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Municipality:	City of Malibu
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Title:	City of Malibu Local Coastal Program Implementation Plan – Shoreline & Bluff Development
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Abstract

The City of Malibu requires the design and siting of all new shoreline development and shoreline protective devices to consider anticipated accelerated sea level rise. The City requires that new development be sufficiently set back and elevated to minimize to the maximum extent feasible hazards associated with anticipated sea level rise over the expected one-hundred year economic life of the structure. All applications for new beach or bluff-top development must include an engineering analysis of coastal hazards, including future projections of sea level rise. Applicants must receive approval from the Coastal Commission and/or State Lands Commission where organizational jurisdiction applies.

Resource

Chapter 10 – Shoreline and Bluff Development
10.4 – Development Standards
10.5 – Application Submittal Requirements
Adopted by the California Coastal Commission, Sept. 13 2002

10.4 DEVELOPMENT STANDARDS

A. Siting and design of new shoreline development and shoreline protective devices shall take into account anticipated future changes in sea level. In particular, an acceleration of the historic rate of sea level rise shall be considered and its potential impact on beach erosion, shoreline retreat, and bluff erosion rates shall be evaluated. Development shall be set back a sufficient distance landward and elevated to a sufficient finished floor height to eliminate or minimize to the maximum extent feasible hazards associated with anticipated sea level rise over the expected 100 year economic life of the structure.

B. New development on a beach or oceanfront bluff shall be sited outside areas subject

to hazards (beach or bluff erosion, inundation, wave run-up) at any time during the full projected 100 year economic life of the development. If complete avoidance of hazard areas is not feasible, all new beach or oceanfront bluff development shall be elevated above the base Flood Elevation (as defined by FEMA) and sited as far landward as possible to the maximum extent practicable. All development shall be setback a minimum of 10 feet landward of the most landward surveyed mean high tide line. Whichever setback method is most restrictive shall apply. Development plans shall consider hazards currently affecting the property as well as hazards that can be anticipated over the life of the structure.

C. Development on or near sandy beach or bluffs, including the construction of a shoreline protection device, shall include measures to insure that:

1. No stockpiling of dirt or construction materials shall occur on the beach;
2. All grading shall be properly covered and sandbags, ditches, or other Best Management Practices (BMPs) shall be used to prevent runoff and siltation;
3. Measures to control erosion, runoff, and siltation shall be implemented at the end of each day's work;
4. No machinery shall be allowed in the intertidal zone at any time unless authorized in the Coastal Development Permit;
5. All construction debris shall be removed from the beach daily and at the completion of development.

Such measures shall be implemented as conditions of approval for a Coastal Development Permit.

D. All new development located on a bluff top shall be setback from the bluff edge a sufficient distance to ensure that it will not be endangered by erosion or threatened by slope instability for a projected 100 year economic life of the structure. In no case shall development be set back less than 100 feet. This distance may be reduced to 50 feet if the City geotechnical staff determines that either of the conditions below can be met with a lesser setback. This requirement shall apply to the principle structure and accessory or ancillary structures such as guesthouses, pools, tennis courts, cabanas, and septic systems etc. Ancillary structures such as decks, patios and walkways that do not require structural foundations may extend into the setback area but in no case shall be sited closer than 15 feet from the bluff edge. Ancillary structures shall be removed or relocated landward when threatened by erosion. Slope stability analyses and erosion rate estimates shall be performed by a licensed Certified Engineering Geologist and/or Geotechnical Engineer, or a Registered Civil Engineer with experience in soil engineering. Generally, one of two conditions will exist: (Resolution No. 07-04 (LCPA No. 01-006); Resolution No. 07-04 (LCPA No. 05-001))

1. If the bluff exhibits a factor of safety of less than 1.5 for either gross or surficial

landsliding, then the location on the bluff top at which a 1.5 factor of safety exists shall be determined. Development shall be set back a minimum distance equal to the distance from the bluff edge to the 1.5 factor-of-safety-line, plus the distance that the bluff might reasonably be expected to erode over 100 years. These determinations, to be made by a state-licensed Certified Engineer Geologist, Registered Civil Engineer, or Geotechnical Engineer, shall be based on a site-specific evaluation of the long-term bluff retreat rate at this site and shall include an allowance for possible acceleration of historic bluff retreat rates due to sea level rise.

2. If the bluff exhibits both a gross and surficial factor of safety against landsliding of greater than 1.5, then development shall be set back a minimum distance equal to the distance that the bluff might reasonably be expected to erode over 100 years plus a ten foot buffer to ensure that foundation elements are not actually undermined at the end of this period. The determination of the distance that the bluff might be expected to erode over 100 years is to be made by a state-licensed Certified Engineer Geologist, Registered Civil Engineer or Geotechnical Engineer, and shall be based on a site-specific evaluation of the long-term bluff retreat rate at the site and shall include an allowance for possible acceleration of historic bluff retreat rates due to sea level rise.

For the purpose of this section, quantitative slope stability analyses shall be undertaken as follows:

1. The analyses shall demonstrate a factor of safety greater than or equal to 1.5 for the static condition and greater than or equal to 1.1 for the seismic condition. Seismic analyses may be performed by the pseudostatic method, but in any case shall demonstrate a permanent displacement of less than 50 mm.

2. Slope stability analyses shall be undertaken through cross-sections modeling worst case geologic and slope gradient conditions. Analyses shall include postulated failure surfaces such that both the overall stability of the slope and the stability of the surficial units is examined.

3. The effects of earthquakes on slope stability (seismic stability) may be addressed through pseudostatic slope analyses assuming a horizontal seismic coefficient of 0.20g, and should be evaluated in conformance with the guidelines published by the American Society of Civil Engineers, Los Angeles Section (ASCE/SCEC), "Recommended Practices for Implementation of DMS Special Publication 117, Conditions for Analyzing and Mitigating Landslide Hazards in California."

4. All slope analyses shall be performed using shear strength parameters (friction angle and cohesion), and unit weights determined from relatively undisturbed samples collected at the site. The choice of shear strength parameters shall be supported by direct shear tests, triaxial shear test, or literature references.

5. All slope stability analyses shall be undertaken with water table or potentiometric surfaces for the highest potential ground water conditions.

6. If anisotropic conditions are assumed for any geologic unit, strike and dip of weakness planes shall be provided, and shear strength parameters for each orientation shall be supported by reference to pertinent direct shear tests, triaxial shear test, or literature.

7. When planes of weakness are oriented normal to the slope or dip into the slope, or when the strength of materials is considered homogenous, circular failure surfaces shall be sought through a search routine to analyze the factor of safety along postulated critical failure surfaces.

In general, methods that satisfy both force and moment equilibrium (e.g., Spencer,

Morgenstern-Price, and General Limit Equilibrium) are preferred. Methods based on moment equilibrium alone (e.g., Bishop's Method) also are acceptable. In general, methods that solve only for force equilibrium (e.g., Janbu's method) are discouraged due to their sensitivity to the ratio of normal to shear forces between slices.

8. If anisotropic conditions are assumed for units containing critical failure surfaces determined above, and when planes of weakness are inclined at angles ranging from nearly parallel to the slope to dipping out of slope, factors of safety for translational failure surfaces shall also be calculated. The use of a block failure model shall be supported by geologic evidence for anisotropy in rock or soil strength. Shear strength parameters for such weak surfaces shall be supported through direct shear tests, triaxial shear test, or literature references.

9. The selection of shear strength values is a critical component to the evaluation of slope stability.

Reference should be made to the City of Malibu's current "Guidelines for the preparation of engineering geologic and geotechnical engineering reports," and to the ASCE/SCEC guidelines (see Section 9.4.D.3) when selecting shear strength parameters and the selection should be based on these guidelines. (Resolution No. 07-04 (LCPA No. 05-001))

For the purpose of this section, the long-term average bluff retreat rate shall be determined by the examination of historic records, surveys, aerial photographs, published or unpublished studies, or other evidence that unequivocally show the location of the bluff edge, as defined in Chapter 2 of the Malibu LIP, through time. The long-term bluff retreat rate is a historic average that accounts both for periods of exceptionally high bluff retreat, such as during extreme storm events, and for long periods of relatively little or no bluff retreat. Accordingly, the time span used to calculate a site-specific long-term bluff retreat rate shall be as long as possible, but in no case less than 50 years. Further, the time interval examined shall include the strong El Niño winters of 1982-1983, 1994-1995 and 1997-1998. (Resolution No. 07-04 (LCPA No. 05-001))

E. Swimming pools shall be constructed in accordance with the pool/spa submittal requirements outlined in Plate F of the City of Malibu "Guidelines for the Preparation of Geologic and Geotechnical Engineering Reports," dated February 2002. In addition, swimming pools and spas shall be located landward of the structural setback requirements as outlined in Section 10.4.D of the Malibu LIP. In addition, all swimming pools and spas shall be of double wall construction with subdrains between the walls and leak detection systems.

F. No permanent structures shall be permitted on a bluff face, except for engineered stairways or accessways to provide public beach access where no feasible alternative means of public access exists. Drainage devices constructed to conform to applicable Best Management Practices shall be installed in such cases. Such structures shall be constructed and designed to not contribute to further erosion of the bluff face and to be visually compatible with the surrounding area to the maximum extent feasible.

G. In existing developed areas where new beachfront development, excluding a shoreline protective device, is found to be infill as defined in Section 2.1 of the LIP and is otherwise consistent with the policies of the LCP, a new residential structure shall not extend seaward of a stringline drawn between the nearest adjacent corners of the enclosed area of the nearest existing residential structures on either side of the subject lot. Similarly, a proposed new deck, patio, or other accessory structure shall not extend seaward of a stringline drawn between the nearest adjacent corners of the nearest deck, patio or accessory structure on either side. All infill development shall be setback a minimum of 10 feet landward from the most landward surveyed mean high tide line on the parcel. Whichever setback method is most restrictive shall apply. The stringline method shall apply only to infill development as it is defined in Section 2.1 and where it will not result in development which would require a shoreline protection structure at any time during the life of the project. (Resolution No. 07-04 (LCPA No. 05-001))

H. All new beachfront and bluff-top development shall be sized, sited and designed to minimize risk from wave run-up, flooding and beach and bluff erosion hazards without requiring a shoreline protection structure at any time during the life of the development. (Resolution No. 07-04 (LCPA No. 05-001))

I. All new beachfront development shall be required to utilize a foundation system adequate to protect the structure from wave and erosion hazard without necessitating the construction of a shoreline protection structure.

J. New development shall include, at a minimum, the use of secondary treatment waste disposal systems and shall site these new systems as far landward as possible in order to avoid the need for protective devices to the maximum extent feasible.

K. Shoreline and bluff protection structures shall not be permitted to protect new development, except when necessary to protect a new septic system and there is no feasible alternative that would allow residential development on the parcel. Septic systems shall be located as far landward as feasible. Shoreline and bluff protection structures may

be permitted to protect existing structures that were legally constructed prior to the effective date of the Coastal Act, or that were permitted prior to certification of the Malibu LCP only when it can be demonstrated that existing structures are at risk from identified hazards, that the proposed protective device is the least environmentally damaging alternative and is designed to eliminate or mitigate adverse impacts to local shoreline sand supply and public access. Alternatives analysis shall include the relocation of existing development landward as well as the removal of portions of existing development.

“Existing structures” for purposes of this policy shall consist only of enclosed buildings used for living space or required parking, e.g. residential dwelling, guesthouse, or garage, and shall not include accessory or ancillary structures such as decks, patios, pools, tennis courts, cabanas, stairs, landscaping etc.

L. No shoreline protection structure shall be permitted for the sole purpose of protecting an ancillary or accessory structure. Such accessory structures shall be removed if it is determined that the structure is in danger from erosion, flooding or wave run-up. Such structures shall be considered threatened if the bluff edge encroaches to within 10 feet of the structure as a result of erosion, landslide or other form of bluff collapse. Accessory structures, including but not limited to, patios, stairs, recreational facilities, landscaping features, and similar design elements shall be constructed and designed to be removed or relocated in the event of threat from erosion, bluff failure or wave hazards.

M. All shoreline protection structures shall be sited as far landward as feasible regardless of the location of protective devices on adjacent lots. In no circumstance shall a shoreline protection structure be located further seaward than a stringline drawn between the nearest adjacent corners of protection structures on adjacent lots. A stringline shall be utilized only when such development is found to be infill and when it is demonstrated that locating the shoreline protection structure further landward is not feasible.

N. Where it is determined by a wave uprush and impact report and analysis prepared by a licensed civil engineer with expertise in coastal engineering to be necessary to provide shoreline protection for an existing residential structure built at sand level, a “vertical” seawall or bulkhead shall be the preferred means of protection. Rock revetments may be permitted to protect existing structures where they can be constructed entirely underneath raised foundations or where they are determined to be the preferred alternative.

O. On any beach found to be appropriate, alternative “soft solutions” to the placement of shoreline protection structures shall be required to protect new or existing development. Soft solutions shall include dune restoration, sand nourishment, and design criteria emphasizing maximum landward setbacks and raised foundations.

P. The placement of sediments removed from erosion control or flood control facilities at appropriate points along the shoreline shall be permitted for the purpose of beach nourishment, provided that they meet the U.S. Army Corps of Engineers criteria for grain size, color, and contamination.

Any beach nourishment program for sediment deposition shall be designed to minimize adverse impacts to beach, intertidal and offshore resources, shall incorporate appropriate mitigation measures, and shall consider the method, location and timing of placement. Sediment removed from catchment basins may be disposed of in the littoral system if it is tested and is found to be of suitable grain size and type. Any program shall identify and designate appropriate beaches or offshore feeder sites in the littoral system for placement of suitable materials from catchment basins.

Q. Land divisions, including subdivisions, lot splits, lot line adjustments, and certificates of compliance which create new beachfront or blufftop lots, shall not be permitted unless the subdivision can be shown to create lots which can be developed without requiring a bluff or shoreline protection structure. No new lots shall be created that could require shoreline protection or bluff stabilization structures at any time during the full 100 year economic life of the development.

10.5 APPLICATION SUBMITTAL REQUIREMENTS

A. All applications for new development on a beach, beachfront or bluff-top property shall include an analysis of beach erosion, wave run-up, inundation and flood hazards prepared by a licensed civil engineer with expertise in coastal engineering. All applications for bluff-top development shall include a slope stability analysis, prepared by a licensed Certified Engineering Geologist and/or Geotechnical Engineer or Registered Civil Engineer with expertise in soils. These reports shall address and analyze the effects of said development in relation to the following:

1. The profile of the beach;
2. Surveyed locations of mean high tide lines acceptable to the State Lands Commission;
3. The availability of public access to the beach;
4. The area of the project site subject to design wave run-up, based on design conditions;
5. Foundation design requirements;
6. The need for a shoreline protection structure over the life of the project;
7. Alternatives for protection of the septic system;
8. The long-term effects of proposed development of sand supply;
9. The FEMA Base Flood Elevation and other mapped areas (A,B, or V zones);
10. Future projections in sea level rise;
11. Project alternatives designed to avoid or minimize impacts to public access;
12. Slope stability and bluff erosion rate determination performed as outlined in Section 10.4.D of the Malibu LIP.

B. Applications for new beachfront or bluff-top development, including but not limited to shoreline protective structures, shall include a site map that shows all easements, deed restrictions, or "Offers to Dedicate" and/or other dedications for public access or open space and provides documentation for said easements or dedications. The approved development shall be located outside of and consistent with the provisions of such easement or offers.

C. All applications for proposed development on a beach or along the shoreline, including a shoreline protection structure, shall contain written evidence of a review and determination from the State Lands Commission relative to the proposed project's location to or impact upon the boundary between public tidelands and private property. Such determination shall be a filing requirement for a Coastal Development Permit and any application filed without such determination shall be determined to be incomplete.

D. Applications for development on a beach or along the shoreline shall not be approved if the State Lands Commission determines that the proposed development is located on public tidelands or would adversely impact tidelands unless State Lands Commission approval is given in writing.

E. For beachfront development that will be subject to wave action periodically, unless the State Lands Commission determines that there is no evidence that the proposed development will encroach on tidelands or other public trust interests, the City shall reject the application on the ground that it is within the original permit jurisdiction of the Coastal Commission, and shall direct the applicant to file his or her application with the Coastal Commission.

Editor's Note: This Local Coastal Program, Local Implementation Plan has been adopted pursuant to the provisions of the California Code Section 30166.5.

Cal. Pub. Res. Code § 30166.5 (West 2009)

(a) On or before January 15, 2002, the commission shall submit to the City of Malibu an initial draft of the land use portion of the local coastal program for the City of Malibu portion of the coastal zone, which is specifically delineated on maps 133, 134, 135, and 136, which were placed on file with the Secretary of State on September 14, 1979.

(b) On or before September 15, 2002, the commission shall, after public hearing and consultation with the City of Malibu, adopt a local coastal program for that area within the City of Malibu portion of the coastal zone that is specifically delineated on maps 133, 134, 135, and 136, which have been placed on file with the Secretary of State on March 14, 1977, and March 1, 1987. The local coastal program for the area shall, after adoption by the commission, be deemed certified, and shall, for all purposes of this division, constitute the certified local coastal program for the area. Subsequent to the certification of the local coastal program, the City of Malibu shall immediately assume coastal development permitting authority, pursuant to this division. Notwithstanding the requirements of Chapter 4.5 (commencing with Section 65920) of Division 1 of Title 7 of the Government Code, once the City of Malibu assumes coastal development permitting authority pursuant to this section, no application for a coastal development permit shall be deemed approved if the city fails to take timely action to approve or deny the application.