

# San Francisco Bay Conservation and Development Commission

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**TO:** Commissioners and Alternates

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**SUBJECT: Staff Report and Recommendation for a Contract for Coastal Engineering Services**  
(For Commission consideration on April 2, 2015)

## Recommendation

The staff recommends that the Commission authorize the Executive Director to execute a contract for coastal engineering services of an amount up to \$50,000 for shoreline flood risk analysis. The staff also recommends the Commission authorize the Executive Director to amend the contract as long as the amendment does not involve substantial changes in either the scope or amount of the contract.

## Staff Report

The Commission's Adapting to Rising Tides (ART) Program has convened and is staffing an adaptation planning project in Contra Costa County. Using the ART approach, staff and stakeholders are working together to understand how current and future coastal and riverine flooding would affect shoreline communities and infrastructure, including transportation and utility networks, industrial facilities and employment sites, residential neighborhoods and community facilities, and shoreline park and recreation facilities.

Coastal engineering services are needed to support the Contra Costa County ART project, including both refined inundation mapping and focused shoreline analysis. The Commission has up to \$50,000 available for this contract. The first priority is for refined inundation mapping. The consultant hired would develop refined inundation maps, unless partner resources are secured to cover the cost of these maps. If a partner covers the cost of refined inundation maps, BCD's consulting engineer would prepare focused shoreline analyses. Details and expected deliverables of both aspects of the coastal engineering services sought are described below.

Refined inundation maps for the Contra Costa County shoreline would inform the assessment of vulnerability and risk and assist staff and stakeholders to develop appropriate adaptation responses. Using best available topographic and water level data, a set of ten (10) maps would be created using the methodology developed in the ART Alameda County project. A shoreline delineation of Contra Costa County produced by the San Francisco Estuary Institute (SFEI) based on the methodology developed in the ART Alameda County project would be used to determine where on the shoreline overtopping occurs with projected and current water levels. The overtopping analysis would then be coupled with the refined mapping and presented to local representatives with first-hand knowledge and data to ground-truth and validate the refined inundation maps. Adjustments to the maps would

be made based on this input, and the maps would be finalized. Final maps along with a guide for how to use them and technical documentation explaining how they were developed would be shared with local and regional agencies and any others interested in using these products.

Focused shoreline analyses would leverage the refined map series, the overtopping analysis, and the SFEI shoreline delineation, and would be conducted in one or two areas with combined coastal and riverine flood risk. These focused assessments would identify and verify shoreline locations that pose early and immediate risks to inland communities, and would evaluate the potential for increased riverine flooding as Bay water levels rise. The analyses would use the methodology developed for recently-completed work in the Alameda County ART project. The future cumulative flood impacts of watershed discharge events (rainfall driven) and future Bay water levels due to sea level rise would be evaluated. To save time and resources, these analyses would use existing hydraulic model (or 2-D models) that are representative of current conditions. These analyses would provide a robust, road-tested protocol that others in the region can use to better understand the impact sea level rise and coastal storms would have on the region's flood management capacity. These analyses would be undertaken, only if the cost of refined inundation maps is covered by other partners.

The products developed and the methodologies refined under this contract would be used in the Contra Costa ART project and would inform ongoing regional efforts including the update of the region's local hazard mitigation plans (to be complete in 2016) and the update to the Sustainable Communities Strategy and addition of a resilience chapter (2017).

Therefore, the staff recommends that the Commission authorize the Executive Director to execute a contract for coastal engineering services of an amount up to \$50,000. The staff also recommends the Commission authorize the Executive Director to amend the contract as long as the amendment does not involve substantial changes in either the scope or amount of the contract.