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PERSPECTIVE

As sea levels rise, so do local governments' costs to address the issue

By John P. Erskine

In March, the California Ocean Protection Council submitted the “best available science” to the California Coastal Commission and other agencies and stakeholders. But state and local governments, special districts and private coastal property owners are only now coming to understand the commission requirements for shoreline development to adapt to or retreat from predicted rates of sea level rise over the next 80 years.

Emerging climate change science behind the OPC’s new data will escalate compliance costs even beyond the \$36.5 billion replacement value of property at risk from the effects of climate change on the California coast previously cited by the Coastal Commission in its adopted 2015 “Sea Level Rise Policy Guidance: Interpretive Guidelines for Addressing Sea Level Rise in Local Coastal Programs and Coastal Development Permits.” That figure, developed in 2000 by Heberger *et al.* (2009), calculated the rough replacement value of California coastal property at risk from the effects of climate change. The report estimated that seven wastewater treatment plants, 14 power plants (13 in Southern California), 250 miles of highways, 1,500 miles of roads, and 110 miles of railways could be at risk from the combination of a 100-year flood with approximately five feet of rise in sea level.

As summarized in a briefing paper presented to the commission on September 12, “the OPC has released two reports that update our understanding of sea-level rise science and best practices for planning for and addressing anticipated impacts.” Synthesized in “State of

California Sea-Level Rise Guidance: 2018 Update,” the reports continue to increase projections of sea level rise, with new projection tables for twelve tide gauges along the California coast from Humboldt County to San Diego.

The result is that OPC is now predicting sea level rise of 2.4 to 6.9 feet by the year 2100; this compares to projections in the Coastal Commission’s 2015 guidance of only .5 to 5.5 feet by that year.

Utilizing information presented from the OPC’s Science Advisory Team, titled “Rising Seas in California: An Update on Sea Level Rise Science,” presented last year, OPC has concluded, among other findings, that:

- Scientific understanding of sea-level rise is advancing at a rapid pace,
- New scientific evidence has highlighted the potential for extreme sea-level rise, and
- Waiting for scientific certainty is neither a safe nor prudent option.

While the Coastal Commission’s 2015 guidance document stressed, and commission staff continues to maintain, that the guidance is advisory only, and not a regulatory document or legal standard of review, the commission’s summary of proposed 2018 revisions indicates that the new 2018 sea level rise protections are now “recommended for use in planning, permitting, investment, and other decisions.”

The commission’s previously adopted guidance document has already had a significant and material effect on many private applicants for residential and commercial coastal development permits in the last three years. Commercial businesses, resort properties and single-family homes have been reduced in size due to greater commission-mandated setbacks from

bluff edges or beachfront property lines. These measures are often in direct conflict with commission-certified city LCPs, and are taken in order to address variable “life of project” sea-level rise projections. Other permit conditions imposed by the commission to address the guidance include waivers of the right to shoreline protective devices (seawalls, revetments, etc.) granted by Section 30235 of the Coastal Act. This section states that seawalls (and other shoreline protective devices) “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 structures” have been deemed to be only those structures in existence prior to the Jan. 1, 1977 effective date of the 1976 Coastal Act.

Once accepted by an applicant as a “special condition” of approval, courts have been reluctant to grant relief from sea level rise informed limitations on the project permit. *See Lynch and Frick v. California Coastal Commission*, 229 Cal. App. 4th 658 (2014)(upheld on grounds of waiver, Ca. Sup. Ct S221980).

In the context of local government and/or special district applications to upgrade, expand or replace aging coastal infrastructure, the elephant in the room, or perhaps white shark in the surf zone, is how public agencies will locate, design and adapt such infrastructure to the impacts of climate change and increasingly dire predictions of coming sea level rise. “Managed retreat,” many climate scientists and environmental activists lodestar for addressing the next 75-100 years of sea-level rise, is both logistically

impossible to accomplish on any effective scale, in urban coastal settings, and financially infeasible. The only feasible solution will be to focus on the least environmentally damaging form of available shoreline protection, along with appropriate beach and sand supply mitigation.

Successful managed retreat can be done, at least in coastal areas, where there’s room to relocate critical public facilities. Last year, Caltrans completed a realignment of 2.8 miles of Highway 1 in northern San Luis Obispo County on the road to Big Sur. Moving this stretch of iconic coastal highway 475 feet inland included removal of artificial revetments and the use of permeable roadway subbase materials designed to maintain the hydrologic connectivity of adjacent wetlands. The project cost was \$19.7 million.

However, with many coastal cities and counties facing increasing budget shortfalls and multiple deferred capital improvement needs, funding wholesale relocation of coastal infrastructure, or even minimal adaptive measures to address future sea-level rise, will be a significant challenge.

John P. Erskine is a partner at *Nossaman LLP*. Mr. Erskine counsels landowners, developers, lenders, receiverships, and public agencies on planning and land use matters.



ERSKINE