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Subject: Plan Princeton Water Level Considerations
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Attachments: [image001.png](#)

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Hi Summer,

Hope things are going well.

At our last meeting, I mentioned CCC staff, including our technical staff, would review and provide feedback on the Water Level Considerations for Plan Princeton Memo.

Please see below for CCC staff feedback on the materials provided thus far:

SLR and Water Levels

The approach to selecting future water levels for planning purposes seems appropriate – the CoSMoS SLR amounts are similar to the OPC (2018) values for the three planning horizons chosen. The CoSMoS total water levels (combined with 100-yr storm) are also an appropriate way of addressing factors, other than sea level rise (SLR) that will control future flooding (e.g., wave runup), in a planning document like this. The County should keep in mind that wave run-up to higher elevations than predicted by CoSMoS could occur, and that more location-specific flooding and sea level rise analyses may be needed for individual development projects. Additionally, the considerations for water level should also look at tsunami risk. I'm attaching the language from Section 6323.2 at the end of this message. There are now new Probabilistic Tsunami Hazard Maps that the County can use for this area and there are new building code requirements for high occupancy structures. The 'vertical stringline' should look at the tsunami run-up in development of this elevation – and we suggest using a 975 Average Return Period event for the elevation.

A minor note – on page 6, the memo suggests that evaluation of the H++ scenario is hampered by a lack of OCOF modeling data for 10 feet of SLR. It's true that OCOF doesn't currently have a 10 feet scenario, but it does have a 5 meter (16.4 ft) scenario, which could be compared with the 2 meter scenario to estimate flooding with 10 feet of SLR. Also, the newest CoSMoS update for the Central Coast (including San Mateo) does include a 3 meter (10 ft) scenario at least for bluff retreat; shoreline retreat and flooding projections for 3 meters may also be available or forthcoming.

Erosion & shoreline/bluff retreat

The memo provides a useful review of historical erosion and shoreline modification along the Princeton shore, which suggests that the potential for erosion/retreat in the future is likely to be quite location-specific. On page 9, the memo indicates that a "projected shoreline erosion rate of 6 inches/year ... is proposed for Plan Princeton." It isn't clear what this erosion rate would be used for, and that it would adequately characterize the potential for erosion at any given location given the aforementioned heterogeneity of conditions in this area. Based on the information provided in the

memo, there is concern that there are likely to be a number of areas or locations where a 6 inches/year retreat rate is not conservative and thus should not be used everywhere as a basis for the safe siting of new development. We recommend a more location-specific erosion analysis that accounts for SLR.

Policy considerations

The 25-year planning horizon discussed in the memo raises some concern. It could be too short if it is used as the timeframe for evaluating geologic and coastal hazards for decisions involving new development, redevelopment, or shoreline protection. It may be an appropriate “initial period” for phased adaptation planning or for short-term protection of the western trail area, but any new policies regarding hazards and new development should at least require analysis over a longer (i.e.-50-, 75- or 100-year timeframe). One example of why this is a concern can be seen on page 19, where the memo states that “The Plan will establish a horizontal stringline for new shoreline development as a minimum setback from the existing top of bluff ... The determined stringline will be based on SLR and erosion projections for the **life of the Plan.**” (emphasis added). If the “life of the Plan” is indeed just 25 years, then this approach could lead to the siting of significant new development that would be in harm’s way (or could potentially require new shoreline protection) within a rather short timeframe.

On page 18-19, the memo contemplates the use of shoreline protection including both traditional armoring and “nature based solutions” to protect structures and property. Please keep in mind that any potential for a community-scale, publically funded shoreline protection project that would defend large areas, which could potentially include both pre- and post-Coastal Act structures and undeveloped parcels, could present some Coastal Act consistency challenges.

The Plan states that for segment 1, most of the parcels were developed by 2000. But, the concern is what development was there before the Coastal Act. Also, it seems like development in this section relied upon fill to move seaward of the 1959 MHW line. In segment 3, most of the development was constructed in the mid-1990s. The plan should look more thoroughly into when this area was developed and the permit history for the armoring. The plan should start from what actually has a permit to be where it is and what development might have the right to shoreline protection.

SECTION 6326.2. TSUNAMI INUNDATION AREA CRITERIA. *The following criteria shall apply within all areas defined as Tsunami Inundation Hazard Areas:*

(a) The following uses, structures, and development shall not be permitted: publicly owned buildings intended for human occupancy other than park and recreational facilities; schools, hospitals, nursing homes, or other buildings or development used primarily by children or physically or mentally infirm persons.

(b) Residential structures and resort developments designed for transient or other residential use may be permitted under the following circumstances:

1. The applicant submits a report prepared by a competent and recognized authority

estimating the probable maximum wave height, wave force, run-up angle, and level of inundation in connection with the parcel or lot upon which the proposed development is to be located.

2. No structure covered by this section shall be allowed within that portion of the lot or parcel where the projected wave height and force is fifty (50) percent or more of the projected maximum, unless: (a) the highest projected wave height above ground level at the location of the structure is less than six (6) feet, (b) no residential floor level is less than two (2) feet above that wave height, and (c) the structural support is sufficient to withstand the projected wave force.

3. No structure covered by this section shall be allowed within that portion of the lot or parcel where the projected wave height and force is less than fifty (50) percent of the projected maximum unless the requirements of subsection b, 2), (a), and (c) are satisfied and the residential flood level is at least one (1) foot above the highest projected level of inundation.

4. Permission under this subsection shall not be granted if the Planning Commission determines that sufficient data, upon which the report required by subsection 1) must be based, is unavailable and cannot feasibly be developed by the applicant.

Let me know if you would like for us to submit our feedback in a more formal presentation (i.e. on letterhead) and feel free to reach out if you have any questions.

Best,

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