

**CALIFORNIA COASTAL COMMISSION**

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**W17a**

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**STAFF REPORT: REGULAR CALENDAR**

**Application No.:** 6-16-0450

**Applicant:** City of Carlsbad

**Location:** West side of southbound Carlsbad Boulevard, north of Encinas Creek, Carlsbad, San Diego County

**Project Description:** Follow-up approval to retain a 270 linear foot rock revetment authorized by emergency permit for five years, and after-the-fact approval of construction of an additional 250 linear foot revetment

**Staff Recommendation:** Approval with Conditions

**SUMMARY OF STAFF RECOMMENDATION**

The City of Carlsbad seeks authorization to retain a 270 foot long rock revetment that has already been constructed pursuant to an emergency permit issued in December 2015 (G-6-15-0049/City of Carlsbad) for a period of five years from the date of Commission action in order to allow the City time to develop a Hazards Management Plan for the area. The City also seeks after-the-fact approval of an additional 250 foot long extension of the rock revetment constructed in May 2016 for the same five year period. Both revetment segments were installed to protect the southbound lanes of Carlsbad Boulevard (Highway 101) after erosion and wave damage during the 2015/2016 El Niño winter season threatened the road.

The City's recently completed Sea Level Rise Vulnerability Assessment identifies this portion of Carlsbad Boulevard as vulnerable to erosion and flooding now and recommends realignment of the southbound lanes further inland to avoid future impacts associated with

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sea level rise and changes in storm frequency and intensity. The revetments were designed to serve as a temporary measure to protect the road in its existing alignment while the City develops a Hazards Management Plan to address the vulnerability of this coastal access route over the long-term.

Carlsbad Boulevard is a major coastal access route, and the proposed revetment will ensure safe public access is maintained while the City analyzes long-term alternatives for the site. To minimize potential adverse impacts to public access and sand supply, Special Condition 1 limits authorization of the revetment segments for a period of five years. This condition also requires submission of a coastal development permit application to implement the Hazards Management Plan within five years of approval of this permit. Special Conditions 2 and 3 require as-built plans that identify permanent benchmarks and a monitoring program to evaluate the performance of the revetment over time. Special Conditions 4 and 5 require the applicant to maintain the revetment segments in their approved alignment and prohibits seaward extension of the revetments. Finally, Special Condition 6 requires the City to assume all risks and indemnify the Commission for authorizing the project.

Commission staff recommends **approval** of coastal development permit application 6-16-0450 as conditioned.

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### APPENDICES

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### EXHIBITS

[Exhibit 1 – Vicinity Map](#)

[Exhibit 2 – Aerial Image](#)

[Exhibit 3 – As-Built Plans](#)

## I. MOTION AND RESOLUTION

### Motion:

*I move that the Commission **approve** Coastal Development Permit Application No. 6-16-0450 subject to the conditions set forth in the staff recommendation.*

Staff recommends a **YES** vote on the foregoing motion. Passage of this motion will result in conditional approval of the permit and adoption of the following resolution and findings. The motion passes only by affirmative vote of a majority of the Commissioners present.

### Resolution:

*The Commission hereby approves coastal development permit 6-16-0450 and adopts the findings set forth below on grounds that the development as conditioned will be in conformity with the policies of Chapter 3 of the Coastal Act and will not prejudice the ability of the local government having jurisdiction over the area to prepare a Local Coastal Program conforming to the provisions of Chapter 3. Approval of the permit complies with the California Environmental Quality Act because either 1) feasible mitigation measures and/or alternatives have been incorporated to substantially lessen any significant adverse effects of the development on the environment, or 2) there are no further feasible mitigation measures or alternatives that would substantially lessen any significant adverse impacts of the development on the environment.*

## II. STANDARD CONDITIONS

This permit is granted subject to the following standard conditions:

1. **Notice of Receipt and Acknowledgment.** The permit is not valid and development shall not commence until a copy of the permit, signed by the permittee or authorized agent, acknowledging receipt of the permit and acceptance of the terms and conditions, is returned to the Commission office.
2. **Expiration.** If development has not commenced, the permit will expire two years from the date on which the Commission voted on the application. Development shall be pursued in a diligent manner and completed in a reasonable period of time. Application for extension of the permit must be made prior to the expiration date.
3. **Interpretation.** Any questions of intent of interpretation of any condition will be resolved by the Executive Director or the Commission.

4. **Assignment.** The permit may be assigned to any qualified person, provided assignee files with the Commission an affidavit accepting all terms and conditions of the permit.
5. **Terms and Conditions Run with the Land.** These terms and conditions shall be perpetual, and it is the intention of the Commission and the permittee to bind all future owners and possessors of the subject property to the terms and conditions.

### III. SPECIAL CONDITIONS

This permit is granted subject to the following special conditions:

#### 1. **Limited Authorization Period and Long-Term Hazard Management Plan.**

- (a) This coastal development permit authorizes the shoreline protection for five years from the date of this permit approval (i.e., to March 14, 2023) or until the time when the currently existing structures warranting armoring are no longer present or no longer require armoring for such protection, whichever occurs first.
- (b) No later than five years after the approval of this permit (i.e., by March 14, 2023), the permittee or successor in interest shall apply for a regular coastal development permit to implement a long-term Hazards Management Plan for Carlsbad Boulevard that addresses current and future coastal hazards present at the site. The Hazards Management Plan shall incorporate measures to adapt to sea level rise over time and provide for the long term protection and provision of public improvements, coastal access, public opportunities for coastal recreation, public views and coastal resources, including beach and shoreline habitat (measures may include, but need not be limited to, phased implementation of beach nourishment, soft protection, managed retreat, focused or small-scale armoring) and a time line or event driven schedule for implementation of the plan. The plan shall evaluate and consider all potential constraints, including geotechnical and engineering constraints; potential phasing options with timelines; project costs for the preferred project and alternatives; and potential funding options. The plan shall be submitted with documentation sufficient to support all analyses, methodologies, and conclusions.
- (c) If the permittee proposes to retain any portion the shoreline protection beyond the five year authorization period in the permit application required by subsection (b) of this Special Condition or in a separate amendment to this permit, the permittee is required to include in the permit application an evaluation of alternatives to the shoreline protection and related elements that are capable of protecting the development while eliminating or reducing impacts to public access, public views, shoreline processes including sand supply, marine resources, and other coastal resources at the site. The information concerning these alternatives must be sufficiently detailed to enable the Coastal Commission to evaluate the

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feasibility of each alternative for addressing site issues under the Coastal Act and the LCP. The permittee must also include mitigation for the effects of any remaining portion of the shoreline protection on public access and recreation and other coastal resources during the expected life of the remaining shoreline protection beyond, but not including, the initial five year period of authorization.

2. **As-Built Plans.** WITHIN 90 DAYS OF COMMISSION APPROVAL, the applicant shall submit as-built plans for the approved revetment that substantially conform to the South Carlsbad Beach Topographic Survey plans by NV5 dated October 25, 2016, except that they shall be modified to identify permanent benchmarks from fixed reference point(s) from which the elevation and seaward limit of the revetment can be referenced for measurements in the future.
3. **Revetment Monitoring Program.**
  - (a) WITHIN 60 DAYS OF COMMISSION APPROVAL, the applicant shall submit for review and written approval of the Executive Director, a long-term monitoring plan for the existing shoreline protection. The purpose of the plan is to monitor and identify damage or changes to the revetment such that repair and maintenance is completed in a timely manner to avoid further encroachment of the revetment on the beach. The monitoring plan shall be substantially similar to the monitoring program developed pursuant to Coastal Development Permit No. 6-09-051 for the Encinas Creek bridge replacement and shall incorporate, but not be limited to the following:
    - i. An evaluation of the current condition and performance of the revetment, addressing any migration or movement of rock which may have occurred on the site and any significant weathering or damage to the revetment that may adversely impact its future performance.
    - ii. Measurements taken from the benchmarks established in the survey as required by Special Condition 2 of this permit, Coastal Development Permit No. 6-16-0450, to determine settling or seaward movement of the revetment. Changes in the beach profile fronting the site shall be noted and the potential impact of these changes on the effectiveness of the revetment evaluated.
    - iii. Recommendations on any necessary maintenance needs, changes or modifications to the revetment to assure its continued function and to assure no encroachment beyond the permitted toe.
    - iv. An agreement that the permittee shall apply for a coastal development permit within 90 days of submission of the report for any necessary maintenance, repair, changes, or modifications to the project recommended by the report that require a coastal development permit and implement all aspects approved in any such permit.

- (b) The above-cited monitoring information shall be summarized in the report required by Coastal Development Permit No. 6-09-05 and prepared by a licensed engineer familiar with shoreline processes. The report shall be submitted to the Executive Director and the City of Carlsbad Engineering department every five (5) years after each winter storm season but prior to the 1<sup>st</sup> of May, starting with May 1, 2020. Monitoring shall continue throughout the life of the revetment or until the revetment is removed or replaced under an amendment to this coastal development permit or pursuant to separate coastal development permit.
  - (c) The applicant shall undertake the development in accordance with the approved monitoring program. Any proposed changes to the approved program shall be reported to the Executive Director. No changes to the program shall occur without a Coastal Commission approved amendment to this coastal development permit unless the Executive Director determines that no amendment is legally required.
4. **Future Maintenance.** The applicant shall maintain the existing revetment in its approved state. Any change in the design of the revetment or future additions to or reinforcement of the revetment beyond exempt maintenance as defined in Section 13252 of Title 14 of the California Code of Regulations to restore the structure to its original condition will require a coastal development permit. However, in all cases, if after inspection it is apparent that repair and maintenance is necessary, the applicant shall contact the Executive Director to determine whether a coastal development permit or an amendment to this permit is legally required, and, if required, shall subsequently apply for a coastal development permit or permit amendment for the required maintenance.
5. **No Future Seaward Extension of Shoreline Protective Device.** By acceptance of this Permit, the applicant agrees, on behalf of itself and all successors and assigns, that no future repair or maintenance, enhancement, reinforcement, or any other activity affecting the shoreline protective device approved pursuant to this permit, Coastal Development Permit No. 6-16-0450, as described and depicted on approved, as-built plans, shall result in any encroachment seaward of the authorized footprint of the shoreline protective device. By acceptance of this Permit, the applicant waives, on behalf of itself and all successors and assigns, any rights to such activity that may exist under Public Resources Code Section 30235.
6. **Assumption of Risk, Waiver of Liability and Indemnity Agreement.**
- (a) By acceptance of this permit, the applicant acknowledges and agrees (i) that the site may be subject to hazards from storm waves, flooding, and erosion; (ii) to assume the risks to the applicant and the property that is the subject of this permit of injury and damage from such hazards in connection with this permitted development; (iii) to unconditionally waive any claim of damage or liability against the Commission, its officers, agents, and employees for injury or damage from such hazards; and (iv) to indemnify and hold harmless the Commission, its officers, agents, and employees with respect to the Commission's approval of the project against any and all liability, claims, demands, damages, costs (including

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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.

- (b) PRIOR TO THE CONVEYANCE OF THE PROPERTY THAT IS THE SUBJECT OF THIS COASTAL DEVELOPMENT PERMIT, the applicant shall execute and record a deed restriction, in a form and content acceptable to the Executive Director: (1) indicating that, pursuant to this permit, the California Coastal Commission has authorized development on the subject property, subject to the terms and conditions that restrict the use and enjoyment of that property (hereinafter referred to as the “Standard and Special Conditions”); and (2) imposing all Standard and Special Conditions of this permit as covenants, conditions and restrictions on the use and enjoyment of the Property. The restriction shall include a legal description of the applicant’s entire parcel or parcels. It shall also indicate that, in the event of an extinguishment or termination of the deed restriction for any reason, the Standard and Special Conditions of this permit shall continue to restrict the use and enjoyment of the subject property so long as either this permit or the development it authorizes – or any part, modification, or amendment thereof – remains in existence on or with respect to the entire property.
- (c) WITHIN 60 DAYS OF COMMISSION APPROVAL, the applicant shall submit a written agreement in a form and content acceptable to the Executive Director, incorporating all of the terms of this Special Condition.

## IV. FINDINGS AND DECLARATIONS

### A. PROJECT DESCRIPTION AND PERMIT HISTORY

The City of Carlsbad is seeking approval to retain a 270 linear foot extension of an existing rock revetment authorized by Emergency CDP No. G-6-15-0049 for a five year period in order to allow the City time to develop a Hazards Management Plan for the area. In addition, the City is requesting after-the-fact approval of an additional 250 linear foot extension of the revetment for the same period of time. The revetment is located on the beach, seaward of southbound Carlsbad Boulevard, south of Palomar Airport Road and north of Encinas Creek ([Exhibit 1](#)). Both segments of revetment that are the subject of this coastal development permit were installed to protect the southbound lanes of Carlsbad Boulevard from damage caused by El Niño storm conditions during the 2015/2016 winter. The revetment was installed within the City’s right-of-way for Carlsbad Boulevard, located between the toe of the bluff and beach area owned by the California Department of Parks and Recreation.

The Commission retains jurisdiction for this project because portions of the project are located west of the mean high tide line on the beach below Carlsbad Boulevard. As such, Chapter 3 of the Coastal Act is the standard of review.



Carlsbad Boulevard is the portion of Highway 101 that extends through the City of Carlsbad and is heavily used by residents and visitors for daily commuting, recreation, beach access, and emergency evacuation. Most of Carlsbad Boulevard is located adjacent to the shoreline, with some sections separated from the beach by residential and commercial development. Within the project area, the northbound and southbound lanes follow different alignments and are separated by a vegetated open space. The two southbound lanes run along the top of an approximately 8-16 foot high coastal bluff directly above the beach while the two northbound lanes are located between 25 to 200 feet further inland of the southbound lanes. The open space area located between the southbound and northbound lanes is city-owned property. The road elevation in this area descends from approximately 33 feet above Mean Sea Level (+MSL) at the northern end of the project limits to approximately 15 feet north of the mouth of Encinas Creek.

There is currently a permitted revetment fronting Carlsbad Boulevard located immediately south of and adjacent to the subject site. In 2009 the City replaced the bridge over Encinas Creek. The Commission approved the portions of the bridge replacement project that were located below the mean high tide line, including the bridge wing walls and reconfiguration and augmentation of the existing pre-Coastal Act revetment in this location to protect Carlsbad Boulevard and the bridge from erosion and overtopping by waves during storm events (ref. CDP No. 6-09-051). This portion of the revetment extends approximately 118 feet north of Encinas Creek and approximately 149 feet south of the creek and was installed at a 1.5:1 slope to limit encroachment onto the public beach (Exhibit 2). The conditions of the Commission's permit, and a subsequent permit amendment (ref. CDP No. 6-09-051-A1), require regular monitoring reports evaluating the condition and performance of the revetment and maintenance of the revetment in its approved state.

In December 2015, El Niño storms caused erosion of the bluff along the seaward most edge of southbound Carlsbad Boulevard located north of Encinas Creek, threatening the road. The Commission approved Emergency CDP No. G-6-15-0049 authorizing installation of approximately 270 linear feet of engineered riprap north of the existing revetment (extending the existing revetment authorized pursuant to CDP No. 6-09-051). The emergency permit required the City to remove the rock by May 20, 2016 unless retention beyond that date was authorized by the Commission through a regular coastal development permit. The emergency permit further required submission of a coastal development permit application within 6 months to implement a long-term Hazards Management Plan for Carlsbad Boulevard to address current and future coastal hazards at this site. The City installed the emergency revetment in December 2015 using approximately 1,165 tons of mixed 2-6 ton rock over mirafi filter fabric. The emergency revetment was constructed at a 1.5:1 slope to limit encroachment onto the beach and extends no further seaward than the existing revetment located directly south that was permitted through CDP No. 6-09-051 ([Exhibits 2 and 3](#)).

In March 2016, additional El Niño storm conditions accelerated erosion north of the emergency revetment and the City determined that Carlsbad Boulevard was further threatened. The City closed the shoulder, bike lane and number 2 travel lane of southbound Carlsbad Boulevard and applied for another emergency permit, requesting to

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extend the revetment north another 250 linear feet. At the time, the City was unable to demonstrate to Commission staff that there was an emergency condition that required extension of the revetment. Instead, Commission staff encouraged the City to keep the shoulder, bike lane, and number 2 travel lane of southbound Carlsbad Boulevard closed on a temporary basis and to submit a regular coastal development permit application with the Hazards Management Plan required by the conditions of Emergency Permit No. G-6-15-0049 for a more permanent solution to the erosion occurring along this stretch of Carlsbad Boulevard. The City disagreed with Commission staff's conclusion regarding the emergency situation and, after obtaining authorization from the United States Army Corps of Engineers, the City installed approximately 250 linear feet of riprap at the northern end of the emergency revetment without a coastal development permit the first week of May 2016. This portion of the revetment was constructed using approximately 1,191 tons of mixed 2-6 ton rock over mirafi filter fabric. This unpermitted revetment was installed with a slightly steeper 2:1 slope to allow for the higher road elevation in this location, while still ensuring the revetment does not extend further seaward than either the emergency or permitted revetment segments to the south ([Exhibits 2 and 3](#)). Despite installation of the emergency revetment to protect the road, the City has not reopened the number 2 travel lane of southbound Carlsbad Boulevard. Construction of both revetment segments required use of heavy machinery on the beach. The beach was accessed using a pedestrian and emergency vehicle access ramp located approximately 475 feet south of Encinas Creek.

On May 16, 2016 the City submitted the subject coastal development permit application requesting to retain both segments of the revetment for a period of 5 years while it develops the Hazards Management Plan to address coastal hazards in this location over the long-term. In June 2016 staff requested additional information regarding geotechnical studies, as-built plans quantifying the amount and type of rock used for the revetments, and an alternatives analysis to evaluate the City's permit application. The City submitted a geotechnical report and detailed alternatives analysis in May 2017. As-built plans and the type and quantity of materials used were submitted in July 2017, completing the file for staff's review.

### **B. COASTAL HAZARDS**

Section 30235 of the Coastal Act states:

*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. Existing marine structures causing water stagnation contributing to pollution problems and fishkills should be phased out or upgraded where feasible.*

Section 30253 of the Coastal Act states in relevant part:

*New development shall do all of the following:*

*(a) Minimize risks to life and property in areas of high geologic, flood, and fire hazard.*

*(b) 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.*

The City of Carlsbad also has policies within its certified LCP pertaining to shoreline protective devices, which are detailed below (used as guidance only):

Section 21.204.040.B of the Coastal Shoreline Development Overlay Zone states:

*B. 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. As a condition of approval, permitted shoreline structures may be required to replenish the beach with imported sand.*

*Provisions for the maintenance of any permitted seawalls shall be included as a condition of project approval. As a further condition of approval, permitted shoreline structures shall be required to provide public access. Projects which create dredge spoils shall be required to deposit such spoils on the beaches if the material is suitable for sand replenishment. Seawalls shall be constructed essentially parallel to the base of the bluff and shall not obstruct or interfere with the passage of people along the beach at any time.*

Policy 4-1 of the Mello II LUP states, in relevant part:

*I. Development Along Shoreline*

*a. For all new development along the shoreline, including additions to existing development, a site-specific geologic investigation and analysis similar to that required by the Coastal Commission's Geologic Stability and Blufftop Guidelines shall be required; for permitted development, this report must demonstrate bluff stability for 75 years, or the expected lifetime of the structure, whichever is greater. Additionally, permitted development shall incorporate, where feasible, sub-drainage systems to remove groundwater from the bluffs, and shall use drought-resistant vegetation in landscaping, as well as adhering to the standards for erosion control contained in the City of Carlsbad Drainage Master Plan. A waiver of public liability shall be required for any permitted development for which an assurance of structural stability cannot be provided.*

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The Coastal Act and certified LCP acknowledge that seawalls, revetments, retaining walls, groins and other such structural or “hard” methods designed to forestall erosion also alter natural landforms and natural shoreline processes. Accordingly, with the exception of new coastal dependent uses, Coastal Act Section 30235 limits the construction of shoreline protective works to those required to protect existing permitted structures or public beaches in danger from erosion. Furthermore, Section 30253 requires that new development be sited, designed, and built in a manner to not require construction of shoreline protective devices that would substantially alter natural landforms along the shoreline. The Coastal Act provides these limitations because shoreline structures can have a negative effect on the coastal environment, including adverse effects on sand supply, public access, coastal views, natural landforms, and shoreline beach dynamics on- and off-site, that can result in the loss of public beach areas.

Under Coastal Act Section 30235, shoreline protective structures shall be permitted if: (1) there is an existing structure; (2) the existing structure is in danger from erosion; (3) shoreline altering construction is required to protect the existing threatened structure; and (4) the required protection is designed to eliminate or mitigate the adverse impacts on shoreline sand supply.

Carlsbad Boulevard (Highway 101) was constructed prior to the effective date of the Coastal Act on January 1, 1977, and thus is considered an existing structure. The City has provided evidence that El Niño related storms during the 2015 winter caused failures of the bluff and roadbed north of the existing revetment and Encinas Creek, placing Carlsbad Boulevard in danger from erosion. As a result, on December 29, 2015 the Commission authorized the emergency revetment on a temporary basis pursuant to Emergency CDP G-6-15-0049. This section of Carlsbad Boulevard is a low point adjacent to Encinas Creek and was being undermined by erosion and overtopped by waves. The Commission’s engineer reviewed the project and concurred that without the revetment, the road would remain in danger in future storm seasons.

In March 2016, additional storm conditions caused bluff failures further north of the emergency revetment, bringing the bluff edge as close as five feet from the roadbed. Cracks also developed in the shoulder and number 2 travel lane. The City closed the shoulder and number 2 travel lane to traffic, reducing southbound traffic to one lane in this area. Although the City sought an emergency permit to extend the revetment further north of the emergency revetment, they were unable to provide geotechnical reports supporting the need for a revetment on an emergency basis at that time. Commission staff advised the City to apply for a regular permit. However, because the City did not agree with staff’s assessment, the 250 linear feet of riprap was placed without a coastal development permit.

The City subsequently undertook a more detailed geotechnical analysis of the bluff to support the subject permit application, including review of both segments of the proposed revetment. The geotechnical report prepared by GeoSoils, Inc., dated August 31, 2016 and submitted to staff in May 2017 evaluated the stability of the bluff prior to and after installation of the emergency revetment and the unpermitted revetment in three locations.

Additional information submitted in July 2017 provided further information including as-built plans and a description of the type and quantity of materials used to construct the revetment segments. Slope stability analyses for the three bluff locations prior to installation of the emergency and unpermitted revetment segments indicate factors of safety of 1.135, 1.193, and 1.367. The factor of safety is an indicator of slope stability where a value of 1.5 is the industry standard value for geologic stability of new development placed on a slope. In theory, failure should occur when the factor of safety drops below 1.0. These factors of safety alone may not necessitate shoreline protection. However, when considered in combination with the bluff and pavement fissures and cracking following the 2015/2016 storm season and the close proximity of the road to the bluff edge, the geotechnical analysis concludes that shoreline protection is required at this time to prevent collapse of the road right-of-way.

Commission staff has reviewed the geotechnical report and the City's recent Vulnerability Assessment, which uses the CoSMoS model to forecast future bluff erosion hazard areas associated with rising sea levels and storm events. The Vulnerability Assessment acknowledges that this stretch of Carlsbad Boulevard is already experiencing erosion and flooding, and vulnerability to these coastal hazards is expected to increase over time as sea level rises and storm events become more frequent. The Vulnerability Assessment report recommends that the City consider landward relocation of the southbound lanes to reduce the vulnerability of this critical transportation infrastructure and the beach below it. Based on the factors of safety reported in the geotechnical report, the history of erosion and flooding, and the recommendations of the Vulnerability Assessment, it is clear that this portion of Carlsbad Boulevard is in danger from erosion.

#### Alternatives Analysis

Shoreline armoring is only permitted if it is the only feasible alternative capable of protecting the existing threatened structure. Other alternatives to shoreline protective devices typically considered include the "no project" alternative; managed retreat (including abandonment and demolition of threatened structures); relocation of threatened structures; beach and sand replenishment programs; drainage and vegetation measures; and combinations of each. Additionally, if shoreline armoring is determined to be the only feasible alternative, this test also requires that the chosen structural design of the shoreline protective device be the least environmentally damaging option, including being the minimum necessary to protect the endangered principal structure.

In this case, the applicant is proposing to retain the emergency and unpermitted revetment segments on a temporary basis while the City develops a Hazards Management Plan to address the vulnerability of Carlsbad Boulevard to coastal hazards over the long-term. The applicant did provide an alternatives analysis for this application that can serve as the basis for the required Hazards Management Plan, however additional studies are required to fully evaluate these alternatives and understand the potential impacts of each to public access, recreation, visual resources, sand supply, and habitat.

The alternatives analysis indicates that the "no project" alternative (removal of the emergency and unpermitted revetment segments) would require immediate closure of the shoulder and number 2 (seaward) travel lane to vehicular traffic to provide a buffer for

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continued bluff retreat and flooding from wave run up. The City's alternatives analysis indicates that this alternative is a short-term solution (10 years or less) because the easternmost southbound lane will eventually be threatened without the proposed revetment, requiring new strategies to adapt to or address additional bluff retreat. Furthermore, requiring lane closures at this time would adversely impact on traffic flow, and thus, public access.

Various "managed retreat" alternatives would also involve removal of the emergency and unpermitted revetment segments allowing continued bluff retreat in the area currently occupied by the southbound lanes. The City could reduce travel in both directions of Carlsbad Boulevard to one lane, abandoning the two southbound lanes at the top of the bluff and shifting all traffic to the existing northbound alignment. The existing northbound road alignment could accommodate one lane in each direction without a divider and a bike lane in the shoulder both directions, however traffic studies are necessary to understand whether reducing Carlsbad Boulevard to one lane in each direction will have adverse impacts to access. While the northbound alignment is at a sufficient elevation and is set back far enough to withstand sea level rise projections, such realignment would be costly. The southbound lanes could be converted to pedestrian paths or parking, however, as with the "no project" alternative, this increased public access is only anticipated to be available for a period of 10 years or less before being threatened by additional bluff retreat.

To retain two vehicle lanes in each direction, a bike lane in each direction, shoulders and a median dividing the north- and southbound lanes, the northbound alignment would have to be widened an additional 44 feet. This road widening would impact sensitive native habitat within the existing open space. Widening of the road in the vicinity of Encinas Creek would also require additional fill or a bridge that might adversely affect the creek and adjacent riparian habitat. The potential habitat impacts associated with widening of the road would require further study.

Several "hard" protection strategies considered in the alternatives analysis include augmentation of the proposed temporary revetment segments or construction of a seawall. The emergency and unpermitted revetments were constructed to be the minimum size necessary to address existing coastal hazards. The proposed revetment segments were not designed to withstand future coastal hazards associated with sea level rise. For example, since installation of the emergency revetment in December 2015, it has been overtopped by storm surge. Therefore, to provide protection for the existing southbound alignment of Carlsbad Boulevard, the proposed revetments would require augmentation to increase their height. Such height increase would also likely require a larger footprint on the beach to provide protection of the road from wave action as sea level rises and severe storm conditions increase in frequency and intensity. To accommodate the augmented revetment, a reduction in road width might be required. Thus, this is not considered a feasible or less environmentally damaging alternative.

A vertical seawall would occupy a smaller footprint than a revetment, preserving the existing roadway facilities for vehicles and bicycles along this stretch of Carlsbad Boulevard. New public access points and viewpoints could be designed with a seawall.

However, like a revetment, it would have adverse impacts on public views. A seawall would also be more expensive to build and maintain. These armoring alternatives would fix the back of the beach resulting in loss of sand supply. This in turn would make the beach below the bluff more vulnerable to sea level rise, eventually leading to the loss of a sandy beach for public access and recreation. Additional studies would be required to fully understand the costs and adverse impacts associated with these armoring options, and in the meantime, it is important to maintain safe access for all users of Carlsbad Boulevard, including pedestrians and cyclists.

Finally, the City's alternatives analysis looks at "soft" protection strategies, including beach nourishment and winter berms to rebuild the beach and provide a natural buffer against coastal storms. The applicant's alternatives analysis indicates that beach width gains from past beach nourishment activities in this area have generally lasted for a period of about 5 years; therefore, frequent beach nourishment would be required to provide sufficient protection. The quantity of sand required to rebuild the beach and protect Carlsbad Boulevard would also increase over time as sea level rises. A winter berm could be constructed by scraping sand from the foreshore beach zone or importing sand. Installation of a winter berm could adversely impact public access and use of the shoreline and could block views of the shore from Carlsbad Boulevard. Additional study would be required to identify a viable sand source, understand the ongoing costs associated with frequent nourishment or annual berm construction, and evaluate potential adverse impacts to sensitive species, public views, public access and recreation.

The City estimates that it will be able to complete the studies required to understand these various alternatives and develop a plan for dealing with coastal hazards in five years. Therefore, the Commission finds that the proposed temporary retention of the emergency and unpermitted revetment segments is required in this case to protect the existing development in danger from erosion.

Section 30235 of the Coastal Act requires that shoreline protection be designed to eliminate or mitigate adverse impacts on local shoreline sand supply. An issue of major concern facing California today is the fast pace of disappearing beaches due to natural processes (i.e. erosion, subsidence and storm events) and anthropogenic factors (coastal development and sand supply interruptions). Seawalls, revetments, and other types of hard armoring have long been used to protect backshore development from erosion and flooding, but future accelerated sea level rise and extreme storm events will heighten the rate of beach loss and potential exposure of the backshore to hazards. Hard armoring already results in unintended ecological and public access consequences, such as loss of biodiversity and ecosystem services and displacement of recreational beach area with protective structures. Therefore, Special Condition 5 requires the applicant to waive any rights that may exist under Section 30235 for activity that would create encroachment seaward of the approved footprint of the revetment.

The revetment does take up public sandy beach area and may have adverse impacts on local sand supply by blocking sand-generating materials in the bluff from entering the shoreline sand supply system. However, on a short-term basis, these impacts are offset by the benefit to the public from keeping southbound vehicle and bike lanes safe and

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operable while the City develops a long-term Hazards Management Plan for Carlsbad Boulevard. Special Condition 1 clearly states that the emergency and unpermitted revetment segments are being authorized for a 5 year period and are intended as a temporary measure. Thus, the sand supply impacts are limited to the time during which the revetments are in place, and will not be permanent.

### Conclusion

Consistent with Coastal Act Section 30235, the Commission finds that Carlsbad Boulevard is an existing structure in danger from erosion that requires temporary shoreline protection. To ensure that any adverse impacts on local shoreline sand supply are temporary, Special Condition 1 authorizes the emergency and unpermitted revetment segments for a five year term beginning from the date of Commission action, and requires the applicant to remove the rock revetment by then unless the Commission authorizes further retention of the revetment under an amendment to this permit or subject to a separate coastal development permit. In addition, the City is required to submit a coastal development permit application for implementation of a Hazards Management Plan for this section of Carlsbad Boulevard within five years.

To ensure that the City maintains the revetment in its approved state, Special Condition 2 requires the City to submit as built plans within 90 days of Commission approval to identify the location of benchmarks from fixed reference point(s) from which the elevation and seaward limit of the revetment can be calculated. Special Condition 3 requires the City to submit monitoring reports to the Commission to determine settling or seaward movement of the revetment to ensure it continues to be configured to minimize impacts to public access. The monitoring data will be incorporated into the monitoring reports the City is already submitting to the Commission for the existing revetment pursuant to CDP No. 6-09-051. Special Condition 4 requires the applicant to contact the Executive Director if repair or maintenance is necessary to determine whether a coastal development permit is required, and Special Condition 5 requires the applicant to waive any rights to future seaward extension of the revetment.

Finally, due to the inherent risk of shoreline development, Special Condition 6 requires the City to waive liability and indemnify the Commission against damages that might result from the proposed shoreline protective devices. This special condition further requires the City to execute and record a deed restriction on the revetment prior to any conveyance of the property. The risks of the proposed development include that the proposed shoreline protective devices will not protect against damage to the street from waves, storm waves, flooding, and erosion. Although the Commission has sought to minimize these risks, the risks cannot be eliminated entirely. Given that the applicant has chosen to construct the proposed development despite these risks, the applicant and any future property owner must assume the risks. All of these special conditions will ensure that the revetment remains in a configuration that can be considered the least impactful to coastal resources, consistent with Sections 30235 and 30253 of the Coastal Act and with the relevant Mello II LCP policies.



## C. PUBLIC ACCESS

Section 30210 of the Coastal Act states:

*In carrying out the requirement of Section 4 of Article X of the California Constitution, maximum access, which shall be conspicuously posted, and recreational opportunities shall be provided for all the people consistent with public safety needs and the need to protect public rights, rights of private property owners, and natural resource areas from overuse.*

Section 30211 of the Coastal Act states:

*Development shall not interfere with the public's right of access to the sea where acquired through use or legislative authorization, including, but not limited to, the use of dry sand and rocky coastal beaches to the first line of terrestrial vegetation.*

Section 30212 of the Coastal Act states in relevant part:

*(a) Public access from the nearest public roadway to the shoreline and along the coast shall be provided in new development projects except where: (1) it is inconsistent with public safety, military security needs, or the protection of fragile coastal resources, (2) adequate access exists nearby, or, (3) agriculture would be adversely affected. Dedicated accessway shall not be required to be opened to public use until a public agency or private association agrees to accept responsibility for maintenance and liability of the accessway.*

Section 30212.5 of the Coastal Act states:

*Wherever appropriate and feasible, public facilities, including parking areas or facilities, shall be distributed throughout an area so as to mitigate against the impacts, social and otherwise, of overcrowding or overuse by the public of any single area.*

Section 30214 of the Coastal Act states:

*(a) The public access policies of this article shall be implemented in a manner that takes into account the need to regulate the time, place, and manner of public access depending on the facts and circumstances in each case including, but not limited to, the following:*

- (1) Topographic and geologic site characteristics.*
- (2) The capacity of the site to sustain use and at what level of intensity.*
- (3) The appropriateness of limiting public access to the right to pass and repass depending on such factors as the fragility of the natural resources in the area and the proximity of the access area to adjacent residential uses.*

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- (4) The need to provide for the management of access areas so as to protect the privacy of adjacent property owners and to protect the aesthetic values of the area by providing for the collection of litter.*

Vertical public access onto the beach in this area is limited due to the elevation of Carlsbad Boulevard above the beach. Carlsbad Boulevard descends from approximately 33 feet at the northern end of the unpermitted revetment to approximately 18 feet above sea level at the southern end of the emergency revetment. There is no parking along this stretch of the highway. Access to the beach below this stretch of Carlsbad Boulevard is available approximately 475 feet south of Encinas Creek via a ramp to the beach at the northern end of a public parking lot. Additional public access stairs to the beach are located further south at the Carlsbad State Beach campground. Thus, the revetment is not expected to have significant adverse impacts on vertical access.

Lateral access is available along this stretch of beach except during high tide or storm events when the water reaches the toe of the bluff. Although the intent of the project is to maintain public access on Carlsbad Boulevard, including access to the beach, the proposed revetment segments would occupy physical beach space that would otherwise be available for lateral beach access and recreation. To limit adverse impacts to lateral beach access and recreation, both segments of revetment have been designed to minimize encroachment on the beach to the extent feasible to preserve recreational access to the beach. The emergency revetment was constructed at a 1.5:1 slope, consistent with the revetment protecting Carlsbad Boulevard and the Encinas Creek bridge to the south. The unpermitted revetment was constructed at a steeper 2:1 slope. Future impacts may include the dislodging and/or scattering of revetment rock onto the public beach, and, as such, Special Condition 2 requires the City to submit as built plans within 90 days of Commission approval to identify the location of the benchmarks from fixed reference point(s) from which the elevation and seaward limit of the revetment can be documented. Special Condition 3 requires the City to submit a monitoring report to the Commission to determine settling or seaward movement of the revetment to ensure the revetment continues to be configured to minimize impacts to public access. This monitoring shall be built into the monitoring report that the City already submits associated with CDP No. 6-09-051 for the revetment protecting the bridge. The next report is due by May 1, 2020. Special Condition 4 requires the City to contact the Executive Director if repair or maintenance is necessary to determine whether a coastal development permit is required, and Special Condition 5 requires the applicant to waive any rights to future seaward extension of the revetment.

Despite these conditions to minimize the encroachment of the revetment on the public beach, if the revetment were to remain in place indefinitely, this segment of Carlsbad's beach would be lost due to sea level rise. As a result, Special Condition 1 authorizes the emergency and unpermitted revetment segments for a period of 5 years from Commission approval, to expire in 2023. That five year period is intended to allow the City to develop a Hazards Management Plan that describes strategies to address the vulnerability of Carlsbad Boulevard to coastal hazards in this location. Public access amenities, including access points and viewpoints in this area are limited due to the elevation of the road above the beach. To ensure future public access improvements, Special Condition 1

requires that the Hazards Management Plan will also provide for continued coastal access and avoid or minimize adverse impacts to sensitive coastal resources. All of these special conditions will ensure that while the revetment remains on the beach, it will be maintained in a configuration that can be considered the least impactful to public access and recreation, consistent with the public access and recreation policies of the Coastal Act.

#### **D. UNPERMITTED DEVELOPMENT**

Unpermitted development, including the unpermitted installation of approximately 250 linear feet of rock revetment described in this staff report has occurred on the subject site. Although development has taken place prior to submission of this permit application, consideration of the application by the Commission has been based solely on the Chapter 3 policies of the Coastal Act. Approval of this permit does not constitute a waiver of any legal action with regard to the alleged violation, nor does it constitute an admission as to the legality of any development undertaken on the subject site without a coastal permit. In order to ensure that the unpermitted development component of this application is resolved in a timely manner, the subject permit will issue upon Commission approval, with Special Conditions 2, 3 and 4 required to be fulfilled within 60-90 days of Commission action. Should the applicant not comply with all of the Special Conditions, the applicant may be subject to future enforcement action to require compliance with the approved permit conditions. Only as conditioned is the proposed development consistent with the Coastal Act.

#### **F. LOCAL COASTAL PLANNING**

Section 30604(a) also requires that a coastal development permit shall be issued only if the Commission finds that the permitted development will not prejudice the ability of the local government to prepare a Local Coastal Program (LCP) in conformity with the provisions of Chapter 3 of the Coastal Act. In this case, such a finding can be made. The revetment segments addressed by this permit are located in an area of the Coastal Commission's retained permit jurisdiction, and, as such, the Chapter 3 policies of the Coastal Act are the standard of review. However, all applicable policies contained within the Mello II Segment of the City's certified Local Coastal Program have been included as guidance through this permit review. Therefore, the Commission finds that approval of the proposed development, as conditioned, will not prejudice the ability of the city to continue implementation of its certified LCP.

#### **G. CALIFORNIA ENVIRONMENTAL QUALITY ACT**

Section 13096 of the Commission's Code of Regulations requires Commission approval of Coastal Development Permits to be supported by a finding showing the permit, as conditioned, to be consistent with any applicable requirements of the California Environmental Quality Act (CEQA). Section 21080.5(d)(2)(A) of CEQA prohibits a proposed development from being approved if there are feasible alternatives or feasible mitigation measures available which would substantially lessen any significant adverse effect which the activity may have on the environment. The City of Carlsbad found the project exempt pursuant to Section 15269 [emergency project]. The California Department of Transportation found that the project was categorically excluded from the

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requirements of the National Environmental Policy Act under 23 Code of Fed. Regs. Section 771.117(c)(9) [emergency repairs].

The proposed project has been conditioned in order to be found consistent with the Chapter 3 policies of the Coastal Act. Mitigation measures, including conditions limiting authorization of the revetment for 5 years and addressing the future maintenance and/or reconfiguration of the revetment will minimize all adverse environmental impacts. As conditioned, there are no feasible alternatives or feasible mitigation measures available which would substantially lessen any significant adverse impact which the activity may have on the environment. Therefore, the Commission finds that the proposed project is the least environmentally-damaging feasible alternative and can be found consistent with the requirements of the Coastal Act to conform to CEQA.

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APPENDIX A – SUBSTANTIVE FILE DOCUMENTS

- City of Carlsbad Mello II Local Coastal Program
- City of Carlsbad Sea Level Rise Vulnerability Assessment, dated December 2017
- Final Alternatives Analysis Report: Las Encinas Revetment, prepared by Moffat & Nichol, dated May 2017