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October 19, 2018

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

**Subject: City of Pacifica Draft Land Use Plan (LUP) Hazard Policies**

Dear Ms. Wehrmeister:

This letter is in response to the City of Pacifica's request for comments on the "Proposed Updated Land Use Plan Coastal Hazards Policies" provided to us in a memo from ESA to the City (entitled "Sea-Level Rise Policy Options for Pacifica LCP Update" and dated August 24, 2018). As you know, we previously provided comments on a memo from ESA to the City with the same title and date (see attachment 1 for that memo, and see attachment 2 for our comments on it in a letter to the City dated August 31, 2018). We were surprised to see that the second memo (see attachment 3) was substantially different than the first memo and did not respond to the majority of our suggestions. Regardless of why the City may have chosen this approach, with respect to the second memo, many of our previous comments still stand, and are repeated below as appropriate. We have also suggested specific modifications to the policies and text within the new memo, including indicating where we believe that language from the first memo we reviewed should be re-inserted (see attachment 3). It is our understanding that the City Council will be considering these draft hazard policies by themselves now, but it is ultimately the City's intention to incorporate them into an overall draft LCP update for consideration sometime in 2019. As such, although we provide some preliminary comments and suggestions here, it appears that there will also be future junctures when further refinement and comment is possible. Toward that end, we look forward to continued dialogue on the proposed policies, and to working with City staff to further develop this policy language in conjunction with the rest of the LCP update as the draft moves forward, including as it is modified in light of public and City Council input.

When we commented on the first memo we noted that we believed that the proposed policies began to provide a solid foundation and framework for advancing the City's sea level rise adaptation efforts. As the Coastal Commission has routinely stated, clear, proactive policies for addressing sea level rise are critically important. This is undoubtedly true in Pacifica where, as is identified in the City's Sea Level Rise Vulnerability Assessment (June 2018), the City is already vulnerable to storm and wave impacts. Such impacts are evidenced by the loss of blufftop residential structures in recent years, and by the fact that efforts to protect against such impacts have resulted in narrowed or completely inundated beaches backed by armoring where beach

access can be largely unavailable at higher tides. These hazards are only expected to increase as sea levels rise, resulting in a significant loss of public recreational beach resources and shoreline-area habitats, as well as damage to and loss of residential and commercial structures, and transportation, stormwater, and wastewater infrastructure. In particular, given its beaches are a fundamental backbone and significant part of the City's social fabric and economic engine, it is critically important for the policies to reflect the importance of the City's beaches, and to be transparent (and provide appropriate mitigations) where the policies might lead to increased impacts to same.

To this end, we are concerned that both the removal of some proposed policies from the first memo and the addition of new language in the second memo will result in policies that do not clearly state the need to ensure that new development and redevelopment be sited and designed to be safe from coastal hazards and to avoid the need for armoring. We also continue to have the same concerns that we have previously relayed to the City regarding how existing development will be addressed going forward in a manner that ensures beaches, habitat, public access, and recreation will be preserved for current and future generations, as required by the Coastal Act. In addition, we previously identified concerns associated with policy preparation based on a lack of technical and feasibility information as the City worked through its Adaptation Plan (including through meeting with you and your staff throughout this year as well as letters dated June 12, 2018 and August 29, 2018). One of our primary concerns was, and remains, ensuring that policies which prescribe specific adaptation measures (like armoring and beach nourishment with the use of sand retention structures) are based on a clear and detailed assessment of the environmental, technical, and economic feasibility of such alternatives. It is not clear that such information has been fully developed.

We do continue to recognize that addressing new and existing development in a place like Pacifica is a complex challenge given the scope of current and future hazards combined with existing patterns of development and shoreline armoring and uncertainties about future sea level rise and future conditions on the ground. As we have previously explained in meetings with and letters to City staff, there are policy approaches that would allow for continued reliance on armoring for certain development over a specified time horizon, including as identified in the City's current sub-area policies. However, such policy approaches still need to ensure that impacts to other coastal resources would be mitigated, and need to build in an understanding that other adaptation options may be necessary if and when armoring (and/or beach nourishment) can no longer provide adequate protection for both development and coastal resources. Part of the challenge before us is to refine the policies and strike an appropriate balance in order to protect the range of coastal resources and development, while ensuring that short and long term policies interact and seamlessly move towards similar objectives.

In any case, we want to commend the City for tackling difficult sea level rise issues and for starting to identify practical and substantive measures to address such issues moving forward. To be sure, the proposed policies provide many key mechanisms for future steps to take over time as sea level rise advances, including interim protection measures, beach nourishment, monitoring of changing conditions, and periodic updates to the City's Adaptation Plan to respond to such changes. Although many important coastal hazard planning provisions are addressed in the proposed policies and they provide a good foundation for the LCP update, we also believe that

many important details will require refinement moving forward, including to ensure that the proposed policies are logical, feasible, realistic, and consistent with the Coastal Act. We continue to look forward to working together with the City to refine this work so that it achieves Coastal Act and City objectives related to minimizing hazards and protecting coastal resources, even as sea level rises.

In terms of some more specific comments on the draft policies in the second memo, here are some preliminary observations:

- The previous memo included a summary with details of how the City has dealt with the impacts of shoreline erosion and coastal flooding for decades. We recommend including a similar setting description in the LUP itself to speak to the broad purpose of the proposed coastal hazard policies and to provide context for their future implementation.
- The proposed policies rely heavily on beach nourishment as a key adaptation strategy. Although we believe that nourishment is an appropriate strategy to evaluate and pursue, we also believe that the information that could underpin such a strategy needs to be further fleshed out. As we have discussed previously with City staff, the technical analysis and supporting information regarding potential feasibility and effectiveness of beach nourishment (and also sand retention structures) needs to be better developed (including in relation to different grain sizes and the effects of sand retention structures on erosion in other areas), particularly to support it as a primary adaptation strategy through the proposed policies. In short, we think policies that rely so heavily on nourishment, particularly in the shorter term, need to be supported by more thorough data. Similarly, the use of sand retention structures can alter ocean waves, currents and sand movement, potentially exacerbating erosion on one side or the other of the structure (e.g., depending on currents, littoral drift, etc.). These potential impacts should be evaluated accordingly if sand retention structures are planned to be used in conjunction with beach nourishment.
- The proposed policies refer to developing a “Shoreline Mitigation Program” in the future to address impacts associated with hazard response. The policies need be structured to address such impacts *now*, and many policies seem to imply that is their intent. It may be appropriate to identify development of a future mitigation program as a refinement and a next step, but it needs to be clear that this does not negate the need for mitigation in the interim. Accordingly, given the Shoreline Mitigation Program is not yet complete, we recommend removing reference to implementation of the Program in the policies, instead of referencing only that it will be developed in the future. Until the Program is fully developed, mitigation should be implemented consistent with the type of requirements found in proposed Hazard Policy 60.
- It may be appropriate to reformat and reorganize the policies. For example, the “Standard Policies” sections from pages 12-16 account for the overarching approach for new development in all areas throughout the City, and in both the short- and long-term. It may make better logical, and document-flow sense to move these, along with the definitions section, to the beginning of the document. Additionally, although we understand the policy construct that suggests that general policies may be superseded by more specific policies for each sub-area, we are concerned that some of the more specific policies appear to be making prescriptions for outcomes that are not based on analysis (e.g., allowed armoring). It is not

appropriate, in our view, to have policies state conclusions that have not yet been supported by analysis, and it may be that the overarching policies are required to take precedence in that regard unless and until more definitive conclusions can be drawn.

- It appears that some critical policy language is missing from some of the proposed draft policies. Please ensure that the following are addressed:
  - Please provide design standards for the construction of allowable shoreline protection devices (e.g., they must: blend with natural environment; avoid significant habitat areas; minimize footprint; protect, and where feasible, provide public access; control erosion from surface and groundwater flows; etc.).
  - Please identify specific details regarding how proportional mitigation for all unavoidable impacts of shoreline protection devices to coastal resources (e.g., shoreline sand supply, beaches, public recreational access areas and amenities, public views, water quality, etc.) is to be measured and applied. Please ensure that the policies require removal of shoreline protection devices when they are no longer required to protect existing structures in danger from erosion (including when structures are demolished and then rebuilt, or redeveloped) when such removal and restoration can be accomplished without endangering existing principal structures or existing public facilities on adjacent sites.
  - Please discuss how height limitations will be accounted for if/when structures need to be elevated to meet FEMA base flood levels in some areas.
  - The siting and design policies for hazard areas no longer address substantial improvements to existing development (or ‘redevelopment’) in the second memo. We recommend the City develop specific language for how the siting and design of structures will be addressed when they are redeveloped in situations where there is existing, legally authorized shoreline protection and in cases where there is a natural bluff or shoreline fronting the proposed development. In addition, we recommend including separate policies to address new development on vacant lots that are fronted by existing, legally authorized shoreline armoring and in places where there is a natural bluff or shoreline. In cases where new development/redevelopment cannot be located safe from hazards without reliance on existing and/or new armoring or cannot meet the required setbacks, any approval for such development should include triggers for eventual removal in response to coastal hazards (e.g., when declared unsafe for occupancy and/or use; when the development encroaches onto current or future public trust land and the State Lands Commission denies a grant, lease, or other legal mechanism to allow the development to remain in place; when access and utilities are no longer available to serve the development and cannot be restored; when the blufftop edge erodes to the minimum setback line; when removal is required by subsequent adaptation planning; etc.), as well as propose ways in which the new and redeveloped structures will mitigate for that armoring’s impacts to coastal resources.
  - Please provide a policy that outlines how the City will address development that becomes unsafe for occupancy and a public nuisance due to coastal hazards.

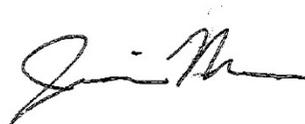
- Certain themes, concepts, and terms used throughout the draft policies need to be better defined or explained in order for us to better evaluate the intent and application of the proposed policies, including as follows:
  - Please define “existing structure,” as it is used often in the policies in relation to shoreline armoring. We recommend that it be defined as a structure legally authorized prior to the effective date of the Coastal Act on January 1, 1977, including as is identified in the Commission’s Sea Level Rise Policy Guidance.
  - Instead of only a reliance on “new development”, please also define “redevelopment” to ensure that current development is brought into compliance with the policies as it is substantially changed over time. Please establish clear thresholds for when repair, maintenance, improvement, or other work is conducted to the extent that a structure needs to be reviewed against all current standards, including for coastal hazards. Typically, such thresholds would at the least include alteration (including demolition, renovation or replacement) of 50% or more of major structural components.
  - Please further describe what constitutes current “best available science” and whether there is a different standard for what amount of sea level rise should be evaluated in geotechnical studies versus what amount of sea level rise new development must be sited/designed to be safe from. For example, consider specifying that all new development must evaluate, at a minimum, the medium-high projection scenario (from the 2018 OPC Sea-Level Rise Guidance and in line with the Draft 2018 Science Update to the Commission’s Sea Level Rise Policy Guidance) over its anticipated lifetime, but that if new development cannot be sited to avoid impacts over that time period certain minimum standards must be met (similar to the policies related to takings). We would be happy to work with the City on this topic.
  - Please explain how the hazard areas referenced in the policies will be defined, including the coastal hazard zones, coastal hazard maps, flood hazard zones, and tsunami run-up zones. The current definition of hazard zone refers to the City’s current maps, but it is not clear to what maps that refers. Any maps referred to in the policies should be included as part of the LCP. In addition, for particular hazard areas that will be mapped, we recommend that the City add timeframes for how often these maps must be updated and include contingencies in the event that they are not updated by the prescribed deadline.
  - Proposed Hazard Policy 5 states that the City will implement a monitoring program for sea level rise to establish thresholds for reassessing the City’s Adaptation Plan. Please describe the type of thresholds that will be identified. Additionally, the current sub-area policies refer to triggers, but do not explain how the triggers would be implemented. For example, clarify whether armoring/nourishment etc. would be implemented when the bluff offset reaches the specified distance, or whether the specified distance triggers a new approach. Please also explain how beach width and bluff offsets will be measured.
  - Proposed Hazard Policy 7 states that the Shoreline Mitigation Program will identify priority improvements for maintaining and enhancing coastal shoreline resources, particularly public access and recreation. Please further describe what types of

improvements the City is contemplating in this regard and provide relevant examples.

- Proposed Hazard Policy 8 refers to funding for “adaptation strategies”. Please outline what kind of strategies this refers to, and specify if this will include voluntary removal or relocation of development.
- Proposed Hazard Policy 9 calls for identifying areas where densities and heights may be increased using TDR credits, including to facilitate affordable housing. Please describe how such determinations will be made, including which specific criteria will be evaluated.
- Proposed Hazard Policy 11 states that the City will preserve, protect, or relocate hazard prone infrastructure to maintain critical services and the environment. Given that these two goals will often conflict, please specify what criteria will be evaluated in determining the preferred option for infrastructure projects. Also, given similarities and overlap, please consider combining with proposed Hazard Policy 10.
- Please clarify the intent of proposed Hazard Policy 50. Presumably redevelopment of existing development will require the entire structure to conform to applicable LCP standards, but the policy is not clear on this point.
- Proposed Hazard Policy 52 requires sea level rise buffer areas be added to new development if necessary to allow for the migration of wetlands and other shoreline habitats. Please describe how such buffer areas will be delineated, applied, and protected as same.
- The definition of shoreline within the hazard policies appears to exclude shoreline properties adjacent to rivers, streams and creeks, as well as properties that will be impacted by erosion and/or flooding by large storm events or over longer time periods due to rising sea levels. We recommend that the policies instead refer to coastal hazard areas so that properties that are potentially subject to coastal flood and erosion hazards both now and in the future will be reviewed for consistency with the hazard policies.

Again, we appreciate and commend the City on developing these draft coastal hazard policies and the related policy framework, and look forward to helping to refine the policies and approach through our ongoing collaboration on the City’s LCP update. It is clear from these policies that the City is taking the issues and problems associated with coastal hazards seriously, and in a way that advances the City’s approach to sea level rise and LCP planning. We hope these comments help move us forward in that regard. If you have any questions or would like to discuss these matters further, please don’t hesitate to contact me or Patrick Foster of my staff. Again, we greatly appreciate the ability to be a part of this important planning process and look forward to continued coordination and discussion of this important effort.

Sincerely,

A handwritten signature in black ink, appearing to be "Jim M.", written in a cursive style.

Jeannine Manna  
North Central Coast District Manager  
California Coastal Commission

cc: Bonny O'Connor, City of Pacifica Planner

Attachments:

Attachment 1 – ESA memo to the City dated August 24, 2018 (memo 1)

Attachment 2 – CCC comments on memo 1 dated August 31, 2018

Attachment 3 – ESA memo to the City also dated August 24, 2018 (memo 2)



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# memorandum

date August 24, 2018

to Bonny O'Connor, AICP

cc Tina Wehrmeister

from James Jackson, PE; Charles Lester, PhD, JD; Bob Battalio PE

subject Sea-Level Rise Policy Options for Pacifica LCP Update

## Summary

This memo presents a recommended LCP policy update to address projected sea-level rise and its impacts on coastal development and resources within the City of Pacifica. The City has grappled with the impacts of shoreline erosion and coastal flooding for decades, especially in north Pacifica, generally north of Mori Point, but also Rockaway, Linda Mar and Pedro Point. Most of the city's shoreline development pre-dates Proposition 20 and the Coastal Act, making it eligible for shoreline protection under state law. Since the early 1970s many of the properties north of the Pacifica pier have been armored with rock revetments and seawalls. At the same time, the high, sandy bluffs of Pacifica present difficult engineering challenges. Since the late 1990s a dozen homes and three apartment buildings along Esplanade Ave could not be saved and have been removed. Several reinforced concrete seawalls and rock revetments have failed and been repaired to varying degrees. Coastal storms are also already extremely hazardous along Beach Boulevard; and homes in the Sharp Park and Linda Mar neighborhoods are subject to flooding from the sea, stream and storm runoff, and rising groundwater. Coastal access is limited north of the pier where shore erosion has met the armoring, causing ephemerally narrow to non-existent beaches. While Rockaway Beach is also mostly armored, the main beach at Linda Mar continues to be an important recreational resource. The recent damages and loss of coastal resources indicates an existing problem that will become progressively worse regardless of the amount of sea-level rise.

Sea-level rise promises to make all of Pacifica's coastal hazards even more challenging. The City's vulnerability assessment concluded that residential and commercial properties and significant public infrastructure are endangered by future sea-level rise. The recently completed Sea-level Rise Adaptation Plan analyzed various strategies for addressing sea-level rise in each of eight sub-areas of the City. The plan concludes that maintaining and expanding armoring for existing development is the best near-term strategy while the City pursues beach nourishment and sand retention options that might rebuild and better maintain Pacifica's beaches. However, the plan also concludes that over the longer run, managed retreat of existing development and infrastructure may be required. While the economic analysis indicates managed retreat may be a more cost-effective and superior

investment for the City, including the benefit of maintaining its natural shoreline resources, there is concern in the community that it is premature to adopt this strategy and many coastal property owners and associated service industries have rejected the concept out-right.

The LCP update policies proposed here would implement a phased adaptation strategy that relies on continued armoring over the next several decades in most sub-areas in conjunction with a comprehensive mitigation program for the resource impacts of armoring, particularly the anticipated loss of Pacifica's beaches. The program will direct mitigation fees mostly to the Linda Mar and Rockaway sub-areas where they would be most effective in offsetting the loss of beach resources. The LCP would also require the simultaneous pursuit of alternative softer strategies for protecting shoreline resources over the longer run, such as beach replenishment. In particular, sand placement to widen the beach in Rockaway will be pursued owing to its relatively favorable economics ranking and smaller scale. The effectiveness of the shorter-term armoring strategy in protecting development and coastal resources may be contingent on the success of these alternative strategies. Finally, the LCP update would establish programs for implementing voluntary managed retreat over the shorter run and potential acceleration of City-sponsored (and funded) managed retreat over the longer-run (2050-2100) as the impacts of sea-level rise accelerate. This includes using transfer of development rights to relocate development in hazard zones to safer areas of the City, and taking advantage of potential state and federal funding for the planned removal of endangered structures and infrastructure.

The intent of the LCP update is to continue to protect existing, private development and the City's infrastructure while recognizing and anticipating what may be an inevitable need to move back from the shoreline. And while the policies support new efforts for community-level funding of continued armoring, beach replenishment, and planned retreat, including establishing new geological hazard abatement districts or securing federal hazard mitigation funds, they also make clear that private landowners in hazard zones are responsible for and must assume the risks of continued armoring and reinvestment in their properties. This includes assuring that adequate mitigation in the form of in-lieu fees is provided to the City to support beach recreation and other coastal resources impacted by armoring; and making sure that existing or future shoreline development doesn't encroach on public tidelands. Consistent with the City's current LCP and state Coastal Commission guidance, the updated LCP would allow for significant improvements to properties in hazard zones, but substantial redevelopment would trigger conformance with the City's hazard policies and zoning rules, much like the rules for other non-conforming development in the City.

# LCP Background

Pacifica's Local Coastal Program (LCP) guides development and protects coastal resources within the Coastal Zone. LCPs must be consistent with the California Coastal Act of 1976, as amended. Pacifica's LCP is made up of two parts: the Land Use Plan (a compilation of goals, policies, and recommended programs) and Implementation Plan (regulations and zoning district maps that implement the provisions of the Land Use Plan) (City of Pacifica, 1980; 1994). The Implementation Plan has been codified into Pacifica's municipal code as individual sections (Chapter 4, Articles 43 and 44) in Title 9 Planning and Zoning (City of Pacifica, 2017) [CITY TO CONFIRM, IP IS NOT AVAILABLE ON THE WEBSITE].

The California Coastal Act aims to ensure that public access to and along the shoreline is maintained; that water quality, marine life, and environmentally sensitive habitat areas are protected; and that coastal visual resources and special communities are preserved. The Coastal Act calls for certain land uses within the Coastal Zone to have priority over other uses: recreation and visitor-serving uses, fishing, boating, and other coastal-dependent uses, and public works and industrial facilities needed to support priority uses.

Pacifica's current Land Use Plan was certified in 1980. The Land Use Plan includes the following main sections:

- The California Coastal Act policies in effect at the time the Land Use Plan was adopted
- Land use designation maps organized by neighborhood, and land use designation definitions
- Neighborhood map of six coastal neighborhoods
- A detailed description of existing conditions, development criteria, and coastal access policies for each coastal neighborhood
- A detailed description of each existing or proposed beach access point
- Policies addressing a range of topics, including habitat protection, geotechnical hazards, coastal views and viewsheds, housing, etc.

Pacifica's current Implementation Plan was certified in 1994 [CITY TO CONFIRM] and establishes regulations that address permit requirements and procedures, creation of a Coastal Zone Combining District that serves as an overlay to the underlying zoning districts, protection of sensitive coastal resources or to ensure public shoreline access, protection of environmentally sensitive habitats, geotechnical suitability, grading and drainage, shoreline protection, public shoreline access, coastal view corridors, and neighborhood commercial districts.

In 2009, the City of Pacifica initiated a comprehensive update to its General Plan and LCP. A draft LCP Land Use Plan was prepared that includes background information and policies for the following themes: land use and development, public access and recreation, environmental and scenic resources, and natural hazards (City of Pacifica, 2014). The draft LCP has not been adopted by the City of Pacifica nor certified by the California Coastal Commission, and is not in effect at this time.

# PROPOSED UPDATED LAND USE PLAN COASTAL HAZARDS POLICIES

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## General Policies

### **Hazard Policy 1 (Key Coastal Act Policies).**

*The City of Pacifica adopts the key policies of the Coastal Act to address coastal hazards:*

**PRC 30253.** *New development shall: (1) minimize risks to life and property in areas of high geologic, flood, and fire hazard; and (2) assure stability and structural integrity, and neither create nor contribute significantly to erosion, geologic instability, or destruction of the site or surrounding area or in any way require the construction of protective devices that would substantially alter natural landforms along bluffs and cliffs; and,*

**PRC 30235.** *Revetments, breakwaters, groins, harbor channels, seawalls, cliff retaining walls, and other such construction that alters natural shoreline processes shall be permitted when required to serve coastal-dependent uses or to protect existing structures or public beaches in danger from erosion, and when designed to eliminate or mitigate adverse impacts on local shoreline sand supply.*

*The updated LCP and sub-area adaptation policies adopted herein are intended to achieve and are consistent with these key policies, subject to periodic updating as resource and development monitoring and program implementation may dictate.*

### **Hazard Policy 2 (Sea-level Rise and Best Available Science).**

*Planning and development reviews in the City of Pacifica shall use, as applicable, the best available science about projected sea-level rise and other climate-change related environmental changes when addressing coastal erosion, bluff failure, flooding and other coastal hazards.*

### **Hazard Policy 3 (Hazard Identification and Mapping).**

*The City's coastal hazard zones shall be mapped based on the best available science about projected sea-level rise, erosion, flooding, and other coastal hazards. Mapping shall be updated as necessary to guide implementation of the LCP's hazard policies. Notwithstanding the coastal hazard zone maps, site-specific hazard mapping and assessment may be required as part of the individual development review process.*

# Coastal Hazards and Sub-area Adaptation Policies

## Hazard Policy 4 (Shoreline Adaptation Plan and Override).

*The City shall implement its Sea-level Rise Adaptation Plan (Appendix xx) as expressed in the LUP's general and sub-area coastal hazard adaptation policies. The City shall monitor implementation and, from time to time, update the Sea-level Rise Adaptation Plan to strengthen public safety, preserve existing neighborhoods, assure local economic vitality, respond to climate change, promote environmental justice, implement the Coastal Act and protect the public trust.*

*Development in coastal hazard zones may be approved consistent with the sub-area policies (xx – xx) if the following findings can be made:*

- a. The proposed development is sited and designed to minimize coastal hazards and impacts to coastal resources to the extent feasible, consistent with the Adaptation Plan;*
- b. The approval is limited in duration, consistent with sub-area policies.*
- c. All project impacts are mitigated to the maximum extent feasible through the City's shoreline mitigation program (Hazard Policy xxx) or consistent with Hazard Policy xx.*
- d. The project does not pose unacceptable risks to life or property or otherwise create a nuisance; and*
- e. The project will not encroach on public trust lands.*

## Hazard Policy 5 (Monitoring Shoreline Change).

*The City shall implement a monitoring program for sea-level rise, beach width, bluff offset, flooding and storm damage, and other potential measures or triggers for guiding implementation of the LCP's shoreline adaptation policies.*

## Hazard Policy 6 (Shoreline Mitigation Program).

*Within three years of certification of the LUP update, the City shall incorporate into the LCP a Shoreline Mitigation Program to address the coastal resource impacts of existing and future shoreline protection projects in the City. Special emphasis shall be placed on maintaining beaches and public access to and along the shoreline. The program will update the public access inventory of the LUP as necessary, include a coastal resource inventory and identify priority improvements for maintaining and enhancing coastal shoreline resources, particularly public access and recreation. The program will include enforceable measures to achieve proportional mitigation of resource impacts identified in shoreline protection projects, including consideration of beach widths, sediment management plan actions, and monitoring. The program will identify potential funding sources for implementation of identified improvements, such as new hazard abatement districts or city fees or taxes. The program will include provisions for monitoring implementation and program updates as necessary.*

## Hazard Policy 7 (Adaptation Funding).

*The City will seek and establish as feasible new funding mechanisms, such as the formation of Geologic Hazard Abatement Districts (GHADs), participating in County Service Areas, or securing FEMA and other federal or state adaptation and hazard mitigation funds, to finance*

*shoreline protection projects, beach replenishment, the Shoreline Mitigation Program and voluntary managed retreat projects. The City will encourage and assist in the acquisition of grants for multi-objective, nature-based solutions for adaptation and the voluntary purchase or relocation of property and structures in high hazard areas to mitigate against damage to vulnerable structures and infrastructure.*

**Hazard Policy 8 (Managed Retreat).**

*The City shall establish and pursue funding of a Managed Retreat Program for voluntary removal, modification or relocation of development when necessary to protect private property interests and provide for the migrating shoreline and associated coastal resources, such as sandy beach area. The Managed Retreat Program will include identification of priority areas and timing for implementing managed retreat, based on sub-area planning, monitoring, and beach management planning pursuant to the LCP; provisions for voluntary participation of property owners in the program; strategies for funding the purchase of easements or development rights from participating property owners; and provisions to allow phased implementation to maintain occupancy of properties for as long as possible, including through acquisition and lease-back arrangements.*

**Hazard Policy 9 (Transfer of Development Rights).**

*Use the City's transfer of development rights (TDR) ordinance to relocate development from coastal hazard zones (sending sites) to receiving sites outside of hazard zones. Identify areas where densities and heights may be increased using TDR credits, including to facilitate affordable housing.*

**Hazard Policy 10 (LHMP Alignment).**

*Coordinate City departments and programs to align the Local Hazard Mitigation Plan (LHMP) with the LCP to ensure proactive, coordinated and streamlined adaptation efforts and response to future coastal hazards. Leverage FEMA funding opportunities for hazard mitigation and other related funding mechanisms to implement the Shoreline Adaptation Plan.*

**Hazard Policy 11 (Critical Transportation Infrastructure).**

*The City will pursue opportunities to preserve and protect critical transportation infrastructure to mitigate against isolation, economic loss and ensure public safety.*

**Hazard Policy 12 (Hazard Prone Infrastructure).**

*The City will preserve, protect, or relocate hazard prone infrastructure to maintain critical services and maintain the environment.*

**Hazard Policy 13 (Business Outreach).**

*The City will develop and deliver business outreach programs to mitigate against the functional loss of community businesses and promote business resiliency.*

**Hazard Policy 14 (High Water Program).**

*Where feasible, the City will implement a program to record high water marks following high-water events.*

**Hazard Policy 15 (Flood Ordinance Consistency).**

*Review and amend as necessary the City's flood damage prevention ordinance to assure consistency with the updated policies and ordinances of the LCP.*

## Sub-Area Policies and Programs

The following policies and programs implement the near-term sea-level rise adaptation priorities for each sub-area in Pacifica, and identify mid- and longer-term measures, subject to feasibility and monitoring concerns. These priorities were developed based on existing conditions and existing/near term vulnerabilities for each sub-area, as well as the City's adopted goals for the project that include protecting existing development as well as preserving and enhancing coastal access along Pacifica. While the cost-benefit analysis conducted for the City's Sea-level Rise Adaptation Plan indicates that managed retreat/realignment may be a long-term cost-effective option in many sub-areas, the immediate costs and impacts to the City's adopted goals would be severe compared to the benefits speculated in the long-term future, which makes this option difficult to support and implement in the near-term. The adaptation priorities discussed below can buy time for the City by protecting at risk assets in the near term and leaving options open for the long term.

The recommended time frames for action are based on the medium-high risk aversion SLR projection of 6 feet by 2100. As required in other policies, the City shall monitor erosion, flooding, and sea-level rise amount into the future to identify triggers for adaptation measures. Many initial actions are required regardless of future SLR due to existing conditions. Where applicable, specific triggers are clarified in the policies.

Generally, for all lands within the 2050 Pacific Institute erosion hazard zone, utilities, roadways and other public infrastructure should be floodproofed unless other adaptation alternatives are implemented and performing well. The City should incentivize risk reduction (floodproofing etc.) that property owners can invest in, with funding or code updates. In addition, the City should consider realigning infrastructure (utilities, roadways) that may be exposed to coastal erosion and flooding to reduce the consequences of under-performance of protection measures (construction and maintenance of armoring structures).

### Fairmont West

The roadway and utilities in Fairmont West are at risk after one to two feet of sea-level rise. Some beach width may exist for access and other coastal resources, but given the high bluffs here, there is not adequate vertical access to the beach. Due to the undeveloped conditions of the bluffs in this sub-area, armoring is not required immediately. Beach nourishment, while a lower priority for this sub-area compared to other more developed sub-areas in city, could take place at a later date with a larger volume of sand. Coarse sand and/or gravel sources are also preferable and would be more cost effective than finer sands due to sediment transport regimes in this sub-area. By constructing sand retention structures along north Pacifica, the efficacy of beach nourishments can be increased.

**Hazard Policy 16 (Shoreline Structures: 2020-2050, 0-1 foot SLR or 260-foot offset from bluff toe to infrastructure).**

*Shoreline structures shall be avoided **except that the Dollar Radio property** may maintain and expand shoreline structures to protect existing development in danger from erosion if found to be the least environmentally-damaging alternative, impacts are fully mitigated consistent with*

*Hazard Policy xx, and any prior permit conditions or legal obligations pursuant to the California Coastal Act are addressed. Approvals shall be limited to twenty years, and may be reauthorized if no other less environmentally damaging alternatives are feasible. After 2040, allow shoreline protection for the public road and sewer line if necessary. Any new blufftop development shall comply with all LCP setback policies.*

**Hazard Policy 17 (Beach Nourishment: 2050-2060, 2 feet SLR or 260-foot offset from bluff toe to infrastructure)**

*Evaluate the feasibility of using beach nourishment, in conjunction with sand retention structures (see artificial headlands concept in the Adaptation Plan), to reduce shoreline structure maintenance requirements and maintain beaches of at least 100 feet in width on average. If feasible and approved through a coastal development permit, secure funding and implement as soon as possible. Repeat as necessary. Mitigate all adverse impacts and monitor effectiveness over time.*

**Hazard Policy 18 (Transfer of Development Credits: 2020-2100, ongoing).**

*Provide an option to private landowners to voluntarily transfer development potential and/or remove existing development through a public buyout as feasible.*

**Hazard Policy 19 (Realignment of Public Infrastructure: 2050-2070, 2-4 feet SLR or 260-foot offset from bluff toe to infrastructure).**

*Initiate transportation study to identify alternative access options for Fairmont West. Realign Palmetto Avenue and wastewater pipeline or implement other adaptation plans that may be identified through future study if shoreline protection or beach nourishment are not feasible and effective in maintaining existing conditions.*

## **West Edgemar and Pacific Manor**

**Hazard Policy 20 (Shoreline Structures: 2020-2040, 0-1 foot SLR or 220-foot offset from bluff toe to infrastructure or development).**

*Maintain and expand shoreline structures to protect existing public infrastructure, including between Bill Drake Way and Manor Drive. Allow private property owners to maintain existing or construct new shoreline structures, consistent with prior permit conditions or legal obligations pursuant to the California Coastal Act. Limit authorization of all new structures to twenty years or 2040, whichever is sooner, and require mitigation of beach, public access and recreation and other resource impacts, consistent with Hazard Policy xx. Consider reauthorization subject to beach monitoring and implementation of beach nourishment and other strategies to maintain beaches.*

**Hazard Policy 21 (Beach Nourishment: 2020-2050, 0-1 foot SLR or 220-foot offset from bluff toe to infrastructure or development)**

*Evaluate the feasibility of using beach nourishment, in conjunction with sand retention structures (artificial headlands concept), to reduce shoreline structure maintenance requirements and maintain beaches of at least 100 feet in width on average. If feasible and approved through a coastal development permit, secure funding and implement as soon as possible. Mitigate all adverse impacts and monitor effectiveness over time.*

**Hazard Policy 22 (Managed Retreat: 2020-2100, 0-1 foot SLR or 220-foot offset from bluff toe to infrastructure or development).**

*Provide option to private landowners to voluntarily remove existing armoring and receive a buyout of property as feasible. After 2040, if the beach nourishment strategy planned under Hazard Policy xx is ineffective at maintaining beaches, fund and implement a voluntary relocation, buyout or transfer of development rights of private property. Evaluate and implement relocation of public infrastructure as necessary. Assure protection of public access to and along the shoreline, consistent with the Public Access Plan required under Hazard Policy xx.*

**Northwest Sharp Park**

The backshore of Northwest Sharp Park is armored but may be overwhelmed by waves with as little as one foot of sea-level rise, due to scour and structure sloughing, increased wave loads and overtopping of the structure. Beaches tend to exist ephemerally in pockets, with armoring impeding lateral access from the degraded vertical access ways. Existing property and infrastructure are at risk from coastal erosion so actions should be taken soon. A public access improvement plan should be provided, consistent with the City's beach mitigation program. Due to the potential lead time of establishing a sand source, beach nourishment planning should begin immediately. Coarse sand and/or gravel sources are also preferable and would be more cost effective than finer sands due to sediment transport regimes in this sub-area. By constructing sand retention structures along north Pacifica, the efficacy of beach nourishments can be increased. In absence of any beach nourishment, managed relocation of private property by private property owners (optional) and realignment of public infrastructure will be needed before 2050 even if coastal armoring structures are maintained in their current elevations (up to the edge of bluff).

**Hazard Policy 23 (Shoreline Structures: 2020-2040, 0-1 feet SLR or 70-foot offset from bluff toe to development or infrastructure).**

*Private land owners may maintain and expand shoreline structures to protect existing development in danger from erosion, consistent with Hazard Policy xx and any prior permit conditions or legal obligations pursuant to the California Coastal Act. Approvals shall be limited to twenty years, and may be reauthorized if no other less environmentally damaging alternatives are feasible.*

**Hazard Policy 24 (Beach Nourishment: 2020-2050, 0-2 feet SLR or 70-foot offset from bluff toe to development or infrastructure)**

*Evaluate the feasibility of using beach nourishment, in conjunction with sand retention structures (artificial headlands concept), to reduce shoreline structure maintenance requirements and maintain beaches of at least 100 feet in width on average. If feasible and approved through a coastal development permit, secure funding and implement as soon as possible. Repeat as necessary. Mitigate all adverse impacts and monitor effectiveness over time.*

**Hazard Policy 25 (Flood Protection: 2030-2040, 1 feet SLR).**

*Enable property owners to modify structures to manage impacts of wave run-up and overtopping of bluff face.*

**Hazard Policy 26 (Managed Retreat/Realignment of Public Infrastructure: 2030-2050, 1 foot SLR or 70-foot offset from bluff toe to development or infrastructure).**

*Provide option to private landowners to voluntarily remove existing armoring and receive a buyout of property as feasible. Evaluate and implement relocation of public infrastructure as necessary. Assure protection of public access to and along the shoreline, consistent with the Public Access Plan required under Hazard Policy xx.*

## **Sharp Park, West Fairway Park and Mori Point**

Most of this area is armored. The northern section between the pier and Paloma is subject to frequent wave overtopping and damage to homes has occurred. Beaches are narrow and ephemeral, with armoring impeding lateral access from the degraded vertical access ways. South of the pier, the beach tends to be more persistent and wider, and there is usually an accessible beach in the vicinity of the end of Clarendon, with reliable vertical and lateral beach access. South of Clarendon to Mori Point, the beach persists although wave run-up can reach the levee and there is some armoring. This sub-area is exposed to flooding due to rainfall runoff which cannot flow directly to the ocean. The Clarendon area is exposed to flooding now, and the West Fairway development may be exposed to flooding if sea-level and ground water levels rise over 3 feet. Due to the potential lead time of establishing a sand source, beach nourishment planning should begin immediately. Coarse sand and/or gravel sources are also preferable and would be more cost effective than finer sands due to sediment transport regimes in this sub-area. By constructing sand retention structures along north Pacifica, the efficacy of beach nourishments can be increased.

Flood protection is already needed for homes and businesses along Clarendon Avenue during rain events and will need to be improved around the SPGC to manage flooding of Laguna Salada regardless of the condition of the SPGC berm. San Francisco is expected to maintain the SPGC berm which protects the Sharp Park neighborhood from the coastal flooding source, but existing pumping facilities in SPGC are not designed to mitigate flooding in and around the course during significant rainfall events (i.e., a portable pump station is currently used to manage rainfall-runoff flooding along Clarendon Avenue). The priority recommendations for flood protection surrounding SPGC are therefore based on the rainfall (fluvial) flood source, but would also be effective during a major coastal storm if the SPGC berm is overtopped or breached. Flooding due to wave run-up landward of Beach Boulevard seawalls is already an issue. If the seawalls are not properly maintained and upgraded in the future to accommodate higher sea-levels, private landowners will need other mechanisms to adapt to flood risks such as raising homes.

In absence of any armoring or beach nourishment, managed relocation of private property by private property owners (optional) and realignment of public infrastructure will be needed by 2050. Timing is dependent on presence and condition of coastal armoring structures, location of built assets relative to the bluff edge and or flood hazard zone, willingness of property owners to engage in managed retreat, and availability of public funding for relocation of public infrastructure.

**Hazard Policy 27 (Sharp Park Golf Course).**

*Coordinate with the City of San Francisco to maintain the Sharp Park Golf Course berm and armoring, consistent with coastal development permit 2-17-0702; support adaptation planning for the course, and protect public access.*

**Hazard Policy 28 (Shoreline Protection: 2020-2030, 0 feet SLR).**

*Maintain and expand shoreline structure to protect public infrastructure. Extend the Beach Boulevard seawall to the Sharp Park Golf Course berm. Mitigation shall be provided consistent with the City's Shoreline Mitigation Plan.*

**Hazard Policy 29 (Shoreline Protection/Structure Elevation: 2030-2050, 0-2 feet SLR).**

*Upgrade existing shoreline structures to limit wave overtopping unless beach nourishment strategies are effective in reducing wave run-up on the backshore. Elevate structures as necessary to mitigate flood damage, consistent with existing height limitations.*

**Hazard Policy 30 (Monitoring, Utilities and Public Safety: 2050-2100, 2 feet SLR).**

*Monitor public safety and wave hazards. Relocate or abandon utilities as necessary and consider closing Beach Boulevard as necessary to protect public health.*

**Hazard Policy 31 (Beach Nourishment: 2020-2050, 0-1 feet SLR).**

*Pursue beach nourishment and sand retention structures to reduce shoreline protection maintenance requirements and provide beach resources. Encourage the City of San Francisco to nourish the beach fronting the Sharp Park Golf Course berm to maintain beach widths.*

**Hazard Policy 32 (Flood Protection: 2020-2030, 0 foot SLR).**

*Construct a Clarendon Avenue stormwater basin, pump station, and interior SPGC levee to protect homes and businesses from existing fluvial storm flood hazard zone.*

**Hazard Policy 33 (Flood Protection: 2060-2070, 3 feet SLR).**

*Construct a West Fairway Park stormwater basin, pump station, and interior SPGC levee to protect western homes from future coastal/fluvial flood hazard zone.*

**Hazard Policy 34 (Managed Retreat/Realignment of Public Infrastructure: 2050).**

*Provide option to private landowners to voluntarily remove existing armoring and receive a buyout of property as feasible. Evaluate and implement relocation of public infrastructure as necessary. Assure protection of public access to and along the shoreline, consistent with the Public Access Plan required under Hazard Policy xx.*

## Rockaway Beach, Quarry and Headlands

The armoring near the end of Rockaway Blvd is overtopped by waves under present conditions, with occasional damages. Hence, this area has very little capacity and will have a noticeably degraded condition with as little as one foot of sea-level rise. There is no beach in this area, with waves crashing directly into the armor structures. The shore becomes more accessible with distance northward but will also be more limited with as little as 1 foot of sea-level rise. The south end of rockaway is unarmored, has a persistent beach and the backshore is estimated to will be impacted with about 2 feet of sea-level rise.

Due to the cove configuration of Rockaway Beach, it is a great candidate for beach nourishment. Policies recommend that Rockaway be used as a pilot project for beach nourishment in Pacifica. In the pilot project, the City will go through the overall process for beach nourishment and identify available sources in the region and

corresponding sediment characteristics and costs, evaluate the performance of the nourishment and enable the City to reevaluate nourishment along northern Pacifica and perform a more thorough assessment for a larger scale nourishment project.

**Hazard Policy 35 (Shoreline Protection: 2020-2030, 0 feet SLR).**

*Existing public shoreline structures along the north cove shall be upgraded for public safety and hazard reduction.*

**Hazard Policy 36 (Shoreline Protection: 2050-2060, 2-3 feet SLR, or when backshore is 100 feet of Highway 1).**

*Coordinate with Caltrans to plan and install a revetment or other appropriate shoreline protection for the Highway 1 embankment if necessary.*

**Hazard Policy 37 (Public Access: 2020-2050).**

*Plan and provide for enhanced public access, consistent with the City's shoreline mitigation plan.*

**Hazard Policy 38 (Beach Nourishment/Public Access: 2020-2030, 0 feet SLR).**

*Plan and implement beach nourishment for Rockaway Beach. Monitor and measure performance and any reduction of shoreline structure maintenance needs. Establish mechanisms through the shoreline mitigation plan to receive beach impact mitigation monies from other sub-areas of the City.*

**Hazard Policy 39 (Development Setbacks: 2020-2030, ongoing).**

*Implement new development shoreline setbacks consistent with Hazard Policy xx.*

**Hazard Policy 40 (Transfer of Development: 2020-2100, ongoing).**

*Evaluate and implement as feasible a transfer of development credit program for private property at the Quarry and Headlands.*

**Hazard Policy 41 (Managed Retreat/Realignment: 2060-2100, 2-3 feet SLR).**

*Provide option to private landowners to voluntarily remove existing armoring and receive a buyout of property as feasible. Evaluate and implement relocation of public infrastructure as necessary. Assure protection of public access to and along the shoreline, consistent with the Public Access Plan required under Hazard Policy xx.*

## **Pacifica State Beach & West Linda Mar**

Adaptation policies for Pacifica State Beach and West Linda Mar are presented together because actions taken at Pacifica State Beach influence coastal hazard exposure to West Linda Mar. Much of the Pacifica State Beach sub-area has a persistent, relatively wide beach with bulkheads in the south transitioning to dune fields in the north. Hence, this shore and roadway can withstand at least 2 feet of sea-level rise. However, the West Linda Mar sub-area east of Highway 1 has a low elevation and is subject to flooding from high creek flows and rising groundwater associated with sea-level rise. Due to the existing beach widths in Pacifica State Beach and existing coastal armoring, armoring actions are not a near term priority. However, conditions of existing armoring at the

Anza pump station should be monitored to ensure protection in the near term. Nourishment of Pacifica State Beach should be initiated using the shoreline-backshore offset for the main parking lot. Beach nourishment projects should include dune restoration to maintain ecology, protect the sewer force main that is buried in existing dune field north of the main parking lot/Anza pump station as well as provide flooding protection of Highway 1 and West Linda Mar. Pump stations at Pacifica State Beach are vulnerable to wave run-up and require floodproofing in place. West Linda Mar neighborhood is also vulnerable to flooding from San Pedro Creek based on existing FEMA hazard maps and will become more vulnerable as SLR increases the flood levels in the creek via its ocean boundary condition. West Linda Mar neighborhood was constructed in a former lagoon and experiences groundwater issues in the lowest areas, which is evident by existing wetlands around the skate park and homes furthest west. Groundwater in low areas near the ocean are directly influenced by the sea-level, and thus groundwater issues will increase with SLR.

**Hazard Policy 42 (Shoreline Protection: 2050-2060, 2 ft SLR or 100 foot offset from shoreline to infrastructure).**

*Evaluate beach conditions and consider shoreline protection to protect parking and the Linda Mar pump station as necessary.*

**Hazard Policy 43 (Highway One Protection: 2050).**

*Coordinate with Caltrans to evaluate options for protecting Highway 1, if necessary.*

**Hazard Policy 44 (Beach Nourishment: 2050-2060, 2 ft SLR or 100 foot offset from shoreline to infrastructure).**

*Evaluate beach conditions and implement beach nourishment as necessary to maintain 100-foot buffer seaward of the sewer force main and/or Highway 1. Repeat nourishments as needed.*

**Hazard Policy 45 (Flood Protection: 2020-2030, 0 feet SLR).**

*Analyze need for floodwall along commercial property to manage flooding from San Pedro Creek under existing conditions with SLR allowance. Future flood studies that include climate-driven changes in precipitation should inform any floodwall design. Floodproof Anza pump station (stormwater) to mitigate existing coastal storm flooding vulnerabilities to wave run-up.*

**Hazard Policy 46 (Flood Protection: 2050-2060, 2 feet SLR or 100-foot offset from shoreline to infrastructure).**

*Floodproof the Linda Mar pump stations (sewer and stormwater) to mitigate future coastal storm flooding vulnerabilities to wave run-up as necessary.*

**Hazard Policy 47 (Groundwater Management: 2030-2050, 0-2 feet SLR).**

*Begin groundwater monitoring to determine needs for dewatering wells in the lowest portions of the West Linda Mar neighborhood.*

**Hazard Policy 48 (Managed Retreat/Realignment: 2050, 2 feet SLR).**

*Provide option to private landowners to voluntarily remove existing armoring and receive a buyout of property as feasible. Evaluate and implement relocation of public infrastructure as necessary. Assure protection of public access to and along the shoreline, consistent with the LCP and Shoreline Mitigation Plan required under Hazard Policy xx.*

## Pedro Point and Shelter Cove

Potential bluff erosion may reach the most seaward bluff top homes at Pedro Point by about 2050 with 1 to 2 feet of sea-level rise. Private property is mostly armored along the water (boat docks/homes) but require upgrades by property owners, while bluff top properties have limited ability to prevent bluff toe erosion due to parcel limits. Private property is vulnerable to bluff erosion, but implementing bluff toe armoring would be complicated due to land ownership

### **Hazard Policy 49 (Shoreline Structure Upgrades).**

*Allow replacement and upgrades of existing shoreline structures to reduce hazards and resource impacts. Mitigate impacts consistent with the City's shoreline mitigation program.*

### **Hazard Policy 50 (Managed Retreat/Realignment: 2050-2100, 100 feet offset from bluff edge to development or infrastructure).**

*Provide option to private landowners to voluntarily remove existing armoring and receive a buyout of property as feasible. Evaluate and implement relocation of public infrastructure as necessary. Assure protection of public access to and along the shoreline, consistent with the LCP and Shoreline Mitigation Plan required under Hazard Policy xx.*

### **Hazard Policy 51 (Flood Protection: 2030-2040, 0-1 feet SLR).**

*Allow private property owners to raise homes and other structures above wave run-up hazard, consistent with height limitations.*

## Standard Policies for New Shoreline Development

### **Hazard Policy 52 (Coastal Hazard Report).**

*Development proposed in coastal hazard zones shall include coastal engineering, geomorphology and other relevant technical reports unless on-site hazards already identified in a recent hazard map or assessment are adequate for evaluating and ensuring compliance with the LCP, including through use of permit conditions to address any uncertainty. Reports shall be prepared by a licensed civil engineer or suitably qualified professional; use the best available science; consider the impacts from the high projection of sea-level rise for the anticipated duration of the proposed development; demonstrate that the development will avoid or minimize impacts from coastal hazards; and evaluate the foreseeable effects that the development will have on coastal resources over time. Reports may be waived for temporary events, structures or other minor, short-term development where it is clear there will be no hazard risks over the project's life.*

### **Hazard Policy 53 (Land Divisions).**

*Land divisions that create new development potential in hazard zones, including lot splits, lot line adjustments and conditional certificates of compliance, are prohibited.*

### **Hazard Policy 54 (Siting and Design).**

*New development in shoreline coastal hazard zones, including substantial improvements of existing structures, shall be sited and designed to be safe from erosion, bluff failure, wave runup, flooding and other coastal hazards for at least 100 years without existing or new shoreline*

*protection, considering projected sea-level rise and other climate change effects. Permit approvals shall prohibit shoreline protection for the authorized development, require the property owner to record an acknowledgement that the development does not qualify as a structure entitled to shoreline protection under Coastal Act Section 30235, and a waiver of any rights to such protection, and where necessary require a removal and restoration plan, including bonding for large projects, to avoid future shoreline protection or project failure.*

#### **Hazard Policy 55 (Assumption of Risk by Private Landowners).**

*Permit approvals of development in coastal hazard zones shall require the applicant to record a deed restriction acknowledging and agreeing: 1) that the development is located in a hazardous area, or an area that may become hazardous in the future; 2) to assume the risks of injury and damage from such hazards in connection with the permitted development; 3) to unconditionally waive any claim of damage or liability against the City of Pacifica, its officers, agents, and employees for injury or damage from such hazards; 4) to indemnify and hold harmless the City of Pacifica, its officers, agents, and employees with respect to approval of the project against any and all liability, claims, demands, damages, costs (including costs and fees incurred in defense of such claims), expenses, and amounts paid in settlement arising from any injury or damage due to such hazards; 5) that sea-level rise could render it difficult or impossible to provide services to the site (e.g., maintenance of roadways, utilities, sewage or water systems), thereby constraining allowed uses of the site or rendering it uninhabitable; 6) that the boundary between public tidelands and private land may move inland causing the structure to be located on public land and thus subject to removal unless otherwise authorized by the Coastal Commission and State Lands Commission; and 7) that the structure may need to be removed or relocated if it becomes unsafe or substantially damaged.*

#### **Hazard Policy 56 (MHTL and Avoidance of Public Trust Lands).**

*Applications for low-lying development adjacent to coastal waters shall include a Mean High Tide Line (MHTL) survey of the development site prepared by a licensed professional land surveyor based on field data collected within 12 months of the date submitted. The survey shall be conducted in consultation with and approved by the California State Lands Commission (CSLC) staff. Development shall be sited to avoid public trust lands for the its approved duration, unless otherwise authorized by the California State Lands Commission and Coastal Commission. New MHTL surveys shall be submitted every ten years or within one year of a new tidal datum epoch, seismic event in the project area greater than 5.5, or significant relative rise in annual local mean sea-level records.*

#### **Hazard Policy 57 (Bluff Face Development).**

*Structures, grading, and landform alteration on bluff faces are prohibited, except for the following: public access structures where no feasible alternative means of public access exists, and shoreline protective devices if otherwise allowed by the LCP and the public access and recreation policies of the Coastal Act. Such structures shall be designed and constructed to be visually compatible with the surrounding area to the maximum extent feasible and to minimize effects on erosion of the bluff face.*

#### **Hazard Policy 58 (Minor Development in Hazardous Areas).**

*Minor and/or ancillary development, including public trails, benches, gazebos, patios, etc., may be located seaward of a bluff or shoreline setback line provided that development is otherwise consistent with the LCP, does not create a hazard, and does not use a foundation that can serve as a bluff retaining device, such as caissons, or that requires landform alteration, and that the*

*development is removed or relocated by the landowner when threatened or in the event that portions of the development fall to the bluffs, beach or ocean.*

**Hazard Policy 59 (Non-conforming Structures in Hazardous Areas).**

*When proposed development would involve substantial improvement of an existing structure that is legally non-conforming with an LCP standard, including bluff setbacks or other hazard criteria, the entire structure must be made to conform with the LCPs and, if applicable, the Coastal Act. Non-exempt improvements to existing non-conforming structures, regardless if the proposed improvements meet the thresholds for redevelopment, shall not increase the degree of non-conformity of the existing structure by, for example, increasing the hazardous condition, developing seaward, or increasing the size of the structure in a non-conforming location.*

**Hazard Policy 60 (Protection of Private Property in Hazardous Areas).**

*Where full adherence with all LCP policies, including for setbacks and other hazard avoidance measures, would preclude a reasonable economic use of the property as a whole, the City may allow the minimum economic use and/or development of the property necessary to avoid an unconstitutional taking of private property without just compensation. There is no taking that needs to be avoided if the proposed development constitutes a nuisance or is otherwise prohibited pursuant to other background principles of property law (e.g., public trust doctrine). Continued use of an existing structure, including with any permissible repair and maintenance (which may be exempt from permitting requirements), may provide a reasonable economic use. If development is allowed pursuant to this policy, it must be consistent with all LCP policies to the maximum extent feasible.*

**Hazard Policy 61 (Habitat Sea-level Rise Migration Buffers).**

*A sea-level rise buffer area shall be added to required new development habitat buffers if necessary to allow for the migration of wetlands and other shoreline habitats caused by sea-level rise over the anticipated duration of the development. Except for temporary uses, as described below, uses and development within sea-level rise buffer areas shall be limited to minor passive recreational uses, with fencing, de-siltation or erosion control facilities, or other improvements deemed necessary to protect the habitat, to be located in the upper (upland) half of the buffer area. Water quality features such as drainage swales required to support new development shall not be constructed in wetland buffers. Temporary uses may also be placed in the sea-level rise buffer area until such time as sea-level rise causes the wetlands or other shoreline habitat to migrate to within 100 feet of the temporary uses, at which time, they shall be removed. All habitat and buffers identified shall be permanently conserved or protected through a deed restriction, open space easement or other suitable device.*

**Hazard Policy 62 (Stormwater and Dry Weather Flows).**

*New development shall provide adequate drainage and erosion control facilities that convey site drainage in a non-erosive manner to minimize hazards resulting from increased runoff and erosion. Runoff shall be directed inland to the storm drain system or to an existing outfall, when feasible. If no storm drain system or existing outfall is present, blufftop runoff shall not be channelized or directed to the beach or the ocean.*

**Hazard Policy 63 (Reduction of Greenhouse Gases).**

*New development shall include solar panels and, as appropriate, other energy reducing techniques to minimize greenhouse gas emissions, consistent with community character, coastal views and protection of biological resources.*

## Standard Policies for Shoreline Structures

**Hazard Policy 64 (Soft Shoreline Protection).**

*Encourage the use of soft or natural shoreline protection methods, such as dune restoration and beach/sand nourishment as alternatives to hard shoreline protective devices. Soft shoreline protection devices shall be fully evaluated for coastal resource impacts, and shall only be approved if found consistent with the LCP policies related to shoreline protection. Consider combining beach replenishment with groin construction to maintain beaches and protect development (see subarea policies).*

**Hazard Policy 65 (Beach Nourishment).**

*In coordination with the Coastal Commission and other permitting agencies (e.g., State Lands Commission, U.S. Army Corps of Engineers), the City shall develop and implement a beach nourishment program in conjunction with sand retention structures to assist in maintaining beach width and elevations, consistent with subarea policies. The beach nourishment program will include measures to protect water quality and to minimize and mitigate potential adverse biological resource impacts from deposition of material, including measures such as sand compatibility specifications, restrictions on volume of deposition, timing or seasonal restrictions, and identification of environmentally preferred locations for deposits. The City will also consider developing an opportunistic sand program and evaluate how replenishment options may need to change over time with sea-level rise.*

**Hazard Policy 66 (Existing Shoreline Structures).**

*Except as may be otherwise provided in the LUP subarea policies, legally permitted shoreline protection structures may be repaired and maintained until the development they are protecting is removed or substantially improved, at which time the shoreline protection shall be reevaluated for consistency with LCP. Repair and maintenance activities shall not result in any enlargement or extension of the structure, or any seaward encroachment or impairment of public trust resources, and shall provide mitigation for any new coastal resource impacts not previously or otherwise mitigated through the City's Shoreline Mitigation Program. Expansion, augmentation or replacement of 50 percent or more of the protective structure (by volume, linear (height or length) or areal extent) constitutes a new shoreline structure and shall comply with all policies of the LCP.*

**Hazard Policy 67 (New Shoreline Structures).**

*Unless a waiver of rights to shoreline protection applies on the property, shoreline protection structures, including revetments, breakwaters, groins, seawalls, cliff retaining walls, and other such construction that alters natural shoreline processes shall be permitted consistent with the LUP's sub-area policies when required to serve coastal-dependent uses or protect existing principal structures or public beaches in danger from erosion, when designed to eliminate or mitigate adverse impacts on local shoreline sand supply, and when there is no less environmentally damaging feasible alternative such as relocation of the threatened development, beach nourishment, non-structural drainage and native landscape improvements, or other similar non-structural options. For purposes of this policy "existing principal structures" means*

*principal structures that were legally authorized prior to January 1, 1977 [or March 24, 1980; or date of LUP Update Certification] that have not since undergone redevelopment.*

**Hazard Policy 68 (Authorization Limits of New Shoreline Structures, 30235; Coastal Act).**

*Unless otherwise directed in a subarea policy, shoreline protection structures shall only be authorized until the time when the existing principal structure or adjacent structure that is protected by such a device: 1) is no longer present; 2) no longer requires armoring; or 3) is substantially improved.*

**Hazard Policy 69 (Mitigating Impacts of New Shoreline Structures).**

*Necessary shoreline structures shall be sited and designed to avoid sensitive resources to the maximum extent feasible. Adverse coastal resource impacts shall be fully mitigated, including impacts on sand supply, beach area, public access (vertical access to the shore and horizontal access along the shore and blufftop) and recreational use (surfing, fishing, hiking, etc.), public trust lands and values, ecological function, water quality, shoreline aesthetics, and cultural resources. Mitigation options shall include consideration of providing equivalent new public access, recreation, habitat or other coastal resource in the vicinity of the project, or if such options are not feasible, proportional in-lieu fees that consider and reflect, to the maximum extent practicable, the full value of lost resources for the approved lifetime of the project. Any fees shall be deposited in an interest-bearing account held by the City of Pacifica for use within the city limits for mitigation of the specific impact identified in the project approval. If unused after ten years, such fees may be used, including in combination with other similar fees, in San Francisco or San Mateo Counties to mitigate the impacts of shoreline structures generally. This policy may be met through compliance with the City's Shoreline Mitigation Program pursuant to Hazard Policy xx.*

**Hazard Policy 70 (Monitoring Plan for New Shoreline Structures).**

*Proposals for new, replacement or repaired shoreline protection structures shall include a monitoring plan that evaluates the condition of the structure, conditions at the site and surrounding area, and whether the shoreline protection structure is still needed for protection. The plan shall require an inspection at least every five years to identify: any structural damage and need for repair; environmental impacts, including excessive scour, impacts to shoreline processes and beach width (at the project site and the broader area and/or littoral cell as feasible), and impacts to public access and the availability of public trust lands for public use; and the status of the structure being protected. At least every 15 years the landowner shall submit a new Mean High Tide Line (MHTL) survey of the Subject property based on field data collected within 12 months of the date submitted. Surveys shall comply with Hazard Policy xx.*

## Standard Policies for Coastal Flooding and other Hazards

**Hazard Policy 71 (Flooding).**

*New development in flood hazard zones shall be avoided. If relocation of existing development in hazard zones is infeasible, substantial improvements shall be sited and designed to be safe from flooding, and without adverse offsite effects, for at least 100 years, considering projected sea-level rise and future flooding, including at least the 1% probability event. Design requirements shall include raising finished floor elevations of habitable space above projected flood*

*elevations; storing hazardous materials out flood areas; elevating mechanical and utility installations; prohibiting basements; and using flood vents and anchoring structures where appropriate. Structure elevations shall be limited to ensure consistency with LCP visual and community character policies and assure access to utilities over the duration of the development.*

**Hazard Policy 72 (Flood Risk Reduction).**

*The City shall evaluate and pursue floodproofing of infrastructure and other development in danger from projected flooding in 2050. Allow and facilitate private owners to floodproof structures, consistent with other LCP policies.*

**Hazard Policy 73 (Repetitive Loss).**

*The City shall monitor repetitive flooding loss and FEMA claims to assist in identification of priorities for adaptation measures, including acquisition of high-risk properties.*

**Hazard Policy 74 (Steep Slopes and Landslides).**

*New development shall minimize siting on steep slopes and in areas prone to land sliding. Development on slopes over 35% is prohibited.*

**Hazard Policy 75 (Seismic Hazards).**

*New development shall be sited and designed to minimize risks from seismic events. Buildings for human occupancy shall avoid surface traces of active faults, consistent with the Alquist-Priolo Act and other relevant state law.*

**Hazard Policy 76 (Tsunami Hazards).**

*New development shall consider and minimize risks from in identified tsunami run-up zones. Measures may include signage and education, evacuation plans, warning systems and other mitigations of tsunami risks.*

**Hazard Policy 77 (Bluff Drainage and Erosion).**

*The City shall investigate areas that may be significantly contributing to groundwater flows to the bluffs and determine whether improving drainage and/or reducing irrigation could reduce bluff erosion. Measures to improve drainage and reduce over-watering shall be communicated to the public and property owners as part of existing water conservation outreach programs, and included as conditions on new development where applicable.*

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**CALIFORNIA COASTAL COMMISSION**

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August 31, 2018

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

**Subject: City of Pacifica Draft Land Use Plan (LUP) Hazard Policies**

Dear Ms. Wehrmeister:

This letter is in response to the City of Pacifica's request for comments on the "Proposed Updated Draft LUP Hazard Policies" provided to us in a memo from ESA to the City (entitled "Sea-Level Rise Policy Options for Pacifica LCP Update" and dated August 24, 2018). We note that we received this document just this week, and you have requested comments by today. As discussed with you, due to that abbreviated timeline of just a few days, we won't be able to provide final or comprehensive comments, but we are happy to provide some preliminary thoughts and some broader observations regarding the current proposed policies. We look forward to continued dialogue on the policies, including with respect to refinements identified herein.

Overall, the proposed policies appear to provide a solid framework for advancing the City's sea level rise adaptation efforts, which will be critically important in the coming decades. As is identified in its Sea Level Rise Vulnerability Assessment (June 2018), the City of Pacifica is already vulnerable to storm and wave impacts, including as evidenced by the loss of residential structures in recent years, and efforts to protect against such impacts have resulted in narrowed or completely inundated beaches backed by armoring where access can be largely unavailable at higher tides. These hazards are only expected to increase as sea levels rise, resulting in significant loss of public recreational beach resources and shoreline-area habitats, as well as damage to and loss of residential and commercial structures, and transportation, stormwater, and wastewater infrastructure. In particular, given its beaches are a fundamental backbone and significant part of the City's social fabric and economic engine, it is critically important for the policies to reflect the importance of the City's beaches, and to be transparent (and provided appropriate mitigations) where the policies might lead to increased impacts to same.

To this end, the proposed policies address the need to ensure that new development is sited and designed to be safe from coastal hazards and to avoid the need for armoring, and the policies provide many key mechanisms for future steps to take as sea level rise advances over time, including interim protection measures, beach nourishment, and eventual managed retreat in

certain locations. We want to commend the City for tackling such difficult issues head-on, and for starting to identify practical and substantive measures to address such issues moving forward. At the same time, although many important sea level rise planning provisions are addressed in the proposed policies, and they provide a good foundation for the LCP update, we also believe that many important details will require refinement moving forward, including to ensure that the proposed policies are logical, feasible, realistic, and consistent with the Coastal Act. We look forward to working together with the City to refine this work so that it achieves Coastal Act and City objectives related to minimizing hazards and protecting coastal resources, even as sea level rises.

In the interim, and in drilling down a bit into the proposed policies, the current draft includes effective and important policies that address planning and accounting for coastal hazards longer term, but appear to require some focus on the shorter term horizon. For example, the “Standard Policies for New Development,” “Shoreline Structures,” and “Coastal Flooding and Other Hazards” sections provide policies for long-term planning throughout the City that should help ensure new development will be safe from current and future vulnerabilities and protective of coastal resources. However, we continue to have the same concerns that we have previously relayed to the City regarding how existing development will be addressed going forward in a manner that ensures beaches, habitat, public access, and recreation will be preserved for current and future generations, as required by the Coastal Act. Part of the challenge before us in refining the policies will be to make sure that the shorter term and longer term policies interact and seamlessly move towards similar objectives, and aren’t somehow at cross-purposes.

In addition, as you know we have previously identified issues associated with potential policy preparation as the City has worked through its Draft Adaptation Plan (including through meeting with you and your staff throughout this year as well as letters dated June 12, 2018 and August 29, 2018). One of our primary concerns was ensuring that such policy preparation was based on a detailed assessment of the feasibility and costs/benefits of different adaptation alternatives, and it is not clear that this sort of information has been fully developed. No matter what policies are ultimately proposed, it will be critical for decision-makers, both at the City and Commission level, to have the benefit of that sort of information as they weigh potential policy approaches. We would be happy to work with you and your staff as this effort proceeds locally to ensure that such background is clearly provided.

In terms of more specific comments on the draft policies, here are some preliminary observations:

- The proposed policies rely heavily on beach nourishment as a key adaptation strategy. Although we believe that nourishment is an appropriate strategy to evaluate and pursue, we also believe that the information that could underpin such a strategy needs to be further fleshed out. As we have discussed previously, the technical analysis and supporting information regarding potential feasibility and effectiveness of beach nourishment (and also sand retention structures) needs to be better developed (including in relation to different grain sizes and the effects of sand retention structures on erosion in other areas), particularly to support it as a primary adaptation strategy through the proposed policies. In short, we think that policies that rely so heavily on nourishment, particularly in the shorter term, need to be

supported by more thorough data.

- The proposed policies refer to developing a “Shoreline Mitigation Program” in the future to address impacts associated with hazard response. The policies are going to need to be able to be structured to address such impacts *now*, and many policies seem to imply that is their intent. It may be appropriate to identify development of a future mitigation program as a refinement and a next step, but it needs to be clear that this does not negate the need for mitigation in the interim.
- It may be appropriate to reformat and reorganize the policies. For example, the “Standard Policies” sections from pages 14-19 account for the overarching approach for new development and substantial improvements to existing development, in all areas throughout the City, and in both the short- and long-term. It may make better sense to move these to the beginning. Additionally, although we understand the policy construct that suggests that general policies may be superseded by more specific policies for each sub-area, we are concerned that some of the more specific policies appear to be making prescriptions for outcomes that are not based on analysis (e.g., allowed armoring). It is not appropriate, in our view, to have policies state conclusions that have not yet been supported by analysis, and it may be that the overarching policies are required to take precedence in that regard unless and until conclusions can be drawn in that manner.
- The policies appear to be looking to the 2040 horizon as ‘longer term’, and this seems an appropriate framework. We would encourage a close review to ensure that policies referring to other time frames (e.g., 20-year approvals) are understood in terms of this horizon, including to ensure that development years out also times to the same horizon.
- It appears that some critical policy language is missing from some of the draft policies. Please ensure that the following are addressed:
  - Please provide design standards for the construction of shoreline protection devices (e.g., they must: blend with natural environment; avoid significant habitat areas; minimize footprint; protect, and where feasible, provide public access; control erosion from surface and groundwater flows; etc.).
  - Please identify specific details regarding how proportional mitigation for all unavoidable impacts of shoreline protection devices to coastal resources (e.g., shoreline sand supply, recreation, public views, and water quality) is to be measured and applied.
  - Please ensure that the policies require removal of shoreline protection devices when they are no longer required to protect existing structures in danger from erosion, including when structures are demolished and then rebuilt, or redeveloped.
  - Please define what constitutes “substantial improvements” to ensure that current development is brought into compliance with the policies as it is renovated and redeveloped. We have previously identified appropriate standards for such a definition, and would be happy to provide that again.
- Certain themes, concepts, and terms used throughout the draft policies need to be better defined, including as follows:
  - Please better describe how the triggers would be implemented (e.g., trigger for when armoring/nourishment etc. would be implemented when the bluff offset reaches the

specified distance, or whether the specified distance triggers a different approach). In addition, please explain how the years and amounts of sea level rise pertain to the offset values and describe how beach width and bluff offsets will be measured.

- Please explain how the hazard areas referenced in the policies will be defined, including the coastal hazard zones, coastal hazard maps, flood hazard zones, and tsunami run-up zones. In addition, for particular hazard areas that will be mapped, we recommend that the City add timeframes for how often these maps must be updated and include contingencies in the event that they are not updated by the prescribed deadline.
- Please discuss how height limitations will be accounted for if/when structures need to be elevated to meet FEMA base flood levels in some areas.
- Please further expound upon what constitutes current “best available science” and whether there is a different standard for what amount of sea level rise should be evaluated in geotechnical studies versus what amount of sea level rise new development must be sited/designed to be safe from. For example, consider specifying that all new development must evaluate, at a minimum, the medium-high projection scenario (from the 2018 OPC Sea-Level Rise Guidance and in line with the Draft 2018 Science Update to the CCC SLR Policy Guidance) over its anticipated lifetime, but that if new development cannot be sited to avoid impacts over that time period certain minimum standards must be met (similar to the policies related to takings). We would be happy to work with the City on this topic.
- References to hazard policies are made without those specific policies’ reference numbers included. Please update the references accordingly.

Again, we appreciate and commend the City on developing these draft policies and the related policy framework, and look forward to helping to refine the policies and approach through our ongoing collaboration on the City’s LCP update. It is clear from these policies that the City is taking the issues and problems associated with coastal hazards seriously, and in a way that advances the City’s approach to sea level rise and LCP planning. We hope these comments help move us forward in that regard. If you have any questions or would like to discuss these matters further, please don’t hesitate to contact me or Patrick Foster of my staff. Again, we greatly appreciate the ability to be a part of this important planning process and look forward to continued coordination and discussion of this important effort.

Sincerely,



Jeannine Manna  
North Central Coast District Manager  
California Coastal Commission

cc: Bonny O’Connor, City of Pacifica Planner



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## memorandum

**date** August 24, 2018  
**to** Bonny O'Connor, AICP  
**cc** Tina Wehrmeister  
**from** James Jackson, PE; Charles Lester, PhD, JD; Bob Battalio PE  
**subject** Sea-Level Rise Policy Options for Pacifica LCP Update

## Summary

This memo presents recommended Local Coastal Program (LCP) policies to address projected sea level rise and its potential impact on coastal development and resources within the City of Pacifica. The following policy update is consistent with the recommended adaptation strategies from the Final Draft Adaptation Plan, City Council goals, and community input. These policies recognize that sea level rise projections are continually evolving and the effectiveness of hybrid adaptation strategies is not well known. ***Therefore, consistent with the City Council's goals, particularly to preserve existing neighborhoods and promote environmental justice and local economic vitality, the policies focus on protection and armoring of the shoreline and reassessment of the adaptation plan in the future.***

These draft policies are available for public comment and may be revised based on comments received prior to Planning Commission and City Council consideration. The City approved adaptation policies will later be incorporated into a Draft LCP and provided to the Coastal Commission for certification. Only when the LCP is certified by the Coastal Commission and then adopted by the City Council will these policies be effective.

## LCP Background

Pacifica's Local Coastal Program (LCP) guides development and protects coastal resources within the Coastal Zone. LCPs must be consistent with the California Coastal Act of 1976, as amended. Pacifica's LCP is made up of two parts: the Land Use Plan (a compilation of goals, policies, and recommended programs) and the Implementation Plan (regulations and zoning district maps that implement the provisions of the Land Use Plan) (City of Pacifica, 1980; [1994](#); 2017). The Implementation Plan has been codified into Pacifica's municipal code as individual sections (Chapter 4, Articles 43 and 44) in Title 9 Planning and Zoning (City of Pacifica, 2017).

The California Coastal Act aims to [protect coastal resources, including to](#) ensure that public access to and along the shoreline is provided and maintained; that water quality, marine life, and environmentally sensitive habitat areas are protected; and that coastal visual resources and special communities are preserved. The Coastal Act [also](#) calls for certain land uses within the Coastal Zone to have priority over other uses: recreation and visitor-serving uses, fishing, boating, and other coastal-dependent uses, and public works needed to support priority uses.

Pacifica's current Land Use Plan was certified in 1980. The Land Use Plan includes the following main sections:

- The California Coastal Act policies in effect at the time the Land Use Plan was adopted
- Land use designation maps organized by neighborhood, and land use designation definitions
- Neighborhood map of six coastal neighborhoods
- A detailed description of existing conditions, development criteria, and coastal access policies for each coastal neighborhood
- A detailed description of each existing or proposed beach access point
- Policies addressing a range of topics, including habitat protection, geotechnical hazards, coastal views and viewsheds, housing, etc.

Pacifica's current Implementation Plan was adopted in 1994 (and has been amended as recently as 2017) and establishes regulations that address permit requirements and procedures for development in the coastal zone. It also creates a Coastal Zone Combining District that serves as an overlay to the underlying zoning districts, to protect sensitive coastal resources, ensure public shoreline access, protect environmentally sensitive habitats, address geotechnical suitability, grading and drainage, and shoreline protection, and maintain coastal view corridors and neighborhood commercial districts.

In 2009, the City of Pacifica initiated a comprehensive update to its General Plan and LCP. A draft [updated](#) LCP Land Use Plan was prepared that includes background information and policies for the following themes: land use and development, public access and recreation, environmental and scenic resources, and natural hazards (City of Pacifica, 2014). However, no enacting decision was made on the draft LCP [Land Use Plan](#).

Subsequently, California Senate Bill 379 was passed and required all cities and counties to include climate adaptation and resiliency strategies in the safety elements of their general plans upon the next revision beginning January 1, 2017. 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 Similarly, the California Coastal Commission adopted its Sea Level Rise Policy Guidance in, and has been endeavoring to ensure that vulnerability assessments and adaptation plans form the basis for to be included in](#) Local Coastal [Plan-Program](#) updates [related to coastal hazards](#). The City Council will determine the most appropriate policies for Pacifica,

then the LCP Update will be forwarded to the Coastal Commission for certification.

# PROPOSED UPDATED LAND USE PLAN COASTAL HAZARDS POLICIES

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## General Policies

### Hazard Policy 1 (Key Coastal Act Policies).

*The City of Pacifica adopts the following key policies derived from the Coastal Act to address coastal hazards:*

*PRC 30235. Revetments, breakwaters, groins, harbor channels, seawalls, cliff retaining walls, and other such construction that alters natural shoreline processes shall be permitted when required to serve coastal-dependent uses or to protect existing structures or public beaches in danger from erosion, and when designed to eliminate or mitigate adverse impacts on local shoreline sand supply.*

*PRC 30253. New development shall: (1) minimize risks to life and property in areas of high geologic, flood, and fire hazard; and (2) assure stability and structural integrity, and neither create nor contribute significantly to erosion, geologic instability, or destruction of the site or surrounding area or in any way require the construction of protective devices that would substantially alter natural landforms along bluffs and cliffs; and,*

*The updated LCP and sub-area adaptation policies adopted herein are intended to achieve and ~~are~~ be consistent with these key policies, subject to periodic updating as resource and development monitoring and program implementation may dictate. In cases where there are policy interpretation questions, any conflicts or questions shall be resolved in favor of the interpretation that most closely follows PRC Sections 30235 and 30253.*

Comment [A1]: 30235 and 30253 should be presented in order.

### Hazard Policy 2 (Sea-level Rise and Best Available Science).

*Planning and development reviews in the City of Pacifica shall use, as applicable, the best available science about projected sea-level rise and other climate-change related environmental changes when addressing coastal erosion, bluff failure, flooding and other coastal hazards.*

### Hazard Policy 3 (Hazard Identification and Mapping).

*The City's coastal hazard zones shall be mapped based on the best available science about projected sea-level rise, erosion, flooding, and other coastal hazards. Mapping shall be updated as necessary to guide implementation of the LCP's hazard policies. Notwithstanding the coastal hazard zone maps, site-specific hazard mapping and assessment may be required as part of the individual development review process.*

## Coastal Hazards and Sub-area Adaptation Policies

### Hazard Policy 4 (Shoreline Adaptation Plan).

The City shall implement its Sea-level Rise Adaptation Plan (Appendix xx) as expressed in the LUP's general and sub-area coastal hazard adaptation policies. The City shall monitor implementation and, ~~from time to time,~~ update the Sea-level Rise Adaptation Plan every five years or sooner to strengthen public safety, preserve existing neighborhoods, assure local economic vitality, respond to climate change, promote environmental justice, implement the Coastal Act and protect the public trust.

Development in coastal hazard zones may be approved consistent with the sub-area policies (17-44) if the following findings can be made over the expected life of the development:

- a. The proposed development is sited and designed to avoid (and where unavoidable to minimize and to mitigate) coastal hazards and impacts to coastal resources to the maximum extent feasible, ~~consistent with the Adaptation Plan;~~
- b. All project impacts are avoided (and where unavoidable minimized and mitigated) to the maximum extent feasible, ~~through the City's Shoreline Mitigation Program (Hazard Policy 7) or~~ consistent with Hazard Policy 60;
- c. The project ~~does will~~ not pose unacceptable risks to life or property or otherwise create a nuisance; and
- d. The project will not encroach on public trust lands.

~~e.~~ The project is designed to assure stability and structural integrity absent the need for shoreline protective devices.

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### Hazard Policy 5 (Monitoring Shoreline Change).

The City shall implement a monitoring program for sea-level rise, beach width, bluff offset, flooding and storm damage, and other potential measures or triggers for guiding implementation of the LCP's shoreline adaptation policies. The monitoring program shall establish thresholds for reassessing the City's Adaptation Plan.

### Hazard Policy 6 (Shoreline Adaptation Plan Update)

The City shall reassess its Sea-level Rise Adaptation Plan as expressed in the LUP general and sub-area coastal hazard adaptation policies every five years or sooner as required by the shoreline monitoring program (Hazard Policy 5). The reassessment shall consider the following:

- Efficacy of Adaptation Plan and implemented measures.
- Updated sea level rise projections and risks.
- Potential need to revise adaptation measures or implement new measures, including review of emerging engineering, science, and technologies.
- Funding needs and potential funding sources.

### Hazard Policy 7 (Shoreline Mitigation Program).

Within three years of certification of the LUP update, the City shall adopt a Shoreline Mitigation Program to address the coastal resource impacts of existing and future shoreline protection projects in the City. Special emphasis shall be placed on maintaining beaches and public access

Sea-Level Rise Policy Options for Pacifica LCP Update

*to and along the shoreline. The program will update the public access inventory of the LUP as necessary, include a coastal resource inventory and identify priority improvements for maintaining and enhancing coastal shoreline resources, particularly public access and recreation. The program will include enforceable measures to achieve proportional mitigation of*

resource impacts identified in shoreline protection projects, including consideration of beach widths, sediment management plan actions, and monitoring. The program will identify potential funding sources for implementation of identified improvements. The program will include provisions for monitoring implementation and program updates as necessary.

**Comment [A2]:** Recommend adding back in this language from the City's first memo

**Hazard Policy 8 (Adaptation Funding).**

The City will ~~research and evaluate~~pursue feasible grant funding sources or new funding mechanisms, such as the formation of Geologic Hazard Abatement Districts (GHADs), or securing FEMA and other federal or state adaptation and hazard mitigation funds, to finance adaptation strategies.

**Hazard Policy 9 (Transfer of Development Rights).**

Use the City's transfer of development rights (TDR) ordinance to relocate development rights from coastal hazard zones (sending sites) to receiving sites outside of hazard zones. Identify areas where densities and heights may be increased using TDR credits, including to facilitate affordable housing.

**Hazard Policy 10 (Critical Transportation Infrastructure).**

The City will pursue opportunities to preserve and protect critical local transportation infrastructure, or provide alternative access, to mitigate against isolation, economic loss and ensure public safety, while avoiding (and where unavoidable minimizing and mitigating) impacts to coastal resources, including ~~and~~ public access and recreation, to the ~~greatest~~ maximum extent feasible.

**Hazard Policy 11 (Hazard Prone Infrastructure).**

The City will preserve, protect, or relocate hazard prone infrastructure to maintain critical services and ~~maintain the environment~~protect coastal resources. Preservation/protection in situ with shoreline armoring shall be required to meet the requirements of Policies 57 and 58.

**Hazard Policy 12 (Business Outreach).**

The City's Economic Development Department shall provide technical assistance to businesses in evaluating options to promote business resiliency.

**Hazard Policy 13 (High Water Program).**

The City will research and evaluate feasible new funding mechanisms to implement a program to record high water marks where feasible following high-water events.

**Hazard Policy 14 (Flood Ordinance Consistency).**

The City will r~~review~~ and amend as necessary the City's flood damage prevention ordinance to assure consistency with the updated policies and ordinances of the LCP.

**Hazard Policy 15 (LHMP Alignment).**

The City will c~~o~~ordinate City departments and programs to align the Local Hazard Mitigation Plan (LHMP) with the LCP to ensure proactive, coordinated and streamlined adaptation efforts and response to future coastal hazards. The City shall l~~e~~verage FEMA funding opportunities for hazard mitigation and other related funding mechanisms to implement the Shoreline



## Sub-Area Policies and Programs

The following policies and programs implement the near-term sea-level rise adaptation priorities for each sub-area in Pacifica, and identify mid- and longer-term measures, subject to feasibility and monitoring concerns. These priorities were developed based on existing conditions and existing/near term vulnerabilities for each sub-area, as well as the City’s adopted goals for the project that include protecting existing development as well as preserving and enhancing coastal access along Pacifica.

Comment [A3]: Define.

Comment [A4]: Define.

As required in Hazard Policy 5, the City shall monitor erosion, flooding, and sea-level rise amount into the future to identify triggers for future adaptation measures beyond initial actions required due to existing conditions. Where applicable, specific triggers are clarified in the policies.

Generally, for all lands within the 2050 Pacific Institute erosion hazard zone, utilities, roadways and other public infrastructure should be floodproofed unless other adaptation alternatives are implemented and performing well. The City should incentivize risk reduction (floodproofing etc.) that property owners can invest in, with grant funding or code updates. In addition, the City should consider floodproofing infrastructure that may be currently exposed to coastal erosion and flooding to reduce the consequences of under-performance of protection measures (construction and maintenance of shoreline structures).

The City’s overall approach to addressing coastal hazards would be to site and design new development to be out of harm’s way and to limit shoreline armoring as much as possible, and to limit shoreline armoring as much as possible, including to help preserve and protect the City’s shoreline and beaches. At the same time, the City’s program is not designed for wholesale managed retreat is not included in any of existing development in the near-term policies. Such managed retreat options would be reconsidered in the mid- to long-term if feasibility and monitoring warranted, as detailed in Hazard Policy 5 and Hazard Policy 6.

### Fairmont West

The roadway and utilities in Fairmont West are at risk after one to two feet of sea-level rise. Some beach width may exist for access and other coastal resources, but given the high bluffs here, there is not adequate vertical access to the beach. Due to the undeveloped conditions of the bluffs in this sub-area, armoring is not required immediately. Beach nourishment, while a lower priority for this sub-area compared to other more developed sub-areas in the City, could take place at a later date with a larger volume of sand. Coarse sand and/or gravel sources are also preferable and would be more cost effective than finer sands due to sediment transport regimes in this sub-area. By constructing sand retention structures along north Pacifica, the efficacy of beach nourishments can be increased.

#### Hazard Policy 16 (Shoreline Structures: 0-1 foot SLR or 260-foot offset from bluff toe to infrastructure).

Shoreline protective structures shall be avoided except that the existing shoreline structures may be maintained and expanded to protect existing development structures in danger from erosion if found to be the least environmentally-damaging alternative and consistent with Policies 57 and 58, impacts are fully mitigated consistent with Hazard Policy 60, and any prior permit conditions and/or legal obligations pursuant to the California Coastal Act are addressed/complied with. Allow shoreline protective structures for the public road and sewer line existing structures if necessary and consistent with Policies 57 and 58. Any new blufftop

Comment [A5]: The phrase, shoreline structures, shoreline protective device, shoreline protection, seawall, and armoring, are used interchangeably throughout the document. Please use a consistent phrase to refer to shoreline protective devices. These instances are highlighted throughout

*development shall comply with all LCP setback policies.*

**Hazard Policy 17 (Beach Nourishment: 2 feet SLR or 260-foot offset from bluff toe to infrastructure)**

*Evaluate the feasibility of using beach nourishment, in conjunction with sand retention structures (see artificial headlands concept in the Adaptation Plan), to reduce shoreline protective structure*

*maintenance requirements and maintain beaches of at least 100 feet in width on average. If feasible and approved through a coastal development permit, secure funding and implement as soon as possible. Repeat as necessary. Mitigate all adverse impacts and monitor effectiveness over time.*

**Hazard Policy 18 (Transfer of Development Credits: ongoing).**

*Provide an option to private landowners to voluntarily transfer development potential as supported by Hazard Policy 9.*

## West Edgemar and Pacific Manor

**Hazard Policy 19 (Shoreline Structures: 0-1 foot SLR or 220-foot offset from bluff toe to infrastructure or development).**

*Maintain and expand shoreline protective structures to protect existing public infrastructure structures, including between Bill Drake Way and Manor Drive. Allow private property owners to maintain existing or construct new shoreline protective structures if allowed pursuant to Policies 57 and 58, and if consistent with prior permit conditions and/or legal obligations pursuant to the California Coastal Act. Limit authorization of all new shoreline protective structures to twenty years or 2040, whichever is sooner, and require mitigation of beach, public access and recreation and other coastal resource impacts, consistent with Hazard Policies 7 or 60 as necessary.*

*Consider reauthorization subject to Policies 57 and 58, as well as beach monitoring and implementation of beach nourishment and other strategies to maintain beaches.*

**Hazard Policy 20 (Beach Nourishment: 0-1 foot SLR or 220-foot offset from bluff toe to infrastructure or development)**

*Evaluate the feasibility of using beach nourishment, in conjunction with sand retention structures (artificial headlands concept), to reduce shoreline protective structure maintenance requirements and maintain beaches of at least 100 feet in width on average. If feasible and approved through a coastal development permit, secure funding and implement as soon as possible. Mitigate all adverse impacts and monitor effectiveness over time.*

## Northwest Sharp Park

The backshore of Northwest Sharp Park is armored but may be overwhelmed by waves with as little as one foot of sea-level rise, due to scour and shoreline structure sloughing, increased wave loads and overtopping of the shoreline structure. Beaches tend to exist ephemerally in pockets, with armoring impeding lateral access from the degraded vertical access ways. Existing property and infrastructure are at risk from coastal erosion so actions should be taken soon. A public access improvement plan should be provided, consistent with the City's Shoreline Mitigation Program (Hazard Policy 7). Due to the potential lead time of establishing a sand source, beach nourishment planning should begin immediately. Coarse sand and/or gravel sources are also preferable and would be more cost effective than finer sands due to sediment transport regimes in this sub-area. By constructing sand retention structures along north Pacifica, the efficacy of beach nourishments can be increased. The effectiveness of beach nourishment will need to be monitored and, if/when erosion continues to threaten existing development or infrastructure, new adaptation measures will need to be assessed.

**Hazard Policy 21 (Shoreline Structures: 0-1 feet SLR or 70-foot offset from bluff toe to development or infrastructure).**

*Private land owners may maintain and expand shoreline protective structures to protect existing development structures in danger from erosion, consistent with Hazard Policy 4 and any prior permit conditions and/or legal obligations pursuant to the California Coastal Act.*

**Hazard Policy 22 (Beach Nourishment: 0-2 feet SLR or 70-foot offset from bluff toe to development or infrastructure)**

*Evaluate the feasibility of using beach nourishment, in conjunction with sand retention structures (artificial headlands concept), to reduce shoreline protective structure maintenance requirements and maintain beaches of at least 100 feet in width on average. If feasible and approved through a coastal development permit, secure funding and implement as soon as possible. Repeat as necessary. Mitigate all adverse impacts and monitor effectiveness over time.*

**Hazard Policy 23 (Flood Protection: 1 feet SLR).**

*Enable property owners to modify development structures to manage impacts of wave run-up and overtopping of bluff face.*

## Sharp Park, West Fairway Park and Mori Point

Most of this area is armored. The northern section between the pier and Paloma is subject to frequent wave overtopping and damage to homes has occurred. Beaches are narrow and ephemeral, with armoring impeding lateral access from the degraded vertical access ways. South of the pier, the beach tends to be more persistent and wider, and there is usually an accessible beach in the vicinity of the end of Clarendon, with reliable vertical and lateral beach access. South of Clarendon to Mori Point, the beach persists although wave run-up can reach the levee and there is some armoring. This sub-area is exposed to flooding due to rainfall runoff which cannot flow directly to the ocean. The Clarendon area is exposed to flooding now, and certain parts of the West Fairway development may be exposed to flooding if sea-level and ground water levels rise over 3 feet. Due to the potential lead time of establishing a sand source, beach nourishment planning should begin immediately. Coarse sand and/or gravel sources are also preferable and would be more cost effective than finer sands due to sediment transport regimes in this sub-area. By constructing sand retention structures along north Pacifica, the efficacy of beach nourishments can be increased.

Flood protection is already needed for homes and businesses along Clarendon Avenue during rain events and will need to be improved around the SPGC to manage flooding of Laguna Salada regardless of the condition of the SPGC berm. The City of San Francisco is expected to maintain the SPGC berm which protects the Sharp Park neighborhood from the coastal flooding source, but existing pumping facilities in SPGC are not designed to mitigate flooding in and around the course during significant rainfall events (i.e., a portable pump station is currently used to manage rainfall-runoff flooding along Clarendon Avenue). The priority recommendations for flood protection surrounding SPGC are therefore based on the rainfall (fluvial) flood source, but would also be effective during a major coastal storm if the SPGC berm is overtopped or breached. Flooding due to wave run-up landward of Beach Boulevard seawalls is already an issue. Monitoring of the existing seawalls against the higher sea-levels will be necessary (Hazard Policy 5). Results of the monitoring will be considered during the Shoreline Adaptation Plan Update to determine if additional flood protection adaptation measures are necessary.

**Hazard Policy 24 (Sharp Park Golf Course).**

*Encourage the City of San Francisco to maintain the Sharp Park Golf Course berm and **armoring**, consistent with coastal development permit 2-17-0702; support adaptation planning for the course, and protect public access.*

**Hazard Policy 25 (Shoreline Structures: 0 feet SLR).**

*Maintain and expand **shoreline protective structures** to protect existing public infrastructure structures if consistent with Policies 57 and 58. Extend the Beach Boulevard **seawall** to the Sharp Park Golf Course berm if consistent with Policies 57 and 58.*

**Hazard Policy 26 (Structure Elevation: 0-2 feet SLR).**

*Upgrade existing **shoreline structures** if consistent with Policies 57 and 58 to limit wave overtopping unless beach nourishment strategies are effective in reducing wave run-up on the backshore. Elevate development structures if consistent with Policies 57 and 58 as necessary to mitigate flood damage, consistent with existing height limitations.*

**Hazard Policy 27 (Beach Nourishment: 0-1 feet SLR).**

*Pursue beach nourishment and sand retention structures to reduce **shoreline protection** maintenance requirements and provide beach resources. Encourage the City of San Francisco to nourish the beach fronting the Sharp Park Golf Course berm to maintain beach widths.*

**Hazard Policy 28 (Flood Protection: 0 foot SLR).**

*Evaluate and construct appropriate flood protection measures, which may include a Clarendon Avenue stormwater basin, pump station, and/or interior SPGC levee, to protect homes and businesses from existing fluvial storm flood hazard zone.*

**Hazard Policy 29 (Flood Protection: 3 feet SLR).**

*Evaluate the future need to construct a West Fairway Park stormwater basin, pump station, and interior SPGC levee to protect western homes from future coastal/fluvial flood hazard zone.*

## Rockaway Beach, Quarry and Headlands

The armoring near the end of Rockaway Blvd is overtopped by waves under present conditions, with occasional damages. Hence, this area has very little capacity and will have a noticeably degraded condition with as little as one foot of sea-level rise. There is no beach in this area, with waves crashing directly into the armor structures. The shore becomes more accessible with distance northward but will also be more limited with as little as 1 foot of sea-level rise. The south end of rockaway is unarmored, has a persistent beach and the backshore is estimated to be impacted with about 2 feet of sea-level rise.

Due to the cove configuration of Rockaway Beach, it is a great candidate for beach nourishment. Policies recommend that Rockaway be used as a pilot project for beach nourishment in Pacifica. In the pilot project, the City will go through the overall process for beach nourishment and identify available sources in the region and corresponding sediment characteristics and costs, evaluate the performance of the nourishment and enable the City to reevaluate nourishment along northern Pacifica and perform a more thorough assessment for a larger scale nourishment project.

**Hazard Policy 30 (Shoreline Structures: 0 feet SLR).**

*Existing public shoreline structures along the north cove shall be upgraded for public safety and hazard reduction.*

**Hazard Policy 31 (Shoreline Protection: 2-3 feet SLR, or when backshore is 100 feet of Highway 1).**

*Coordinate with Caltrans to evaluate the need for a revetment or other appropriate shoreline protection for the Highway 1 embankment.*

**Hazard Policy 32 (Public Access: 0 feet SLR).**

*Plan and provide for enhanced public access, consistent with the City's Shoreline Mitigation Program (-Hazard Policy 7).*

**Hazard Policy 33 (Beach Nourishment/Public Access: 0 feet SLR).**

*Plan and implement beach nourishment for Rockaway Beach. Monitor and measure performance and any reduction of shoreline protective structure maintenance needs. Establish mechanisms through the City's Shoreline Mitigation Program (Hazard Policy 7) to receive and use beach impact mitigation monies from other sub-areas of the City.*

**Hazard Policy 34 (Development Setbacks: ongoing).**

*Implement new development shoreline setbacks consistent with Hazard Policy 5.*

**Hazard Policy 35 (Transfer of Development: ongoing).**

*Evaluate and implement as feasible a transfer of development credit program for private property at the Headlands as supported by Hazard Policy 9.*

## **Pacifica State Beach & West Linda Mar**

Adaptation policies for Pacifica State Beach and West Linda Mar are presented together because actions taken at Pacifica State Beach influence coastal hazard exposure to West Linda Mar. Much of the Pacifica State Beach sub-area has a persistent, relatively wide beach with bulkheads in the south transitioning to dune fields in the north. Hence, this shore and roadway can likely withstand at least 2 feet of sea-level rise. However, the West Linda Mar sub-area east of Highway 1 has a low elevation and is subject to flooding from high creek flows and rising groundwater associated with sea-level rise. Due to the existing beach widths at Pacifica State Beach and existing coastal armoring, armoring actions are not a near term priority. However, conditions of existing armoring at the Anza pump station should be monitored to ensure protection in the near term. Nourishment of Pacifica State Beach should be initiated using the shoreline-backshore offset for the main parking lot. Beach nourishment projects should include dune restoration to maintain ecology, protect the sewer force main that is buried in existing dune field north of the main parking lot/Anza pump station as well as provide flooding protection of Highway 1 and West Linda Mar. Pump stations at Pacifica State Beach are vulnerable to wave run-up and require floodproofing in place. West Linda Mar neighborhood is also vulnerable to flooding from San Pedro Creek based on existing FEMA hazard maps and will become more vulnerable as SLR increases the flood levels in the creek via its ocean boundary condition. The West Linda Mar neighborhood was constructed in a former lagoon and experiences groundwater issues in the lowest areas, which is evident by existing wetlands around the skate park and homes furthest west. Groundwater in low areas near the ocean are directly influenced by the sea-level, and thus groundwater issues will increase with SLR.

**Hazard Policy 36 (Shoreline Protection: 2 ft SLR or 100 foot offset from shoreline to infrastructure).**

*Evaluate beach conditions and consider future shoreline protection to protect existing parking structures and the existing Linda Mar pump station structure as necessary.*

**Hazard Policy 37 (Highway One Protection).**

*Coordinate with Caltrans to evaluate options for protecting Highway 1, if necessary.*

**Hazard Policy 38 (Beach Nourishment: 2 ft SLR or 100 foot offset from shoreline to infrastructure).**

*Evaluate beach conditions and implement beach nourishment as necessary to maintain 100-foot buffer seaward of the sewer force main and/or Highway 1. Repeat nourishments as needed.*

**Hazard Policy 39 (Flood Protection: 0 feet SLR).**

*Analyze need for floodwall along commercial property to manage flooding from San Pedro Creek under existing conditions with SLR allowance. Future flood studies that include climate-driven changes in precipitation should inform any floodwall design. Floodproof Anza pump station (stormwater) to mitigate existing coastal storm flooding vulnerabilities to wave run-up.*

**Hazard Policy 40 (Flood Protection: 2 feet SLR or 100-foot offset from shoreline to infrastructure).**

*Floodproof the Linda Mar pump stations (sewer and stormwater) to mitigate future coastal storm flooding vulnerabilities to wave run-up as necessary.*

**Hazard Policy 41 (Groundwater Management: 0-2 feet SLR).**

*Begin groundwater monitoring to determine needs for dewatering wells in the lowest portions of the West Linda Mar neighborhood.*

## Pedro Point and Shelter Cove

Potential bluff erosion may reach the most seaward bluff top homes at Pedro Point by about 2050 with 1 to 2 feet of sea-level rise. Private property is mostly armored along the water (boat docks/homes) but require upgrades by property owners, while bluff top properties have limited ability to prevent bluff toe erosion due to parcel limits. Private property is vulnerable to bluff erosion, but implementing bluff toe armoring would be complicated due to land ownership

**Hazard Policy 42 (Shoreline Structure Upgrades).**

*Allow replacement and upgrades of existing shoreline protective structures to reduce hazards and resource impacts if consistent with Policies 57 and 58. Mitigate impacts consistent with the City's Shoreline Mitigation Program (Hazard Policy 7) ~~or~~ and Policy 60 as necessary.*

**Hazard Policy 43 (Flood Protection: 0-1 feet SLR).**

*Allow private property owners to raise homes and other development structures above wave run-up hazard if consistent with Policies 57 and 58, consistent with height limitations.*

# Standard Policies for New Shoreline Development

## Hazard Policy 44 (Technical Reports).

New Development proposed ~~in coastal hazard zones on the shoreline~~ shall include coastal engineering, geomorphology and other relevant technical reports unless on-site hazards already identified in a ~~recent~~ hazard map or assessment approved within the last five years are adequate for evaluating and ensuring compliance with the LCP, including through use of permit conditions to address any uncertainty. Reports shall be prepared by a licensed civil engineer or other suitably qualified professional; use the best available science; consider the impacts from the high projection of sea-level rise for the anticipated duration of the proposed development; demonstrate that the development will avoid (or if unavoidable minimize and mitigate) impacts from coastal hazards to the maximum feasible extent; and evaluate the foreseeable effects that the development will have on coastal resources over time. Reports may be waived for temporary events, temporary development structures or other minor, short-term development where it is clear there will be no significant hazard risks over the project's life.

Comment [A6]: Recommend using this language from the City's first memo.

Comment [A7]: Define.

## Hazard Policy 1 (Land Divisions).

Land divisions that create new development potential in coastal hazard zones, including lot splits, lot line adjustments and conditional certificates of compliance, are prohibited, unless the new or reconfigured parcels: (1) include buildable area that can be developed consistent with LCP hazards policies, or the shoreline, bluff face, and blufftop area land is restricted permanently as non-developable (other than possibly for public recreational access or open space), and (2) the land is restricted to prohibit shoreline protective devices located on such parcels and/or to protect development on such parcels.

Comment [A8]: Recommend adding back in this language from the City's first memo.

## Hazard Policy 45 (Siting and Design).

New development ~~on vacant shoreline property in coastal hazard zones~~ shall be sited and designed to be safe from erosion, bluff failure, wave runup, flooding and other coastal hazards for at least 100 years without new shoreline protection, considering projected sea-level rise and other climate change effects. Permit approvals shall prohibit shoreline protective structures ~~on~~ for the authorized development, require the property owner to record an acknowledgement that the development does not qualify as a ~~an existing development~~ structure entitled to shoreline protective structures ~~on~~ under Coastal Act Section 30235, and a waiver of any rights to such protective structures ~~on~~, and where necessary require a removal and restoration plan, including bonding for large projects, to avoid future shoreline protective structures ~~on~~ or project failure.

Comment [A9]: Recommend using this language from the City's first memo.

## Hazard Policy 46 (Assumption of Risk by Private Landowners).

Permit approvals of development ~~in coastal hazard zones on the shoreline~~ shall require the applicant to record a deed restriction acknowledging and agreeing: 1) that the development is located in a hazardous area, or an area that may become hazardous in the future; 2) to assume the risks of injury and damage from such hazards in connection with the permitted development; 3) to unconditionally waive any claim of damage or liability against the City of Pacifica, its officers, agents, and employees for injury or damage from such hazards; 4) to indemnify and hold harmless the City of Pacifica, its officers, agents, and employees with respect to approval of the project against any and all liability, claims, demands, damages, costs (including costs and fees incurred in defense of such claims), expenses, and amounts paid in settlement arising from any injury or damage due to such hazards; 5) that sea-level rise could render it difficult or impossible to provide services to the site (e.g., maintenance of roadways, utilities, sewage or water systems), thereby constraining allowed uses of the site or rendering it uninhabitable; 6) that the boundary between public tidelands and private land may move inland causing the structure to be located on public

Comment [A10]: Recommend using this language from the City's first memo.

~~land and thus subject to removal unless otherwise authorized by the Coastal Commission and State Lands Commission; and 7) that the structure may need to be removed or relocated if it becomes unsafe or substantially damaged, requiring the owner to indemnify and hold the City harmless and make other acknowledgments relating to the risks relating to the property.~~

Comment [A11]: Recommend adding back in this language from the City's first memo.

**Hazard Policy 47 (MHTL and Avoidance of Public Trust Lands).**

Applications for low-lying development adjacent to coastal waters shall include a Mean High Tide Line (MHTL) survey of the development site prepared by a licensed professional land surveyor based on field data collected within 12 months of the application submittal. The survey shall be conducted in consultation with and approved by the California State Lands Commission (CSLC) staff. Development shall be sited to avoid public trust lands for the approved duration, unless otherwise authorized by the California State Lands Commission and Coastal Commission. New MHTL surveys shall be submitted every ten years or within one year of a new tidal datum epoch, seismic event in the project area greater than 5.5, or significant relative rise in annual local mean sea-level records.

**Hazard Policy 48 (Bluff Face Development).**

Shoreline protective structures, grading, and landform alteration on bluff faces are prohibited, except for the following: public access structures where no feasible alternative means of public access exists, and shoreline protective devices if otherwise allowed by the LCP and the public access and recreation policies of the Coastal Act. Such shoreline structures shall be designed and constructed to be visually compatible with the surrounding area to the maximum extent feasible, and to minimize effects on erosion of the bluff face, and to avoid (and where unavoidable to minimize and to mitigate) coastal resource impacts to the maximum extent feasible.

**Hazard Policy 49 (Minor Development in Shoreline Areas).**

Minor and/or ancillary development, including public trails, benches, gazebos, patios, etc., may be located seaward of a bluff or shoreline setback line provided that development is otherwise consistent with the LCP, does not create a hazard, and does not use a foundation that can serve as a bluff retaining device, such as caissons, or that requires landform alteration, and that the development is removed or relocated by the landowner when threatened or in the event that portions of the development fall to the bluffs, beach or ocean.

**Hazard Policy 50 (Non-conforming Structures in Hazardous Shoreline Areas).**

When the expansion or redevelopment of an existing development structure that is legally non-conforming with an LCP standard, including bluff setbacks or other hazard criteria, is proposed, the entire structure new construction shall be made to conform with the LCP and, if applicable, the Coastal Act. The degree of non-conformity shall not be increased.

Comment [A12]: Recommend using this language from the City's first memo.

Comment [A13]: Recommend using this language from the City's first memo.

**Hazard Policy 51 (Protection of Private Property in Hazardous Areas).**

Where full adherence with all LCP policies, including for setbacks and other hazard avoidance measures, would preclude a reasonable economic use of the property as a whole, the City may allow the minimum economic use and/or development of the property necessary to avoid an unconstitutional taking of private property without just compensation. There is no taking that needs to be avoided if the proposed development constitutes a nuisance or is otherwise prohibited pursuant to other background principles of property law (e.g., public trust doctrine). Continuation of preexisting use (e.g., continued use of an existing development structure, including with any permissible repair and maintenance, which may be exempt from permitting requirements) may provide a reasonable economic use. If development is allowed pursuant to this policy, it must be consistent with all LCP policies to the maximum extent feasible.

**Hazard Policy 52 (Habitat Sea-level Rise Migration Buffers).**

*A sea-level rise buffer area shall be added to required new development habitat buffers if necessary to allow for the migration of wetlands and other ~~shoreline-coastal~~ habitats caused by sea-level rise over the anticipated duration of the development. Except for temporary uses, as described below, uses and development within sea-level rise buffer areas shall be limited to minor passive recreational uses, with fencing, de-siltation or erosion control facilities, or other improvements deemed necessary to protect the habitat, to be located in the upper (upland) half of the buffer area. Water quality features such as drainage swales required to support new development shall not be constructed in wetland buffers. Temporary uses may also be placed in the sea-level rise buffer area until such time as sea-level rise causes the wetlands or other ~~shoreline-coastal~~ habitat to migrate to within 100 feet of the temporary uses, at which time, they shall be removed. All ~~permanent~~ habitat and buffers identified shall be permanently conserved or protected through a deed restriction, open space easement or other suitable device.*

**Hazard Policy 53 (Stormwater and Dry Weather Flows).**

*New development shall provide adequate drainage and erosion control facilities that convey site drainage in a non-erosive manner to minimize hazards resulting from increased runoff and erosion. Runoff shall be directed inland to the storm drain system or to an existing outfall, when feasible. If no storm drain system or existing outfall is present, blufftop runoff shall not be channelized or directed ~~over bluffs and/or~~ to the beach or the ocean.*

**Hazard Policy 54 (Reduction of Greenhouse Gases).**

*New development shall include solar panels and, as appropriate, other energy reducing techniques to minimize greenhouse gas emissions, consistent with community character, coastal views and protection of biological resources.*

## Standard Policies for Shoreline Structures

**Hazard Policy 55 (Soft Shoreline Protection).**

*Encourage the use of soft or natural ~~shoreline protection~~ methods, such as dune restoration and beach/sand nourishment as alternatives to hard ~~shoreline protective devices~~. Soft ~~shoreline protection devices~~ shall be fully evaluated for coastal resource impacts, and shall only be approved if found consistent with the LCP ~~and Coastal Act~~ policies related to ~~shoreline protection~~. Consider combining beach replenishment with groin construction to maintain beaches and protect development (see subarea policies).*

**Hazard Policy 56 (Beach Nourishment).**

*In coordination with the Coastal Commission and other permitting agencies (e.g., State Lands Commission, U.S. Army Corps of Engineers), the City shall ~~develop and implement~~ evaluate a beach nourishment program in conjunction with sand retention structures to assist in maintaining beach width and elevations, consistent with subarea policies. The beach nourishment program will include measures to protect water quality and to ~~avoid (and where unavoidable to minimize and mitigate)~~ potential adverse ~~coastal resource impacts, including biological resource impacts~~, from deposition of material, including measures such as sand compatibility specifications, restrictions on volume of deposition, timing or seasonal restrictions, and identification of environmentally preferred locations for deposits. The City will also consider developing an opportunistic sand program and evaluate how replenishment options may need to change over time with sea-level rise.*

**Hazard Policy 57 (Existing Shoreline Structures).**

Except as may be otherwise provided in the LUP subarea policies, legally permitted shoreline protective structures may be repaired and maintained subject to all coastal permit requirements (including those associated with the construction of the structure and/or prior repair and maintenance episodes) until the development they are protecting is removed or redeveloped or no longer requires shoreline protective structures. at which time the shoreline protective structures shall be reevaluated for consistency with the LCP. Repair and maintenance activities shall not result in any enlargement or extension of the shoreline protective structure, or any seaward encroachment or impairment of public trust resources, and shall provide mitigation for any new coastal resource impacts not previously or otherwise mitigated, including through the City's Shoreline Mitigation Program (Hazard Policy 7) and/or Policy 60. Expansion, augmentation or replacement of 50 percent or more of the shoreline structure (by volume, linear (height or length) or areal extent) constitutes a new shoreline structure and shall comply with all policies of the LCP.

**Hazard Policy 58 (New Shoreline Structures).**

~~Unless a waiver of rights to shoreline protection applies on the property, shoreline Shoreline protection structures, including revetments, breakwaters, groins, seawalls, cliff retaining walls, deep piers and caissons, and other such construction that alters natural shoreline processes shall be permitted consistent with the LUP's sub-area policies only when required to serve coastal-dependent uses or protect existing principal development structures or public beaches in danger from erosion, when designed to eliminate or mitigate adverse impacts on local shoreline sand supply, and when there is no less environmentally damaging feasible alternative such as relocation of threatened development, beach nourishment, non-structural drainage and native landscape improvements, or other similar non-structural options, and when coastal resource impacts are avoided (and where unavoidable minimized and mitigated) to the maximum extent feasible. A waiver of rights to shoreline protection would be an agreement executed between the property owner and the California Coastal Commission.~~

Comment [A14]: Recommend using this language from the City's first memo.

**Hazard Policy 59 (Authorization Limits of New Shoreline Structures, 30235; Coastal Act).**

Unless otherwise directed in a subarea policy, shoreline protection structures shall only be authorized until the time when the existing principal development structure or adjacent development structures that are protected by such a device: 1) is no longer present, or 2) no longer requires armoring, or 3) is redeveloped.

**Hazard Policy 60 (Mitigating Impacts of New Shoreline Structures).**

Necessary shoreline protective structures shall be sited and designed to avoid sensitive resources to the maximum extent feasible. Adverse coastal resource impacts shall be avoided, and where unavoidable shall be minimized and fully mitigated, including impacts on sand supply, beach area, public access (vertical access to the shore and horizontal access along the shore and blufftop) and recreational use (surfing, fishing, hiking, etc.), public trust lands and values, ecological function, water quality, shoreline aesthetics, and cultural resources. Mitigation options shall include consideration of providing equivalent new public access, recreation, habitat or other coastal resource in the vicinity of the project, or if such options are not feasible, proportional in-lieu fees that consider and reflect, to the maximum extent practicable, the full value of impacted and/or lost resources for the approved lifetime authorization period of the project. Any fees shall be deposited in an interest-bearing account held by the City of Pacifica for use within the city limits for mitigation of the specific impact identified in the project approval. This policy may be met through compliance with the City's Shoreline Mitigation Program (Hazard Policy 7)

**Hazard Policy 61 (Monitoring Plan for New Shoreline Structures).**

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Proposals for new, ~~replacement~~ *redeveloped/augmented* or repaired *shoreline protection structures* shall include a monitoring plan that evaluates the condition of the *shoreline structure*, conditions at the site and surrounding area, and whether the *shoreline protection structure* is still needed for protection. The plan shall require an inspection at least every five years to identify: any structural damage and need for repair; environmental impacts, including excessive scour, impacts to shoreline processes and beach width (at the project site and the broader area and/or littoral cell as feasible), and impacts to public access and the availability of public trust lands for public use; and the status of the ~~development~~ *existing structure* being protected. *The monitoring plan shall also be updated to at a minimum include any specific requirements associated with coastal permit approval.* At least every 15 years the landowner shall submit a new Mean High Tide Line (MHTL) survey of the Subject property based on field data collected within 12 months of the date submitted. Surveys shall comply with Hazard Policy 47.

## Standard Policies for Coastal Flooding and other Hazards

### Hazard Policy 62 (Flooding).

New development in flood hazard zones shall ~~be avoided. If relocation of existing development in hazard zones is infeasible, substantial improvements shall be sited and designed to be safe from flooding, and without adverse offsite effects, for at least 100 years, considering projected sea-level rise and future flooding, including at least the 1% probability event. Design requirements shall include raising finished floor elevations of habitable space above projected flood elevations; storing hazardous materials out flood areas; elevating mechanical and utility installations; prohibiting basements; and using flood vents and anchoring structures where appropriate. Structure elevations shall be limited to ensure consistency with LCP visual and community character policies and assure access to utilities over the duration of the development.~~ *comply with the City's Flood Damage Prevention Ordinance.*

Comment [A15]: Recommend using this language from the City's first memo.

### Hazard Policy 2 (Repetitive Loss).

~~The City shall monitor repetitive flooding loss and FEMA claims to assist in identification of priorities for adaptation measures, including acquisition of high-risk properties.~~

Comment [A16]: Recommend using this language from the City's first memo.

### Hazard Policy 63 (Flood Risk Reduction).

The City shall evaluate and pursue floodproofing of infrastructure and other development in danger from projected flooding by 2050. Allow and facilitate if feasible private owners to floodproof development structures, consistent with other LCP policies.

### Hazard Policy 64 (Steep Slopes and Landslides).

Unless no other buildable area exists on the parcel, development shall be prohibited on slopes in excess of 35 percent ~~and on bluff faces~~, except for drainage improvements and necessary *shoreline protection structures*.

Comment [A17]: Captured in Hazard Policy 48.

### Hazard Policy 65 (Seismic Hazards).

New development shall be sited and designed to minimize risks from seismic events. Buildings for human occupancy shall avoid surface traces of active faults, consistent with the Alquist-Priolo Act and other relevant state law.

### Hazard Policy 66 (Tsunami Hazards).

*New development shall consider and minimize risks from in identified tsunami run-up zones. Measures may include signage and education, evacuation plans, warning systems and other mitigations of tsunami risks.*

**Hazard Policy 67 (Bluff Drainage and Erosion).**

*The City will evaluate and research feasible new funding mechanisms to investigate areas that may be significantly contributing to groundwater flows to the bluffs and determine whether improving drainage and/or reducing irrigation could reduce bluff erosion. Measures to improve drainage and reduce over-watering shall be communicated to the public and property owners as part of existing water conservation outreach programs, and included as conditions on new development where applicable.*

**Glossary Definitions**

**Existing Structure:** For purposes of considering shoreline protective devices, “existing structure” shall mean a structure that was legally authorized prior to the effective date of the Coastal Act on January 1, 1977.

**Coastal Hazard Zone.** “Coastal Hazard zones” shall mean the areas shown on the City’s prepared maps based on the best available science about projected sea-level rise, erosion, flooding, and other coastal hazards.

**New Development.** “New Development” shall mean the act or process of creating a structure or use where no existing structures or use occurs.

**Redevelopment:** An existing structure located in an area potentially subject to hazards shall be considered redeveloped (and deemed new development under this LCP that must be made to conform with all applicable LCP policies), when such development consists of: (1) alteration (including interior and/or exterior remodeling and renovations, demolition or partial demolition, etc.) of 50% or more of major structural components (including exterior walls, floor and roof structure, and foundation) considered individually (i.e., percentages are calculated by the individual structural component being altered, and are not additive between different structural components); (2) additions and alterations to such development that lead to a 50% or more increase in floor area for the development; and/or (3) additions and alterations to such development that costs 50% or more of the market value of the existing structure before construction. Changes to floor area and individual major structural components and the costs of such changes are measured cumulatively over time starting from January 1, 1977.

**Shoreline.** “Shoreline” shall mean property in which a bluff edge or beach traverses the property either partially or wholly.

**Comment [A18]:** See comment regarding hazard maps in our letter.

**Comment [A19]:** Define “redevelopment” instead.

**Comment [A20]:** See comment regarding the definition of shoreline in our letter.

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