

ATTACHMENT #4

**Environmental Hazard Policies**

Coastal Commission (May 2014) and CCC staff-suggested Modifications (April 2015)) are shown as baseline (i.e. accepted into the text)

CDA changes to Modifications are indicated in blue by *italic strike-outs* and underlining

**C-EH-1 Safety of New Development.** Ensure that risks to life are minimized and that new development is safe from, and does not contribute to, geologic sea level rise, or other hazards for a period of at least 50 years ~~100 years~~.

**Comment [CDA1]:** See discussion of revisions in Staff Recommendation, Attachment 1, Part 1, Item 1, p.4)

**C-EH-32 Applicant's Assumption and Disclosure of Risk.** As a condition of coastal permit approval for development in hazardous areas, require the applicant to record a document: ~~exempting the County from liability for any personal or property damage caused by geologic or other hazards on such properties and acknowledging that future shoreline protective devices to protect structures authorized by such coastal permit are prohibited.~~

**Comment [CDA2]:** See discussion of revisions in Staff Recommendation, Attachment 1, Part 1, Item 1, p.4)

1. Acknowledging that the site is subject to coastal hazards which may include coastal erosion, shoreline retreat, flooding, and other geologic hazards;
2. Acknowledging that future shoreline protective devices to protect authorized structures are prohibited;
3. Acknowledging that public funds may be insufficient or unavailable to remedy damage to public roadways, infrastructure, and other facilities resulting from natural events such as sea level rise and bluff erosion;
4. Acknowledging that Housing Code provisions prohibit the occupancy of structures where sewage disposal or water systems are rendered inoperable; and
5. Assuming all risks and waiving any claim of damage or liability against the County for personal or property damage resulting from such coastal hazards.

The recorded document shall also disclose potential vulnerability of the development site to long term sea level rise by incorporating the County's 100 year time frame sea level rise hazard map for the subject property and surrounding area, where applicable.

**C-EH-3 Flood Hazards.** Require applicants for development in flood hazard areas to demonstrate that:

**Comment [CDA3]:** See discussion of revisions in Staff Recommendation, Attachment 1, Part 1, Item 3, p.11)

1. The development will comply with construction standards contained in Chapter 23.09 (Floodplain Management);
2. The minimum floor elevation of development incorporates additional freeboard to accommodate potential sea level rise as provided for by Policy C-EH-8 (Minimum Floor Elevations in Flood Hazard Areas);
3. The development will not create a hazard or diminish the stability of the area; and
4. Shoreline development, conforms to Policy C-EH-5.B.

Flood hazard areas are defined as: 1) those areas shown on Federal Emergency Management Agency (FEMA) "Flood Insurance Rate Maps" (FIRM) and "Flood Boundary Water Maps" for Marin County which have been determined to be subject to flooding from a flood which has a one percent chance of occurrence in any one year (further designated as Zone A, AO, A1-30, AE, A99, AH, VO, V1-V30, VE,

or V); and 2) those areas potentially inundated by sea level rise as shown on “Potential Sea Level Rise Maps” prepared and adopted by the County of Marin.

To minimize risks to life and property, and assure stability and structural integrity of existing structures, modifications of such structures consistent with this Policy shall be facilitated by application of Coastal Permit Exemptions, Categorical Exclusions, and Coastal Permits. Raising the structure as provided in Policies C-EH-5, 8, and 9 and limiting the height to that required to provide for BFE and/or sea level rise elevation shall be deemed sufficient to comply with coastal hazard, public view, community character and related provisions of the LCP.

**C-EH-4 Seismic Geologic Hazards Standards.** Require applicants for development in areas potentially subject to geologic hazards (which include Alquist-Priolo earthquake hazard zones and areas subject to landslides, liquefaction, steep slopes averaging greater than 35%, and unstable slopes regardless of steepness) to evaluate the extent of those hazards and demonstrate that:

1. Require The development shall comply with ~~to meet~~ the seismic safety standards of the Alquist Priolo Act (Calif. Public Resources Code Section 2621, et seq.) and all applicable seismic provisions and criteria contained in the most recent version of State and County codes;
2. Development shall incorporate construction and siting techniques to mitigate the geologic hazards identified above;
3. The development shall not create a hazard or diminish the stability of the area; and
4. Blufftop development, confirms to Policy C-EH-5.A.

**C-EH-5 New Shoreline and Blufftop Development**

A. **Blufftop Development.** Ensure that new blufftop development, ~~including coastal redevelopment (see below) and additions to existing structures,~~ is safe from ~~shoreline~~ bluff retreat and other coastal hazards without a reliance on shoreline protective devices. Except as provided for by Policies C-EH-7, C-EH-15, and C-EH-16, ~~and C-EH-19,~~ new blufftop development shall be set back from the ~~shoreline and~~ bluff edge a sufficient distance to ensure its stability and structural integrity for a minimum of ~~100 years~~ 50 years and to eliminate the need for shoreline protective devices. A coastal hazards analysis shall evaluate the effect of erosion, geologic and other hazards at the site to ensure ~~its stability and~~ structural integrity for a minimum of ~~100 years~~ 50 years. The coastal hazards analysis shall include a quantitative slope stability analysis demonstrating a minimum factor of safety against sliding of 1.5 (static) or 1.2 (pseudostatic, k=0.15 or determined through analysis by the geotechnical engineer). Safety and stability must be demonstrated for the predicted position of the ~~shoreline~~ bluff following ~~shoreline~~ bluff recession over at least ~~100 years~~ 50 years. The predicted ~~shoreline~~ bluff position shall be evaluated considering not only historical ~~shoreline and~~ bluff retreat data, but also acceleration of ~~shoreline and~~ bluff retreat due to continued and accelerated sea level rise, and other climate impacts, according to potential sea level rise estimates prepared and adopted by the County of Marin for use in coastal hazards analyses, best available science. The effect of any existing shoreline protective devices shall not be factored into the required stability analysis.

B. **Shoreline Development.** Ensure that new shoreline development (defined as development located in a VO, V1-V30, VE or V zone as mapped by the Federal Emergency Management Agency [FEMA]) (including new development on vacant/undeveloped lots, additions to existing structures, and coastal redevelopment (see below)) shall be set back a sufficient distance from the shoreline to ensure stability and structural integrity; is safe from shoreline erosion for a minimum of ~~100~~ 50-years without the need for new shoreline protective devices. ~~For coastal redevelopment, if there is insufficient space on a property to feasibly meet the setback requirements, then such development may meet the~~

**Comment [CDA4]:** See discussion of revisions in Staff Recommendation, Attachment 1, Part 1, Item 4, p.12)

**Comment [CDA5]:** See discussion of revisions in Staff Recommendation, Attachment 1, Part 1, Item 5, p.13)

~~minimum 100-year stability and structural integrity requirement through setting back as far as feasible in tandem with Allow the use of caisson/pier foundations and elevation (including if elevation of the structure is necessary to meet Federal Emergency Management Agency (FEMA) flood requirements, ) but no other type of shoreline protective device is allowed.~~ Any approval for new shoreline development shall be accompanied by conditions necessary to achieve compliance with this policy (e.g., ~~appropriate provisions to ensure that all permitted development is relocated and/or removed before shoreline protection (other than caisson/pier foundations and elevation where allowed for redevelopment) is needed.~~ A ~~coastal~~ hazards analysis shall evaluate the effect of geologic and other hazards to ensure stability and structural integrity for the minimum ~~100~~ 50 year period, ~~and such analysis shall not factor in the presence of any existing shoreline protective devices.~~ The ~~coastal~~ hazards analysis shall also evaluate the effect of the project over time on coastal resources. Where development consists solely of raising an existing structure to meet the Base Flood Elevation (BFE) established by FEMA and any additional elevation required by Policy C-EH-8, compliance with Policy C-EH-3 shall be deemed sufficient to comply with coastal hazard, public view, community character and related provisions of the LCP.

~~including in terms of protecting public access, shoreline dynamics, natural landforms, and public views, including as project impacts continue and/or change over time, including in response to sea-level rise), including in terms of not only the impacts associated with the elevated structure, but also in terms of the effects of related development, such as required ingress/egress to structures and the provision of services (e.g., water, wastewater, etc.). The provisions of this subsection allowing the use of caisson/pier foundations and elevation for shoreline redevelopment in certain circumstances shall apply until April 30, 2017 or until this subsection is amended, whichever occurs first. If a complete LCP amendment to amend this subsection is not submitted as of April 30, 2017 (including where subsequent withdrawal of such LCP amendment will deem it to have not been submitted), then shoreline redevelopment will no longer be allowed to meet minimum 100-year stability and structural integrity requirements through the use of caisson/pier foundations and elevation. The April 30, 2017 deadline may be extended for good cause by the Executive Director of the Coastal Commission.~~

~~C. Coastal Redevelopment. Coastal redevelopment must be found consistent with all applicable LCP policies. Coastal redevelopment is development that is located on top of bluffs or at or near the ocean sand interface and/or at very low lying elevations along the shoreline that consists of alterations including (1) additions to an existing structure, (2) exterior and/or interior renovations, and/or (3) demolition of an existing bluff home or other principal structure, or portions thereof, which results in:~~

~~(1) Alteration of 50% or more of major structural components including exterior walls, floor and roof structure, and foundation, or a 50% increase in floor area. Alterations are not additive between individual major structural components; however, changes to individual major structural components are cumulative over time from the date of certification of the LUP.~~

~~(2) Demolition, renovation or replacement of less than 50% of a major structural component where the proposed alteration would result in cumulative alterations exceeding 50% or more of a major structural component, taking into consideration previous alterations approved on or after the date of certification of the LUP; or an alteration that constitutes less than 50% increase in floor area where the proposed alteration would result in a cumulative addition of greater than 50% of the floor area, taking into consideration previous additions approved on or after the date of certification of the LUP.~~

**Comment [CDA6]:** See discussion of revisions in Staff Recommendation, Attachment 1, Part 1, Item 2, p.6)

**C-EH-6 Proper Drainage on Blufftop Parcels.** Ensure that surface and subsurface drainage associated with development of any kind shall not contribute to the erosion of the bluff face or the stability of the bluff itself.

**C-EH-7 New Structures on Bluff Faces.** Prohibit structures on bluff faces, except for public access structures where no feasible alternative means of public access exists. 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.

**C-EH-8 Minimum Floor Elevations in Flood Hazard Areas.** For new development within Flood Hazard Areas as defined by Policy C-EH-3, the minimum elevation of construction shall incorporate additional height to accommodate potential sea level rise as follows:

**Comment [CDA7]:** See discussion of revisions in Staff Recommendation, Attachment 1, Part 1, Item 6, p.15)

1. Within flood hazard areas mapped by the Federal Emergency Management Agency (FEMA), additional freeboard up to a maximum of three feet to accommodate identified sea level rise as depicted on “Potential Sea Level Rise Maps” prepared and adopted by the County of Marin, shall be added to the Base Flood Elevation (BFE) when establishing the minimum elevation required for proposed construction.
2. Within areas that are not within FEMA mapped flood zones but are shown as potentially inundated by sea level rise identified on “Potential Sea Level Rise Maps” prepared and adopted by the County of Marin, new development shall be constructed such that the lowest finished floor exceeds the highest natural elevation of the ground surface next to the proposed walls of the structure prior to construction (i.e., “highest adjacent grade”) by an amount equal to or greater than the projected sea level rise as depicted on the above referenced maps.

**C-EH-9 Maximum Building Heights in Flood Hazard Areas.** For new development within Flood Hazard Areas as defined by Policy C-EH-3, the maximum allowable building height shall be 25 feet above grade, or 15 feet above the minimum floor elevation as required by Policy C-EH-8, whichever is greater (see Policy C-EH-11 for Maximum Building Heights within the Seadrift Subdivision) except:

**Comment [CDA8]:** See discussion of revisions in Staff Recommendation, Attachment 1, Part 1, Item 7, p.17)

Where development consists solely of raising an existing structure by the minimum amount necessary to meet the Base Flood Elevation (BFE) established by FEMA plus any additional elevation require by Policy C-Eh-8:

1. A resulting building height of up to 30 feet above grade shall be deemed sufficient to comply with coastal hazard, public view, community character and related provisions of the LCP. Such Coastal Permits shall be subject to conditions of approval prohibiting future increases in the height, mass, and bulk of the structure.
2. A resulting building height which would exceed 30 feet above grade may only be permitted after an individual evaluation of conformance with public view, community character and related provisions of the LCP.

**C-EH-11 Maximum Building Heights ~~Minimum Floor Elevations~~ in the Flood Velocity Zone at Seadrift.** For new development within the Seadrift Subdivision located in the special flood hazard (V zone) as mapped by the Federal Emergency Management Agency, measure the maximum allowable building height of 15 feet from the minimum floor elevation required by Policy C-EH-8, ~~the special flood~~

~~hazard zone designation. Maximum allowable building heights shall protect community character and scenic resources.~~

**C-EH-12 Floor Elevations Requirements for Non-conforming Existing Buildings in Flood Hazard Areas Zones.** Within Flood Hazard Areas as defined by Policy C-EH-3, as mapped by the Federal Emergency Management Agency, allow existing legal non-conforming buildings that are encroaching into a required yard setback to be raised consistent with Policy C-EH-8 above the base flood elevation without the need for a variance to setback requirements, as long as ~~the finished floor is not more than 18 inches above the base flood elevation and~~ the extent of the encroachment is not expanded. ~~Maximum allowable building heights shall protect community character and scenic resources.~~

**Comment [CDA9]:** Revisions for consistency with policies C-EH-3 and C-EH-8

**Program C-EH-12.a Address Tsunami Potential.** ~~Review tsunami wave run-up and inundation maps, when available, along with other applicable information to be considered in coastal planning and development.~~

**Comment [CDA10]:** Tsunami areas are incorporated into FEMA V zones, therefore this program is redundant with Policy EH-3.

**C-EH-13 Shoreline Protective Devices.** Discourage shoreline protective devices in the Coastal Zone, including encouraging their removal and site restoration where feasible, due to their coastal resource impacts (including visual impacts, obstruction of public access, interference with natural shoreline processes and water circulation, and effects on marine habitats and water quality)

**Comment [CDA11]:** Revisions proposed for clarification

Allow the construction, reconstruction, expansion, and/or replacement of a shoreline protective device, including revetments, breakwaters, groins, seawalls, bluff retention devices, deep piers/caissons, (deep piers/caissons are not considered to be a shoreline protective device when they are designed and used for architectural foundations and not for erosion protection or to prevent beach retreat) or other artificial structures for coastal erosion control and hazards protection, only if each of the following criteria is met:

1. The shoreline protective device is required to serve a coastal-dependent use or to protect a principal structure, residence, or second residential unit in existence prior to the adoption of the Local Coastal Program (May 13, 1982) or a public beach in danger from erosion.
2. No other non-structural alternative, such as sand replenishment, beach nourishment, or managed retreat is feasible, and the device is the least environmentally damaging feasible alternative.
3. It can be shown that a shoreline protective device will successfully eliminate or mitigate its effects on local shoreline sand supply and that the device will not adversely affect adjacent or other sections of the shoreline.
4. The shoreline protective device will not be located in wetlands or other significant resource or habitat area, and will not cause significant adverse impacts to fish or wildlife.
5. There will be no reduction in public access, use, or enjoyment of the natural shoreline environment, and construction of a shoreline protective device will preserve or provide access to related public recreational lands or facilities.
6. The shoreline protective device will not restrict navigation, mariculture, or other coastal use and will not create a hazard in the area in which it is built.
7. For existing shoreline protective devices that are being reconstructed, expanded, and/or replaced, the coastal permit application shall include a re-assessment of the need for the device, the need for any repair or maintenance of the device, and the potential for removal based on changed conditions. The coastal permit application shall at a minimum include an evaluation of: the age and condition of the existing principal structure being protected; changed geologic site conditions

including but not limited to changes relative to sea level rise; and impacts to coastal resources, including but not limited to public access and recreation.

8. The shoreline protective device shall only be authorized for a specified time period depending on the nature of the project and other possible changing conditions. Maintenance beyond the specified time period, modification, or expansion of the approved device shall require approval of an amendment to the Coastal Permit, until the time when the existing structure that is protected by such a device: 1) is no longer present; 2) no longer requires armoring; or 3) is redeveloped (i.e. coastal redevelopment pursuant to C-EH-5).
  - a. ~~The permittee is required to submit a coastal permit application to remove the authorized shoreline protective device within six months of a determination that the shoreline protective device is no longer authorized to protect the structure it was designed to protect because the structure is no longer present or no longer requires armoring. In the case of coastal redevelopment, removal of the authorized shoreline protective device shall be required prior to construction of the redeveloped structure.~~
9. Shoreline protective devices shall be required to mitigate impacts to shoreline sand supply, public access and recreation, and any other relevant coastal resource impacts in 20-year increments, starting with the building permit completion certification date. Permittees shall apply for a coastal permit amendment prior to expiration of each 20-year mitigation period, proposing mitigation for coastal resource impacts associated with retention of the shoreline protective device beyond the preceding 20-year mitigation period, and such application shall include consideration of alternative feasible mitigation measures in which the permittee can modify the shoreline protective device to lessen its impacts on coastal resources.
10. The shoreline protective device shall be regularly monitored by an engineer or engineering geologist familiar and experienced with coastal structures and processes. Monitoring reports to the County and the Coastal Commission shall be required every five years from the date of coastal permit issuance until coastal permit expiration, which shall evaluate whether or not the shoreline protective device is still required to protect the existing structure it was designed to protect.

**C-EH-14 Design Standards for the Construction of Shoreline Protective Devices.** Ensure that the design and construction of any shoreline protective device shall:

1. Be sited, designed, and treated to blend in visually with the natural shoreline;
2. Respect and integrate into natural landforms to the greatest degree possible;
3. Include mitigation measures to offset any impacts on fish and wildlife resources caused by the project;
4. Minimize and mitigate for the impairment and interference with shoreline sand supply and the circulation of coastal waters;
5. Address the geologic hazards presented by construction in or near Alquist-Priolo earthquake hazard zones;
6. Protect, and enhance where feasible, public recreational access as much as possible, including by minimizing the displacement of beach; and
7. If necessary, be combined with efforts to control erosion from surface and groundwater flows.

**C-EH-15 ~~Minor~~ Accessory Structures in Hazardous Areas.** ~~Minor accessory structures, which are structures that do not require structural foundations, such as decks, patios, and walkways (and not including structures such as guesthouses, pools, tennis courts, cabanas, and septic systems, etc.) may be allowed within the shoreline/blufftop setback established by C-EH-5 provided they meet all of the following criteria~~ In areas subject to shoreline and/or blufftop erosion per Policy C-EH-5, accessory structures, including patios and gazebos, may be allowed provided they meet all of the following criteria :

**Comment [CDA12]:** Revisions proposed for consistency with Policy C-EH-5

1. Such accessory structures shall only be allowed if consistent with all other applicable LCP policies.
2. Such accessory structures shall be sited and designed to be easily relocatable and/or removable without significant damage to shoreline and/or bluff areas, and shall be sited no closer than 5 feet from the blufftop edge.
3. Such accessory structures shall be relocated and/or removed and affected areas restored to natural conditions when threatened by erosion, geologic instability, or other coastal hazards, including as determined by Marin County.
4. No shoreline protective device will be allowed for the purpose of protecting such accessory structure(s).

**C-EH-16 Shoreline Public Access Facilities in Hazardous Areas.** Shoreline and bluff area public access facilities, including walkways, overlooks, stairways and/or ramps, may be allowed within the shoreline/blufftop setback established by C-EH-5 provided they meet all of the following criteria:

1. Such public access facilities shall only be allowed if consistent with all other applicable LCP policies.
2. Such public access facilities shall be sited and designed to be easily relocatable and/or removable without significant damage to shoreline and/or bluff areas.
3. Such public access facilities shall only be allowed when they will not cause, expand, or accelerate instability of a bluff.

**C-EH-17 Creation of New Parcels of Land that Would Require Protection Against Coastal Erosion and Other Hazards.** Prohibit the division of land near the shoreline, including along the shoreline and bluffs, and including abutting the ocean, bays, lagoons, or other coastal water bodies, unless the new or reconfigured parcels can be developed safe from geologic and other hazards for a minimum of ~~100~~ 50 years, and unless shoreline protective devices are prohibited to protect development on the resultant parcels.

**C-EH-18 Re-Establishment of Dunes in Conjunction with Shoreline Protective Devices.** To minimize visual and shoreline sand supply impacts, require that any permit granted to construct a shoreline protective device shall include the re-establishment of the former dune contour and appearance, where feasible.

**C-EH-19 Maintenance Needs for the Shoreline Protective Device at Seadrift.** Refer inquiries regarding permit requirements for maintenance of the rock revetment as permitted by Coastal Commission permit #A-1-MAR-87-235-A issued August 31, 1994 to the Coastal Commission. (For more information, see the Seadrift settlement agreement in Appendix 9.)

**C-EH-20 Advance Planning for Emergency Shoreline Protection Needs.** Encourage property owners subject to ocean-front erosion hazards to develop responses to such hazards prior to emergency conditions. Where contiguous properties are subject to generally similar erosion hazards, joint program development should occur.

**C-EH-21 Emergency Shoreline Protective Devices in County Coastal Permit Jurisdiction.**

Upon receipt of a request for an emergency shoreline protective device within the County's coastal permit jurisdiction, notify the Coastal Commission. Approve emergency shoreline protective devices on a temporary basis only and require removal of the structure unless a regular coastal permit is approved for retention of the structure. A complete coastal permit application must be submitted within 60 days following construction of the shoreline protective device. If dunes are present on the project site, require that re-establishment of the former dune contour and appearance shall occur within 60 days following construction of a shoreline protective device.

**C-EH-22 Sea Level Rise and Marin's Coast.** The County shall consider the best available and most recent scientific information with respect to the effects of long-range sea level rise when establishing sea level rise maps, scenarios, and assumptions for use in shall be considered in the preparation of findings and recommendations for all geologic, geotechnical, hydrologic and engineering investigations, including the coastal hazards analysis identified in C-EH-5. Support scientific studies that increase and refine the body of knowledge regarding potential sea level rise in Marin, and possible responses to it.

**Comment [CDA13]:** See discussion of revisions in Staff Recommendation, Attachment 1, Part 1, Item 8, p.23)

**Program C-EH-22.a Research and Respond to the Impacts of Sea Level Rise on Marin County's Coastal Zone Shoreline.**

1. Building upon the C-SMART Vulnerability Assessment, cContinue to gather information on the effects of sea level rise on Marin County's Coastal Zone shoreline, including identifying the most vulnerable areas, structures, facilities, and resources; specifically areas with priority uses such as public access and recreation resources, including the California Coastal Trail, Highway 1, significant ESHA such as wetlands or wetland restoration areas, open space areas where future wetland migration would be possible, and existing and planned sites for critical infrastructure.  
Updates to the Any vulnerability assessment shall use best available science and multiple scenarios including best available scientific estimates of expected sea level rise, such as by the Ocean Protection Council [e.g. 2011 OPC Guidance on Sea Level Rise], Nation Research Council, Intergovernmental Panel on Climate Change, and the West Coast Governors Association.
2. Update potential Sea Level Rise Maps (referenced in Policy C-EH-8). Modify the current and future hazard areas on a five to ten year basis or as necessary to allow for the incorporation of new sea level rise science, monitoring results, and information on coastal conditions.
3. Research the potential for relocation of existing or planned development to safer locations. Explore the feasibility of a managed retreat program, which may involve protecting vacant land through zoning or conservation easements and/or removing development from areas vulnerable to sea level rise and restoring those areas to a natural state

for open space or recreation. Identify potential mechanisms and incentives for implementation, which may include:

- a. Acquire vacant vulnerable properties.
- b. Acquire developed vulnerable properties before damage occurs.
- c. Acquire developed vulnerable properties only after significant damage by storms or high tides.
- d. Explore the feasibility of a public parkland exchange programs that encourage landowners to move out of hazardous areas.
- e. Identify and make available (eg. through rezoning) land outside the hazard areas to allow owners of vulnerable properties to relocate nearby.
- f. Explore Transferable Development Credit programs.
- g. Explore possibility of amortization of homes in coastal hazard areas.

Work with entities that plan or operate infrastructure, such as Caltrans and PG&E, to plan for potential realignment of public infrastructure impacted by sea level rise, with emphasis on critical accessways including affected segments of Shoreline Highway and Sir Francis Drake Boulevard.

4. **Support efforts to monitor sea level rise impacts to natural resources and ESHA,** including Bolinas Lagoon, Tomales Bay, Esteros San Antonio and Americano and other wetland areas; and Lagunitas, Walker, Estero Americano, Dillon, Stemple and other creeks; rocky intertidal areas, beaches and other habitat types vulnerable to sea level rise. Collaborate with Greater Farallones National Marine Sanctuary (GFNMS), Tomales Bay Watershed Council and other local, regional, state and federal entities to establish monitoring methods and track the effects of sea level rise.
  5. **Promote green infrastructure pilot projects** (horizontal levees, dune restoration, etc.) with environmental benefits that may help protect assets from sea level rise and increased storm surges. Study and monitor such projects over time and share lessons learned with other jurisdictions.
  6. **Update standards for ESHA buffers and setbacks to account for sea level rise,** based on the best available science and considering the effects of shoreline development on landward migration of wetlands.
- ~~2. Based on information gathered over time, propose additional policies and other actions for inclusion in the LCP in order to address the impacts of sea level rise. As applicable, recommendations may include such actions as:~~
- ~~a. relocation of existing or planned development to safer locations, working with entities that plan or operate infrastructure, such as Caltrans;~~

- ~~b. changes to LCP land uses, and siting and design standards for new development, to avoid and minimize risks;~~
- ~~c. changes to standards for wetland, ESHA, and stream buffers and setbacks;~~
- ~~d. changes to standards for erosion rates;~~
- ~~e. modifications to the LCP Access Component to ensure long term protection of the function and connectivity of existing public access and recreation resources; and~~
- ~~f. modifications to the Regional Transportation Plan.~~

**Program C-EH-22.b Study Periodically Update Retreat Analysis.** ~~The County shall seek funds for a study to identify threats of bluff shoreline retreat, including bluff retreat, taking into account accelerated sea level rise. Analysis of increased erosion potential and shoreline retreat due to sea level rise is included in the Marin Ocean Coast Vulnerability Assessment. The coastal erosion hazard maps present the results of models that predict the geomorphic evolution of cliffs, beaches, marshes, Easkoot Creek flooding and FEMA flood hazards. Update the shoreline retreat analysis every 5 to 10 years or as needed.~~

**C-EH-23 New Development and Fire Safety.** Coastal Permit applications shall demonstrate that the development meets all applicable fire safety standards. Site and design new development to minimize required initial and future fuel modification and brush clearance in general, and to avoid such activities within ESHA and ESHA buffers on site and on neighboring property, including parkland.

**C-EH-24 Permit Exemption for Replacement of Structures Destroyed by Disaster.** Exempt from the requirement for a coastal permit the replacement of any structure, other than a public works facility, destroyed by a disaster, if the replacement structure:

1. Conforms to applicable existing zoning requirements;
2. Is for the same use as the destroyed structure;
3. Does not exceed the floor area of the destroyed structure by more than 10 percent or 500 square feet, whichever is less, or the height or bulk of the destroyed structure by more than 10 percent (the applicant must provide proof of pre-existing height and bulk); and
4. Is sited in the same location on the affected property as the destroyed structure.

**C-EH-25 Existing Development and Fire Safety.** Removal of major vegetation around existing development for fire safety purposes shall ~~only~~ be allowed with a coastal permit waiver upon a finding that fuel modification and brush clearance techniques are required in accordance with applicable fire safety regulations and are being carried out in a manner which reduces impacts to the maximum feasible extent. In addition to the foregoing requirements, removal of ~~major vegetation that constitutes~~ ESHA, ~~or is in an ESHA~~, or is in an ESHA buffer, shall only be allowed for fire safety purposes if there are no other feasible alternatives for achieving compliance with required fire safety regulations and all ESHA and related impacts are mitigated ~~as near as possible to the impact area and~~ in a manner that leads to no net loss of ESHA resource value.