating on the Technical Working Group (TWG). Although our District Climate Change Planner was unable to attend the first TWG meeting, he has been in touch with City Planning staff to discuss the study and has offered to provide any relevant State Route 1 asset data needed to help inform the City's Sea Level Rise Vulnerability Assessment and Adaptation Plan. District staff are also currently reviewing the draft Sea Level Rise Vulnerability Assessment and intend to provide comments to the City this week.

It's also worth noting that Caltrans District staff worked closely with San Mateo County on their 2017 Sea Level Rise Vulnerability Assessment (http://seachangesmc.com/currentefforts/vulnerability-assessment/). The City of Pacifica's Adaptation Plan is building off of the information from the County's study.

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As you can see from the Technical Working Group meeting summary and presentation, now available on the City's Public Participation

website:<u>http://www.cityofpacifica.org/depts/planning/sea_level_rise_public_participation.asp</u>, the City has already acquired the Caltrans GIS data needed to assess sea level rise vulnerabilities to State Route 1 and to the bridges along this route. While asset data gaps have been identified in areas related to public utilities (PG&E, AT&T), and some natural asset data sets, no data gaps currently exist for transportation assets (highways, bridges, and local roads).

Once the Vulnerability Assessment is finalized and work begins on the Adaptation Plan, District staff will continue to work with City staff and their consultant team by providing any Highway cost and value information needed to inform the Economic Analysis portion of the Adaptation Plan. This is expected to occur by April, according to the project schedule.

4. GIS mapping does not reflect various scenarios expressed in VA: low, medium, high. 1-10 feet scale... slr

5. GIS Asset counts are defective: not exhaustive because homes and business omissions occur in all lists

Table 4 West Edgemar and Pacific Manor Asset Exposure Under Maximum Flooding and Erosion. Hundreds of affordable apartments not counted

Table 3 Fairmont West Asset Exposure Under Maximum Flooding and Erosion. Not a single home listed...

Table 7 Rockaway Beach, Quarry and Headlands Asset Exposure Under Maximum Flooding and Erosion .No businesses and not a single hotel listed.

6. GIS maps reluctantly generated by the City and are insufficient. No elevations, no street addresses disclosed, no street names listed. Flood boundaries are so crude as to be unusable. Given the scale of the GIS, homes on the flood line edge could be in or out since the "line" maybe 100 yards wide...

7 GIS has not identified homes, apartments or businesses by types.

The GIS legend is unusable. For example, search for affordable housing in any section and you find none. The legend indicates a green star but no stars appear on the map where affordable housing is known to be situated. The same for housing—no locator at all. Major features in the GIS are not identified for orientation. Key locations—golf course, rockaway business district or Pac Manor shopping center are not labeled.

8. The GIS shows flooding behind the golf course berm, the west sharp park seawall and armoring to the north. My fear is this denial of existing protective features is a show of creeping managed retreat bias in this report. The VA ignores the Coastal Commission order on course berm maintenance. These deficiencies impeach the report.

The GIS erosion 2100 line show Mori Pt and Pedro Pt destroyed. I question the geological evidence this will occur.

9. Notification-- Alert owners and renters in all addresses. Not everyone reads the <u>Tribune</u> nor subscribes to City email lists. US Mail best way to alert and is standard planning dept practice. Failure to notice means the City deliberates cuts a lot of voters out of the process.

10. Fill gaps in golf course berm, w sharp park seawall and north Pacifica armoring.
 Leave no holes subject to erosion, getting behind existing protective structures.

11. Reject managed retreat as a city policy. The voters will not tolerate any form of managed retreat.

12. The VA makes no mention of the SLR impact to anyone east of Hwy 1 at elevation.
 Everyone in this town uses water, sewer and telecom infrastructure. We all use Hwy 1.
 Loss of any of these features will costs all taxpayers a fortune and reduce our community property values.

13. The property valuation question-- a value is being established for unknown reasons using unknown methodology.

3/7/2018 Tribune: "The adaptation plan will not rely on the assessed value for its economic methodology, O'Connell noted. The GIS web viewer is now available on the city website, as well, as Runneals requested."

If assessed value is not being used, what method is being used? Are "values" set? When if ever will homeowners be told what their "values" are?

What is the purpose of establishing values? Homeowner red-lining?

Finally, since the city clerk doesn't work in planning and is not part of the project team, why is the city clerk commenting on critical details at all?

14. Feb 13 CWG meeting, no minutes available. VA comments made during Feb 13 CWG are being withheld. I am at a complete disadvantage commenting on Feb 13 discussions vs VA credibility...

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15. CWG is not being used properly. No members have publically commented on the record in the two meetings held so far and post-it notes on the walls have been summarized to the point of a) not identifiable to a CWG member, b) sanitized.

16 . all future public meetings must have 3 minute on the record public comments before a microphone, fully videotaped and minutes generated within one week as opposed to current city foot-dragging-minutes-posting lapse of 5 weeks. Post-it notes on the wall are not a substitute for open testimony and a clear public record.

Click <u>here</u> to report this email as spam.

16

Letter P97

March 14, 2018

Bonny O'Connor Assistant Planner City of Pacifica 170 Santa Maria Ave. Pacifica, CA 94044

Re: Sea Level Rise Vulnerability Assessment

Dear Ms. O'Connor:

1

We, the undersigned members of the Board of Directors of the Pacifica Historical Society are seriously concerned that some areas considered "vulnerable" in the Local Coastal Plan Update, particularly the West Sharp Park district, are, in fact, among the oldest and most historically significant neighborhoods in Pacifica. We hope that those formulating the new plan can look beyond the present market price of, for instance, a small, 100-year-old bungalow on a 25-foot-wide lot and recognize the intrinsic cultural value of a building that has stood here since the days of the Ocean Shore Railroad, a weathered witness to almost the entire evolution of our community.

As the Official Historian of the City of Pacifica, we have compiled a listing of over 370 buildings in West Sharp Park (formerly "Salada Beach") with addresses and dates of construction. 83 of these structures were built before the end of World War II – and the post-war population explosion – and at least 5 were built before 1910. Among the many historic buildings listed is the present City Hall, built in 1914 as the old San Pedro School, and the Little Brown Church, now the Pacifica Coastside Museum, built in 1910. The entire neighborhood is a picturesque mixture of quaint, older homes and shops, interspaced with newer buildings, nestled amid mature foliage within the sight and smell of the ocean: the quintessential California beach community. The ongoing improvements to Palmetto Avenue can only add to our enjoyment. But it is our obligation to protect what history has handed us.

Additionally, we urge the continued defense of the historic Sharp Park Golf Course, the only seaside municipal course in the world designed by the legendary Alister Mackenzie, and a Pacifica landmark since its opening in 1932. Indeed, the vital earthen levy guarding its western edge should be solidly connected to the seawall along the beach at West Sharp Park, eliminating the existing dangerous gap, and both sides should be reinforced to provide maximum protection.

We strongly recommend that in regard to all these treasured community assets, "managed retreat" is not an option, and that reasonable and resolute action taken today will ensure their continued existence for generations to come. Thank you for your consideration.

Respectfully Submitted, Kathleen Manning, Director Emeritus Marvin Morganti, Director Emeritus Clorinda Campagna, Director Jerry Crow, Director Rick Della Santina, Director Mary Dougherty, Director Shirlee Gibbs, Director Deidra Kennedy, Director Paul Slavin, Director Steve Talsky, Director

cc: Pacifica City Council

From: Sent:	Wednesday, March 14, 2018 10:10 AM
To: Subject:	SeaLevel Rise Comment to the City of Pacifica for its Vulnerability Assessment
Importance:	High

Good morning,

1

Please do NOT pursue "managed retreat." Instead, you should be protecting your residents, their homes and property, their greatest investment, by armoring the Coast, building sea walls, berms, or placing riprap wherever necessary.

From: Sent: To: Subject: Tom Richardson Wednesday, March 14, 2018 11:44 AM SeaLevel Rise SEA LEVEL RISE/ MANAGED RETREAT

To Pacifica City Council Members

Regarding Pacifica and Managed Retreat:

Governments and specifically you as city council members are elected to "protect and preserve" the people and property in the area being governed. As the great late Senator from New York told his colleagues, "you are entitled to your own opinion but you are not entitled to your own facts". It seems that you are referring to unpublished and unproven and incomplete and biased reports and studies that create results which are not fact based. You were not elected to decide who is to be protected and who is to be sacrificed. There are many alternatives to sacrificing private property and public infrastructure. Sea level rise is a real thing. So are earthquake fault zones. Should we plan a managed retreat from our earthquake fault zones? No, we improve our building codes and engineering work to help protect property and infrastructure in those areas. We know how to protect from sea level rise: improved sea walls, stronger berms, riff-raff along the coast.

Many ordinary citizens and experts consider managed retreat a dereliction of duty on the part of our publicly elected officials.

I strongly and respectfully request that you take steps to protect and preserve private and public property, not be complicit in its destruction.

Thank you

1

Tom Richardson

From:	Wendy Huber
Sent:	Wednesday, March 14, 2018 1:49 PM
То:	SeaLevel Rise
Subject:	Lifetime resident on Beach Blvd please save the sea wall

Hi there.

1

My name is Wendy and I am a lifetime resident of Pacifica. I own a property on Beach Blvd, near the end by the golf course. My parents bought the home and passed it on to me when they passed. I have raised my children there and they hope to raise their children there and to be able to pass the home down to future generations.

It is heartbreaking to think about loosing our family home because the City may abandon efforts to preserve the sea wall. Please don't abandon us. I see all the concerns people raise about being able to get insurance etc and that is all scary but for me, but having to move and loose our family home would be devastating. Where will we go... Pacifica has been my home all my life and for my children. I don't think we would even be able to sell our home of this happens because we are in the Red zone. What will become of us, I just don't know.

Please, reinforce the sea wall, build a new one or whatever needs to be done to help those of us who live along the coastline in this beautiful and magical city.

Thanks. Wendy Huber/ Owner Beach Blvd Pacifica CA 94044



Masonic Ave., San Francisco, CA 94117 •

March 14, 2018

1

Pacifica City Planner Lisa Wehrmeister Pacifica City Manager Kevin Woodhouse 170 Santa Maria Ave. Pacifica, CA. 94044

Re: Pacifica Draft Sea Level Rise Vulnerability Assessment is marred by data gaps, errors, non-compliance with Pacifica's RFP, and disregard of its Coastal Commission Grant and environmental justice.

Dear Ms. Wehrmeister and Mr. Woodhouse,

We have previously submitted comment letters in this matter dated January 22, 2018¹ and September 18, 2017,² which letters we incorporate herein by this reference.

1. Sea Level Rise Adaption Planning ultimately requires cost-benefit analysis

Development of a Pacifica Sea Level Rise Adaption Plan is a key goal of the current Local Coastal Plan Update process. And this will ultimately require an analysis of the costs as well as the benefits of the different sea level rise responses – ranging from armoring the shoreline to retreating from it. Pacifica's June 28, 2017 Request for Proposals describes the cost-benefit analysis that will go into Adaption Planning as follows:

"Evaluate new accommodation, protection, and retreat strategies for each subarea . . . and compare how these address vulnerability and risk. This evaluation will include an **in-depth assessment of the costs and benefits** of implementing each strategy, including costs and benefit related to recreational and ecological values of beaches and other coastal resources, along with consideration of community input."³

³ Request for Proposals, City of Pacifica, June 28, 2017, for Draft Local Coastal Plan Update, Preparation of Sea Level Rise Vulnerability Assessment, Risk Assessment, and Adaptation Planning, at pages 4-5 (found at the Pacifica City Council Meeting Agenda Packet, Aug. 14, 2017, pages 186-187: http://pacificacityca.igm2.com/Citizens/FileOpen.aspx?Type=1&ID=1156&Inline=True

¹ Letter, San Francisco Public Golf Alliance to Pacifica Planning Department, Jan. 22, 2018: <u>https://drive.google.com/file/d/1ya0QcH6OZIJ3Xe7CUoiTGNmSP9XK0j7O/view?usp=sharing</u>

² Letter, San Francisco Public Golf Alliance to Pacifica Planning Department, et al., Sept. 18, 2017: <u>https://drive.google.com/file/d/1LCky3VD_IVN6EwANBRN_WmKLSDaNbt9B/view?usp=sharing</u>
2. "Data Gaps" in the Vulnerability Assessment must be eliminated

Because a key part of the ultimate Adaption Planning will be a cost-benefit analysis, it is critical that all of the on-shore built and natural assets now protected by Pacifica's sea walls and other shore defenses – the homes, businesses, schools, water, sewer, electrical and other utilities, emergency response, streets, highways, and nature – be inventoried **and valued**.

But the Draft Vulnerability Assessment tends to under-report both the built assets and the environmental, historical, and recreational assets, and the rental and low-income residential properties that lie between the beaches and the Coast Highway. As discussed at pages 1-6 of our January 22 letter, in the Sharp Park District these under-reported assets include single- and multi-family residential and commercial properties, natural assets including California red-legged frog and San Francisco garter snake habitat in the Laguna Salada wetlands, and the coastal public recreational resources at the historic Sharp Park Golf Course.

Moreover, the Draft Vulnerability Assessment's failure to list individual residential and business properties makes it impossible to place a current collective market value on the real properties – or to verify whatever values the City's consultant may come up with for the properties. Especially given ESA's admission that its data is "subject to uncertainty . . . inaccuracies may exist" (see Section 2.B, below), it is untenable to go without a list of properties that can be used by the public to check on the consultant's work.

A. The Draft Vulnerability Assessment improperly relies upon a known unreliable data source – the 2016 Draft CRSMP.

At pages 2-3, the Draft Vulnerability Assessment⁴ states that its analysis is based upon "readily-available data sources," including asset data from the January, 2016 Draft Coastal Regional Sediment Management Plan ("CRSMP") – which was authored by ESA, Inc., Pacifica's consultant for the instant Sea Level Rise study. But that 2016 Draft CRSMP was based on clearly faulty and incomplete asset data, which drew detailed criticism for underreporting from the City of Pacifica,⁵ the City and County of San Francisco⁶, and the San Francisco Public Golf Alliance.⁷ As a result, the Draft CRSMP was never finalized. Accordingly, it should be disqualified as a data source in Pacifica's Sea Level Rise study, including the current Vulnerability Assessment.

⁴ Draft Sea Level Rise Vulnerability Assessment

⁵ Letter, Van O'Campo, Pacifica Public Works Dept. to Susan M. Ming, Mar. 3, 2016, at p.3, criticizing Draft CRSMP omission information about Pacifica residential and commercial neighborhoods protected by the Sharp Park levee: <u>https://drive.google.com/file/d/0B1h0x8Eg99deS1BkVzZzeEFIRGM/view?usp=sharing</u>

⁶ Letter, Philip Ginsburg to Susan M. Ming, Feb. 18, 2016, and attached Memorandum, criticizing Draft CRSMP for omitting mention or evaluation of Laguna Salada wetlands habitat and endangered SF garter snake and California red-legged frogs (Memo, pages 3-6), and the recreational, architectural, and business assets at the Sharp Park Golf Course (Memo, pages 6-8), as assets protected by the Sharp Park levee https://drive.google.com/file/d/0B1h0x8Eg99deOHUxRWZOYmQ4UHM/view?usp=sharing

⁷ Letter, SF Public Golf Alliance to Susan M. Ming, Feb. 8, 2016 <u>https://drive.google.com/file/d/0B1h0x8Eg99deQ1c1Y2tRcmJscmM/view?usp=sharing</u>

B. Sharp Park Beach is not eroding

The Draft Vulnerability Assessment, at Table 6, projects 20.4 acres of beach erosion by 2100 in the Sharp Park, West Fairway Park and Mori Point area.⁸ This projection is unreliable because: (1) it is too vague – it does not specify what amounts of erosion are projected for the beach to the west of the golf course levee as opposed to the beach between Clarendon Ave and the Pacifica Pier; (2) no authority is cited at Table 6 as basis for the beach erosion projection⁹; and (3) the projection is contradicted by substantial evidence that the beach west of the golf course levee is not eroding -- there has in fact been no erosion of that beach since the levee was erected in the late 1980's.¹⁰

C. The Draft Vulnerability Assessment does not identify homes and businesses, as required by the Coastal Commission Grant and the Request for Proposals for Pacifica's Sea Level Rise study.

Pacifica's Grant Application to the Coastal Commission, its Request for Proposals, and ESA's bid for the current Sea Level Rise Study, all require that flooding and shore erosion risks to Pacifica public and private properties and assets – including **homes and businesses** -- must be publicly reported and evaluated in the Vulnerability Assessment portion of the Sea Level Rise Study.

"City will evaluate how sea level rise and erosion will impact . . **homes, businesses**." (p. 2) and the consultant will prepare an "Assessment Preparation," collecting information "on how sea level rise can worsen existing issues and impacts from coastal erosion and flooding, [on] . . . **homes, businesses** [and other assets]". (P. 3.)¹¹

But the Draft Vulnerability Assessment does not list the residential and commercial coastal properties potentially affected by flooding and shore erosion associated with sea level rise projections. The Draft references a Revised Asset Inventory Memo for Pacifica LCP

¹⁰ See Letter, Feb. 19, 2016, SF Public Golf Alliance to Coastal Sediment Management Workgroup, Susan M. Ming, Project Manager: <u>https://drive.google.com/file/d/0B1h0x8Eg99deOUU1Nmx0M2txa2M/view?usp=sharing</u>

⁸ Draft Sea Level Rise Vulnerability Assessment, Pacifica, CA, ESA, January, 2018, at page 41: <u>Draft Sea Level Rise Vulnerability Assessment</u>

⁹ Table 6 cites no authority for its projections, but it appears elsewhere in the Draft Vulnerability Assessment that the beach width projections were taken from the 2015 Draft Coastal Regional Sediment Plan (CRSMP) for the San Francisco Littoral Cell, authored by ESA, Inc., and published in January, 2016. However, that Draft CRSMP was the subject of extensive public comment, including lengthy comment from the San Francisco Public Golf Alliance, and the Draft CRSMP was never finalized, so is not official.

¹¹ City of Pacifica, Request for Proposals, Jn. 28, 2017, pp. 2-3, found at the Pacifica City Council Agenda Packet, Aug. 14, 2017 pp. 184-185:

http://pacificacityca.iqm2.com/Citizens/FileOpen.aspx?Type=1&ID=1156&Inline=True. And see: (1) ESA, Approach and Scope of Work, July 24, 2017, p. 2-1, found at the same City Council Aug. 17, 2017 Agenda Packet, at p. 248 ("ESA will accomplish the scope of work provided by the City of Pacifica in the RFP dated June 28, 2017"); and (2) Coastal Commission LCP Planning Grant Application Form, Mar. 28, 2016, p. 1, found at the same City Council Aug. 17, 2017Agenda Packet, at p. 216 ("The City... will evaluate how sea level rise and erosion will impact the city's social, economic, and physical coastal resources, including homes, businesses...")

Update (ESA 2018),¹² which does not contain a list of properties, but only an "Asset Summary" – a half-page list of 32 **categories** of "built assets" ("residential buildings, hotels, offices, . . . roads," etc.), seven categories of "natural assets" ("beaches. . . wetlands, SF garter snake habitat," etc.), and 11 categories of "access and recreation" ("view points, golf course, surfing areas," etc.). Repeat: there is no list of actual properties, but only a statement, at page 1 of the "Revised Asset Inventory" Memorandum, that "these assets were processed in GIS".

5 (Cont.)

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Responding to a request from a Sea Level Rise Community Work Group member, Pacifica Planning Department on or about February 28, 2018 posted on its website a high-tech internet-based reading "tool" created by ESA, to enable public access to ESA's GIS data files on which the Draft Vulnerability Assessment is based: <u>Asset Data and Hazard Zone GIS-</u> <u>webviewer</u>. On the Terms and Conditions page of the GIS webviewer, ESA (1) confirms that the online map contains all of the GIS data files used by ESA in creating the Vulnerability Assessment, and (2) cautions that ESA does not warrant the accuracy of its data.

"Environmental Science Associates (ESA) is working under contract with the City of Pacifica to prepare an update to the City's Draft Local Coastal Plan Update to include a vulnerability assessment and adaption planning related to sea level rise. This Web Map contains the coastal hazard data and asset data collected for the Vulnerability Assessment....

All model results are subject to uncertainty... Site-specific evaluations may be needed to confirm / verify information presented in the data contained in this map. Inaccuracies may exist, and Environmental Science Associates (ESA) implies no warranties or guarantees regarding any aspect or use of this information."

Both ESA and the Pacifica Planning Department have access to property data lists of all Pacifica properties, from which they could easily make publicly-available lists of the properties within the various flood and erosion risk zones covered by the Sea Level Rise study.

D. There are obvious signs of unreliability in the GIS Map – including underreporting of at-risk multi-family and low-income rental properties. This calls for a more user-friendly property inventory – that is to say, a list.

As quoted above, ESA admits to "uncertainty" and "inaccuracies" in its GIS data, and admits the need for "site-specific evaluations. . . to confirm / verify information".

A glaring error in the Draft Vulnerability Assessment's <u>Asset Data and Hazard Zone</u> <u>GIS-webviewer</u> map is its failure to identify the amount of rental housing and virtual failure to identify any low-income rental housing in the hazard areas west of the Coast Highway. The GIS map's "existing land use" function identifies multi-family residential property, but does not state the number of units or residents, and does not state whether those multi-family properties are owner- or renter-occupied. And while there is an "affordable rental" function in the GIS map, the term is not defined, and the map shows only a single (1) "affordable rental" property west of the Coast Highway (it is located just north of the golf course).

This information is clearly wrong. ESA's GIS map grossly underreports the residential rental and specifically low-income rental properties west of the Coast Highway. This violates

¹² <u>Revised Asset Inventory Memo (1/9/2018)</u>. This is a 4-page memo with a 2-page Attachment A, posted on the Planning Department's SLR webpage (<u>http://www.cityofpacifica.org/depts/planning/sea_level_rise.asp</u>).

Pacifica's Coastal Commission Grant, which declares Pacifica's priority to "enhance environmental justice," and states the well-known facts that

"... the housing stock in Pacifica's coastal zone is some of the oldest in the entire city... a large portion of the city's affordable housing is this older housing stock, within the area of greatest coastal hazard risk... The vulnerability/risk assessments and adaption plan will allow the city to assess the safety and accessibility of housing within the coastal zone, and create and then incorporate policies in the LCP that will protect low-income families from the impacts of sea level rise, erosion, and coastal flooding."¹³

These obvious errors in the <u>Asset Data and Hazard Zone GIS-webviewer</u> add to the evidence of unreliability in the Draft Vulnerability Assessment and inadequacy of the City's and ESA's approach in relying on the Asset Data and Hazard Zone map instead of welcoming and facilitating public input by making property lists of the at-risk properties available for public inspection and comment.

E. The Draft Vulnerability Assessment fails to analyze the different sea-level rise scenarios required by the Coastal Commission Grant, Pacifica's Request for Proposals, and ESA's bid.

Pacifica's Request for Proposals for the sea level rise study (adopted and agreed to by ESA's Scope of Work, at page 1) requires that the vulnerability assessment "study three sea level rise scenarios: no sea level rise +1% storm (baseline); 3.3 feet of sea level rise (2050); and 6.6 feet of sea level rise."¹⁴

The "baseline" and 3.3-foot (2050) scenarios are nowhere to be found in the online <u>Asset Data and Hazard Zone GIS-webviewer</u>. If, as ESA states in its Terms and Conditions statement, the Asset Data and Hazard Zone map contains all of the GIS files that comprise the Draft Vulnerability Assessment, then it appears that neither ESA nor Pacifica Planning has yet prepared the "baseline" and 3.3-foot sea level rise scenarios.

¹³ California Coastal Commission LCP Planning Grant Application Form, March 28, 2016, at p. 2, found at the Agenda Packet, page 217, for the Pacifica City Council's August 14, 2017 meeting: http://pacificacityca.igm2.com/Citizens/FileOpen.aspx?Type=1&ID=1156&Inline=True. ESA's bid package for the Pacifica LCP planning job declares that ESA's work will be consistent with the Coastal Commission Grant. See ESA, Approach and Scope of Work for the Pacifica SLR Study, at page 1, found at the Agenda Packet for the Pacifica City Council's August 14, 2017 meeting, page 248: http://pacificacityca.igm2.com/Citizens/FileOpen.aspx?Type=1&ID=1156&Inline=True. http://pacificacityca.igm2.com/Citizens/FileOpen.aspx?Type=1&ID=1156&Inline=True. http://pacificacityca.igm2.com/Citizens/FileOpen.aspx?Type=1&ID=1156&Inline=True.)

¹⁴ Pacifica Request for Proposals, June 28, 2017, <u>supra</u>, p. 3. The same requirement is found at Exhibit B to the RFP, at p. 3. These documents are at Pacifica City Council Meeting Agenda, Aug. 14, 2017, Packet Pages 185 and 206: <u>http://pacificacityca.igm2.com/Citizens/FileOpen.aspx?Type=1&ID=1156&Inline=True</u>

7 (Cont

Curiously, at Page 27, Tables 1 and 2, the Draft Vulnerability Assessment appears to say that (instead of the 3.3-foot scenario required by the Request for Proposals) the study will use 1-2 foot sea level rise scenarios for the year 2050.¹⁵ The Draft Vulnerability Assessment gives no explanation for this.

Very truly yours,

San Francisco Public Golf Alliance

Ríchard Harrís

Richard Harris, President

CC:

Pacifica City Council Pacifica Public Works Department Bonny O'Connor, Assistant Pacifica Planner San Francisco Recreation and Park Department Congresswoman Jackie Speier State Senator Jerry Hill Assemblyman Kevin Mullin San Mateo County Board of Supervisors California Coastal Commission, North-Central Coast District San Mateo County Office of Sustainability U.S. Army Corps of Engineers, Susan M. Ming, PE Bo Links

¹⁵ Draft Sea Level Rise Vulnerability Assessment

O'Connor, Bonny

From:	Nancy Stotts	
Sent:	Thursday, March 01, 2018 2:36 PM	
Го:	SeaLevel Rise; Nancy Stotts	
Subject:	Thoughts - LCP	

Thank you for making public comment available. Pacifica is many things to me, but most of it is centered in home and community.

My concerns are as follows:

- 1. Why must we make the Pacifica LCP now when we don't have the guidance from the Costal Commissions second draft of the Residential Adaptation Policy that is scheduled in 2 weeks? It would seem prudent to delay comments and input until we know what guidance the Coastal Commission is providing.
- 2. The materials circulated do not consider data addressing the various perspectives on sea level rise. If you submitted your report as it exits to a reputable peer reviewed research journal, I believe it would be rejected because it is not balanced.
 - 3. The diagram showing the current status does not include any of the existing barriers that protect the shore. Why?
 - 1. How will "assets" be valued i.e., homes and businesses? I am hoping it is not the assessed tax value. My concern is that a Linda Mar rancher than today sells for \$800,000 \$900,000 is assessed for tax purposes at \$89,000. Who has authority to set the value assets?
- 2. What is the estimated cost of the various options? What is the financial cost to individuals and businesses in the vulnerable areas? I ask only about financial as most would agree there will be psychological and emotional impact as many people have spent their whole lives investing in their homes and businesses.
 - 3. Why isn't the list of addresses of individuals and business in the vulnerable areas available so people can appreciate how serious the threat is to them individually?
 - 4. Why are approaches to protect the coast not discussed or described e.g., build sea wall (as in Half Moon Bay), truck in sand, etc.?
 - 5. What is the estimated financial cost to individuals and businesses that are **not** in the vulnerability area? Clearly there would be implications as to the value of property, insurance, and threat of limiting permits for repairs, etc. Again with the same thinking about long term investment and potential for devaluation having serious psychological and emotional consequences as well as financial implications.
 - 6. How will the city of Pacifica survive if/when a managed retreat approach/hybrid approach is undertaken? Since the majority of businesses are west of route 1, what will support the city? Why do we want to get rid of our tax base?
 - 7. Finally, is there some reason that a study has not been conducted that has been conducted to evaluate the financial impact of the various approaches on the homes and businesses in Pacifica? Data based decision making seems critical in this situation.

Thank you in advance for considering my concerns.

Nancy Stotts Glacier Ave. Pacifica, CA 94044

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Murch 14, 2018 Sealevel Lise Comments Letter P103

What is important to me - - -

1

We need to be able to mointain our homes which means will aread Pumits and whatever else the City would held to provide in order for someone to work on our homes.

Our homes and Zamily are most important.

The Seawall The blufb between ocean & golft course Existing Trails

RECEIVED MAR 1 4 2018

Letter P104 1 RECEIVED R MAR 1 2 2018 3/12/18 City of Pacifica Dear Bannie O'Connor, I have lived in Pacifica 37 years on Beach Blid Street, First we rented and creaturely we bought a home. I am writing this letter to urge the Pacifica bound to strengthen and maintain the seawall. IF we but potect the sea well along Beach Blud, most of the poperfiles inolving hundreds of millions of follows will be Flooded, too, Beach Blud 1 N 12 actually a higher elevation than many buildings Further east, all the way to Highway I. Not aly would stury I be at risk, but the golt course area too. Lindo mar would also be at risk, it you adopt a retreat philosophy. The cheaper al better and more Fair course is to heighten al strangthen ar ser walls in Sharp Park & Linda Mar to combert riving sea levels, to areded. Respectfully Jeffy Bon



1

Pacifica Sea Level Rise LCP Update Workgroup Meetings Mapping Exercise Handout 1/23/2018

Name: Joanne Gold	Initials: JC
Affiliation: public (non affiliated)	
Contact information (phone/email):	

This form is designed to facilitate input on the draft vulnerability assessment for the Pacifica Sea Level Rise LCP update workgroup meetings on 1/23/2018. Please provide a map reference for each comment. Input is requested on the following topics:

- Identification of any data gaps and recommendations of data sources to fill gaps
- Identification of recreational areas/uses/facilities and public access (and data sources)
- Identification of ecological and marine assets (and data sources)
- Identification of other community use areas and areas of concern
- Recommendation/notification of preferred/existing adaptation plans within Pacifica

Please provide your initials and number for each comment on the maps, provide details to your comment on this form and follow up with Bonny O'Connor via email (o'connorb@ci.pacifica.ca.us) to provide any further information, reports, contacts etc. by February 28, 2018.

Comment #	Description
<u> </u>	PEdro point - vacent field floods entirely, not just in highlighted area
2	Red point recreational access: community Picygrand behind Red Point File hui
3	recreational/Facilitues = Pedro Point Firehous asset
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o	



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Please provide your initials and number for each comment on the maps, provide details to your comment on this form and follow up with Bonny O'Connor via email (o'connorb@ci.pacifica.ca.us) to provide any further information, reports, contacts etc. by February 28, 2018.

Comment # Description ł CONC 520 1



Comment Form

City of Pacifica Sea Level Rise Public Workshop Tuesday, February 13, 2018

Name: Matthew Koester Phone No.:__ Email Address: _

Yes, I would like to be added to the Sea Level Rise mailing list and I have provided my email address above.

Location-Specific Comments

1

How do you use Pacifica's coastal area, and where? Hike In the quarty, Rockoway Headland, and Pedro Point Weadland. Use the guarry to pray, von, and center myself. I participate in Beach Coulition (learness. My Entends and I Surt Nery Frequently at Linda Mar and Esplande. Lused to use the Esplanade Beach for dogwalks when (liked there. Beaches are the primary places we take Our dogs for recreation. I use the bike between halloway + Lindower. (45 pire to kayak and fish in our Puth Olcan as well. What concerns do you have related to sea level rise impacts in Pacifica, and where? 1. Socioeconomically Unlowble populations are alfected (Mcukers) in Maror as well as Coastel Linda Mar. I Fear for families Her hours to extreme flooding Cuerts. Loss of Picceedion ! our public coastel areas are primary focal point for outdoor activity a when Part of our cultured libe in this city. (Proclamery CM, Sthophak, Esplande Benches) Cology: our thorebirds and coastel ecology will bind it More difficult to survive drastic fluctuations in secler 1/ [over] weather patterns. weather patterns. (All areas

Letter P107

General Comments

What about Pacifica's coastal zone is important to you? (acted and esturies ane enerse of range an lanportat OBU.Ke Space ecrection 1 (Cont.) events CFis Sustenance cuen Please list any concerns you have related to the sea level rise adaptation plan and LCP Update process. like facilitations to understand the Would planned retreat versus buffers, berns <u>ا</u>۲۷ lad Sec wells. I won't Pulificans 10 be Prepared about how to ellocate Public decisions Capital when sea level rise sources an equirboren. 1 would like COL to understand OUC Envolved in new Coastal development. (replify Do you have any other comments or feedback? Sec level rise max or may not happen whithin period, in any particular degree. Short time the Sea Cevel events will affect My in this fown and cliewhere. For us these issuer I would appreciate including as m a given. and falging Possible. a plunning us preventative COD Bach Our children Cun be cllevieles of that those of us, and 0 at least some Forms can be returned to staff tonight, emailed to sealevelrise@ci.pacifica.ca.us,

Forms can be returned to staff tonight, emailed to <u>sealevelrise@ci.pacifica.ca.us</u>, S و fl-«ابن or mailed to Bonny O'Connor, Assistant Planner at 170 Santa Maria Avenue, Pacifica, CA 94044. Comments must be received by February 28, 2018.

Thank you for your input!

March 14, 2018



Bonny O'Connor, AICP Planning Department, City of Pacifica 1800 Francisco Blvd. Pacifica, CA 94044

Dear Ms. O'Connor:

Thank you for your work updating the City of Pacifica Local Coastal Plan (LCP). Surfrider San Mateo Chapter is submitting the following comments on the Draft Sea Level Rise Vulnerability Assessment for consideration by the City of Pacifica.

Sea Level Rise (SLR) is a result of Climate Change, which has the potential to create consequential impacts to the City of Pacifica's infrastructure, economy, and overall well-being. We would like to see <u>more data on the potential impacts of climate change</u>. What are the potential impacts of storm events of increased severity on infrastructure such as the ability of storm drains and sewage treatment facilities? Will they be able to deal with high water flow? The City already has problems with sewage management during periods of heavy rainfall. Moreover, the science of climate change is developing at a rapid pace resulting in more accurate predictions. <u>Please include provisions for updating the vulnerability assessment</u> as more information becomes available regarding climate change.

We are pleased that this draft includes language regarding expanding upon the existing natural resources that are listed in the Final Vulnerability Assessment. **Waves** are a natural resource and deserve specific and separate attention. On Page 29 in the listing of assets, <u>please</u> <u>consider including waves under the heading Natural Assets and add them under the Ecosystem</u> <u>category in Asset Exposure Tables for each sub-area</u>. Waves interact with all the other listed natural assets in both protective and destructive ways, depending on the amount of wave energy that reaches these assets. The amount of wave energy that reaches these assets is impacted by shoreline armoring, bulkheads/revetments, jetties/levees/breakwaters, and piers that are present in the City of Pacifica. Waves are a major driver of sedimentation and thermal stratification turnover in near-shore waters, which is in turn a major driver of erosion and the health of near-shore habitat.¹

In addition, waves impact Access Assets and provide Recreation Assets. We are pleased to see Surfing listed under recreation. However, the persistence of ridable waves is not guaranteed and will be affected by SLR and adaptations built to address it across the planning horizon covered in this assessment. Our collaborators, the Save the Waves Coalition have documented endangered waves around the world that are threatened by coastal development and adaptations, and we have one in our own backyard, Surfer's Beach/Princeton Jetty. In 2009, Save the Waves completed a surfonomics study of Mavericks and estimated a \$24 million annual economic contribution from that wave.² It is likely that the economic benefit of waves to

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¹ <u>https://www.kingcounty.gov/services/environment/water-and-land/shorelines/about/shoreline-ecology/wave-energy.aspx</u>

² <u>https://www.savethewaves.org/programs/surfonomics/surfonomics-sites/mavericks-california-2009/</u>

the City of Pacifica is also very high, particularly from Pacifica State Beach in Linda Mar. It draws thousands of surfers of all abilities and surf enthusiasts year-round and is recognized in 3 (Cont.) this draft assessment as a valuable asset to current City management. The disappearance of waves along Pacifica's shoreline from the municipal pier down to Pedro Point is a real possibility if our wave assets are not adequately addressed in Pacifica's LCP.

We encourage the location and analysis of records for the subdrain in West Linda Mar. Appropriate flood management is not only vital for homeowners and businesses in the area, but it directly impacts the quality of water at Pacifica State Beach. Surfrider San Mateo County Blue Water Task Force conducts weekly water quality sampling in San Pedro Creek, and we consistently find bacterial counts well in exceedance of EPA recreational contact standards, particularly following rain events.³ We suggest that <u>near-shore ocean water quality should be</u> <u>added to the list of data gaps on page 29</u> that should be addressed in the Final Vulnerability Assessment.

Finally, we would like to recognize the City and the ESA contractors for acknowledging data gaps related to public access and recreation. <u>Recreational uses that are important to Surfrider</u> <u>beyond surfing that we recommend for specific itemization are: walking, running, hiking, skating, biking, beach picnics, and similar activities done on or around the beach, shoreline, and bluffs.</u> All of these activities not only contribute to the health of the public, they contribute to the City's economy by drawing visitors and in some locations, may offer alternative transportation methods for people to reduce their carbon footprint. While many of them require the same types of infrastructure, listing them separately shows that the City of Pacifica recognizes, embraces, and is committed to diversity in preferences and abilities among residents and visitors alike.

Thank you for this opportunity to comment on the City of Pacifica's Sea Level Rise Draft Vulnerability Assessment.

Sincerely,

Taletha Derrington, PhD Secretary, Surfrider San Mateo Chapter Co-Lead, Surfrider San Mateo Blue Water Task Force

Edmundo Larenas Lead, Surfrider San Mateo Blue Water Task Force Commissioner, San Mateo County Harbor District

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³ <u>http://www.surfrider.org/blue-water-task-force/beach/402</u>



Pacifica Sea Level Rise LCP Update Workgroup Meetings Mapping Exercise Handout 1/23/2018 Letter P109

Name:	STEE-HStor	Initials:
Affiliation:		

Contact information (phone/email):_

1

This form is designed to facilitate input on the draft vulnerability assessment for the Pacifica Sea Level Rise LCP update workgroup meetings on 1/23/2018. Please provide a map reference for each comment. Input is requested on the following topics:

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Comment # Description conste うつ UNAS+ 07452