SAN FRANCISCO BAY CONSERVATION AND DEVELOPMENT COMMISSION
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TO: Commissioners and Alternates

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SUBJECT: Commission Briefing on the Joint Policy Committee
(For Commission consideration on November 1, 2012)

Summary

On September 21, 2012, the Joint Policy Committee (JPC) adopted a work plan developed mainly by BCDC and the Association of Bay Area Governments (ABAG) staff to develop a regional sea level rise strategy that incorporates seismic hazards and emergency response issues. BCDC and ABAG staffs will lead the effort in collaboration with the Metropolitan Transportation Commission and the Bay Area Air Quality Management District. The briefing will: outline the JPC work plan; provide additional information about sea level rise projections, including a presentation by Jeremy Lowe on historic Bay high water levels; describe staff's use of projections in the permit process; and, describe how BCDC assists applicants and local governments to address sea level rise.

Staff Report

Joint Policy Committee Work Plan. BCDC's Bay Plan policy amendments addressing climate change adopted last year called on the JPC to take the lead on formulating a regional sea level rise adaptation strategy. On September 21, 2012, the Joint Policy Committee adopted a work plan for developing a regional sea level rise strategy. The work plan includes three broad tasks outlined below:

Task 1. *Incorporate sea level rise considerations in the Plan Bay Area Environmental Impact Report and continue to advance ongoing adaptation planning and research to build capacity towards developing a regional strategy.* This task will be carried out using currently available funds, and can be completed by mid-2013.

Task 2. *Convene and collaborate with local governments to conduct subregional and local sea level rise adaptation planning in order to integrate lessons learned into the next (second) iteration of the Sustainable Communities Strategy (SCS).* This task will apply lessons learned from the ART Project and other subregional sea level rise planning efforts. These lessons will inform the second iteration of the SCS in evaluating potential adaptation strategies. This task would be completed in mid-2017.

Task 3. *Convene and assist local partners to develop a regional sea level rise strategy that addresses both planning for multiple hazard risks and the regional objectives of economic prosperity, environmental protection, equity enhancement and improved governance.* This strategy would be informed by the work done at the subregional and local levels and will be completed no later than mid-2019 to mid-2021 during the preparation of the region's third SCS, which will guide the selection of transportation investments and land use policies, and incorporate necessary adaptation investments.

Funding. JPC consultants believe that work plan implementation could cost up to $20 million, and require up to ten years. However, these estimates are based on little data. During the past six weeks, BCDC and ABAG staffs have clarified work plan tasks, possible deliverables and schedule, and have started to identify partners and possible funding sources.

Jeremy Lowe: Historic Highest Tidal Water Levels and Shoreline Protection. Jeremy Lowe of ESA–PWA will present a new comparative analysis of historic high water levels and sea level rise (SLR) in relation to existing shoreline protection to demonstrate the vulnerability of shoreline areas in the region to tidal flooding.

Sea Level Rise Projections. Over the past several years, BCDC has used the latest science-based sea level rise projections in its planning and permit work, which includes a mid-century sea level rise projection of 16 inches and an end-of-century projection of 55 inches. These projections were used in both *Living with a Rising Bay* and the Adapting to Rising Tides project. These values are consistent with the interim guidance provided by the California Climate Action Team (CAT), and with the more recent projections from the NRC, albeit at the more conservative end of those projections.

In 2010, the California CAT published its Sea Level Rise Interim Guidance that advised the use of projections with a range from 10-17 inches by mid-century, 17-32 inches by 2070 and 31-69 inches by the end of century (relative to year 2000 sea level) for incorporating SLR projections into planning and decision making for projects in California. These projections are referenced in the Bay Plan, and constitute the state's most current guidance. However, the 2012 National Research Council's report on projected sea level rise along the three west coast states has included SLR projections for California that are slightly lower, but have wider ranges, than the projections used by state government agencies. CAT is working with various agencies and experts on sea level rise to incorporate the most recent information from the National Research Council's (NRC) into the state's guidance. On July 13, 2012, staff mailed the Commission a summary of the NRC report on projected sea level rise along the three west coast states.

The projections of future sea-level rise have large uncertainties resulting from an incomplete understanding of the global climate system, the inability of global climate models to accurately represent all important components of the climate system at global or regional scales, a shortage of data at the temporal and spatial scales necessary to constrain the models, and the need to make assumptions about future conditions (e.g., greenhouse gas emissions, large volcanic eruptions) that drive the climate system. As the projection period lengthens, uncertainty in the projections grows. At shorter timescales (2030 and perhaps 2050), when the models more closely represent the future climate system, confidence in the global and regional projections is relatively high. By 2100, however, projections made using process-based numerical models, extrapolations, and semi-empirical methods all have large uncertainties. The actual sea-level rise most likely will fall somewhere within the wide uncertainty bounds, although the exact value cannot be specified with high confidence.

Use of Projections in BCDC Permit Process. The Bay Plan climate change policies do not prescribe the SLR projections that should be used in evaluating projects. The policies do require permit applicants to conduct SLR risk assessments for large projects, to design those projects to be resilient to mid-century SLR, and to have an adaptive management plan for end-of-century resilience, if the project will be in place at end-of-century.

Following adoption of the Bay Plan climate change policies, two major projects were authorized by the Commission that were required to be consistent with the new policies. A BCDC permit authorized the Port of Redwood City to reconstruct a cargo wharf. The Port's consultant selected the SLR projection to be used as a design criterion with input from the staff and designed the project to be resilient to a 2060 projection of 18.4 inches of SLR. The design also accommodates raising the seawall providing shoreline protection to increase project resilience as sea level rises. A BCDC permit that authorized the Port of San Francisco to construct its primary cruise terminal required that public access be maintained or relocated as sea level rises over time. Since the project did not involve significant repairs to the pier substructure, or substantial Bay fill, the Commission did not require modifications to Pier 27 to address sea level rise.

Project Applications Currently in the Pipeline: SLR Risk Assessment Required			
Applications Received			
Project Sponsor	**Project Name**	**Improvements**	**Location**
US Army Corps of Engineers/California Department of Fish and Game	North Bay Salt Pond Restoration Project	Construct third phase of Napa-Sonoma Marshes Restoration Project in salt ponds	Napa County
Bay Ship and Yacht	Dry Dock	Install dry dock and related improvements, public access	City of Alameda
Sonoma Land Trust	Sears Point Restoration Project	Wetland and upland restoration	Sonoma County
Redwood City Harbor Communities and Uccelli Family Partnership, LLCs	Pete's Harbor	411 dwelling units, public access, parking	Redwood City
City of Hercules	Intermodal Transit Station	Station building, raised trackway, public access	City of Hercules
Transportation Authority of Marin	Bay Trail Bridge	Multi-use path and bridge for public use	City of Larkspur
Pre-Application Meetings and Review Underway:			
Zimmerman Associates	Phoenix Commons	Forty Residential Units, public access	City of Oakland
Millennium Partners	Burlingame Point	Office Buildings, public access	City of Burlingame

Guidance for Permit Applicants. Staff and the Commission will learn, on a case-by-case basis, how to apply the new SLR policies, which will enable staff to determine how to modify BCDC's permit application form and create new application form guidance. In the interim, staff will work with each applicant to tailor the risk assessment to the specific project issues, consistent with the requirements of the Bay Plan policies.

The NOAA Coastal Services Center has created a web-based mapping tool, the Sea Level Rise Viewer, which applicants can use to map projected tidal extent, based on varying levels of sea level rise. Because the tool is based on accurate topographic LiDAR, the maps produced using this tool can distinguish low-lying areas that are hydraulically disconnected from the Bay by features such as levees, or other landforms, and show them differently from areas that would be tidally connected to the Bay. The maps may not be able to capture all sea walls, because some are too narrow and difficult to discern using LiDAR, but most topographic features that would prevent tidal flow would be factored into the analysis that creates the map. This tool can help applicants more easily complete the risk analyses required of larger projects in the Commission's jurisdiction.