

Climate Smart Adaptation Case Study

Case Study Name: Breuner Marsh Restoration and Public Access Project

Lead Agency/Organization and Partners: The East Bay Regional Parks District (EBRPD) is leading the project. The conceptual plan for site restoration was developed with input the Bay Conservation and Development Commission, US Fish and Wildlife Service, Castro Cove Damage Assessment Trustees, Department of Fish and Wildlife and the San Francisco Bay Joint Venture. Project funding is provided by EBRPD, California State Coastal Conservancy, U.S. Fish and Wildlife Service, Castro Cove Damage Assessment Trustees, and Wildlife Conservation Board.

Project Description: The Breuner Marsh Restoration and Public Access Project is a multi-purpose, net-beneficial project that will restore coastal habitat and provide for public access in a 150-acre area. The project is located at Point Pinole, in the northwest part of the City of Richmond on the San Francisco Bay shoreline (Figure 1).

The project area has been subject to a number of land uses that have significantly altered the historic landscape, including construction of the Union Pacific Railroad, Giant Powder Works, petroleum, natural gas, sanitary sewer and electrical utility projects, creek channelization, minor residential development and more than 100,000 cubic yards of imported fill. As a result, the historic wetland and upland habitats have been disrupted in most of the project area. However, remnant tidal salt marsh and coastal prairie still occur in small pockets.

Approximately 60 acres of wetlands and 90 acres of coastal prairie will be restored or enhanced, resulting in a mosaic of sustainable habitats that will evolve naturally with changing climate and sea level rise without requiring future human intervention. A significant feature and major driver of the project is its ability to accommodate a projected 55-inch rise in sea level by the year 2100. Because the site contains so much imported fill it can be reused on site to establish upland transition zones where tidal wetlands can migrate as sea level rises.

The project area contains populations of the endangered California clapper rail and salt marsh harvest mouse and the threatened California black rail. Providing new sustainable habitat for these and others special-status species have also been major drivers in the project design.

Another key design driver is to provide public access to the project area. Currently the area is closed to public access until it can be made safe and accessible. A critical 1.5 mile gap in the San Francisco Bay Trail will be constructed through the property, linking Point Pinole with underserved communities in Richmond. Public parking, restrooms, trails, picnic facilities and interpretive exhibits will also be developed.

The project will cost \$8 million.

Approach to Vulnerability Assessment: As part of the project EIR, an extensive inventory was conducted of the biological and physical attributes of the property by consulting biologists, hydrologists, and engineers. An elevation model was used to compare “no project” and “additional tidal wetland” alternatives at the time of construction and 70 years in the future in the context of rising sea levels. Sediment accretion at the project site was modeled over the

next 100 years using a sea level rise rate of 12.7 mm/yr for the period 2011-2065 and 18.7 mm/yr for the period 2065-2100, consistent with rates adopted by the Bay Conservation and Development Commission.

Adaptation Actions: The project is designed to enable habitat shifts and continued community use in response to climate change and sea level rise. The wetlands and public access facilities have been designed to accommodate a 55-inch rise in sea level by the year 2100.

The project involves the removal of the existing site structures, debris, hazardous materials and existing non-native vegetation, and re-grading of much of the southern portion of the site. Existing wetland areas will be enhanced by excavating new channels to connect them to the Bay and allow tidal flooding. Material removed from wetland areas will be used to build upland areas with gentle slopes and to create broad transitional zone habitat. The transitional zone will become a future tidal marsh as sea level rises in line with predictions.

Structures such as bridges and trails will be constructed of durable materials (*e.g.* concrete, coated metal and plastic) that require minimal maintenance and can withstand saline water encroachment. Native plant materials adapted to saline environments and drought will be installed primarily using seed so that plants require minimal or no irrigation.

Implementation: Detailed project plans are described in the project EIR and can be viewed on the EBRPD Project Planning [webpage](#).

Work is already underway in collecting and propagating plant materials, weed abatement, site clean-up and security. In 2013 hazardous soils will be remediated, some areas will be planted and boundary fencing installed. Mass grading will be conducted in 2014 and bridges and boardwalks constructed in 2015.

To protect sensitive species and water quality, construction work in the tidal wetlands and adjacent sensitive habitat areas will only occur during the months of August through October, and is expected to occur over a period of two to three years.

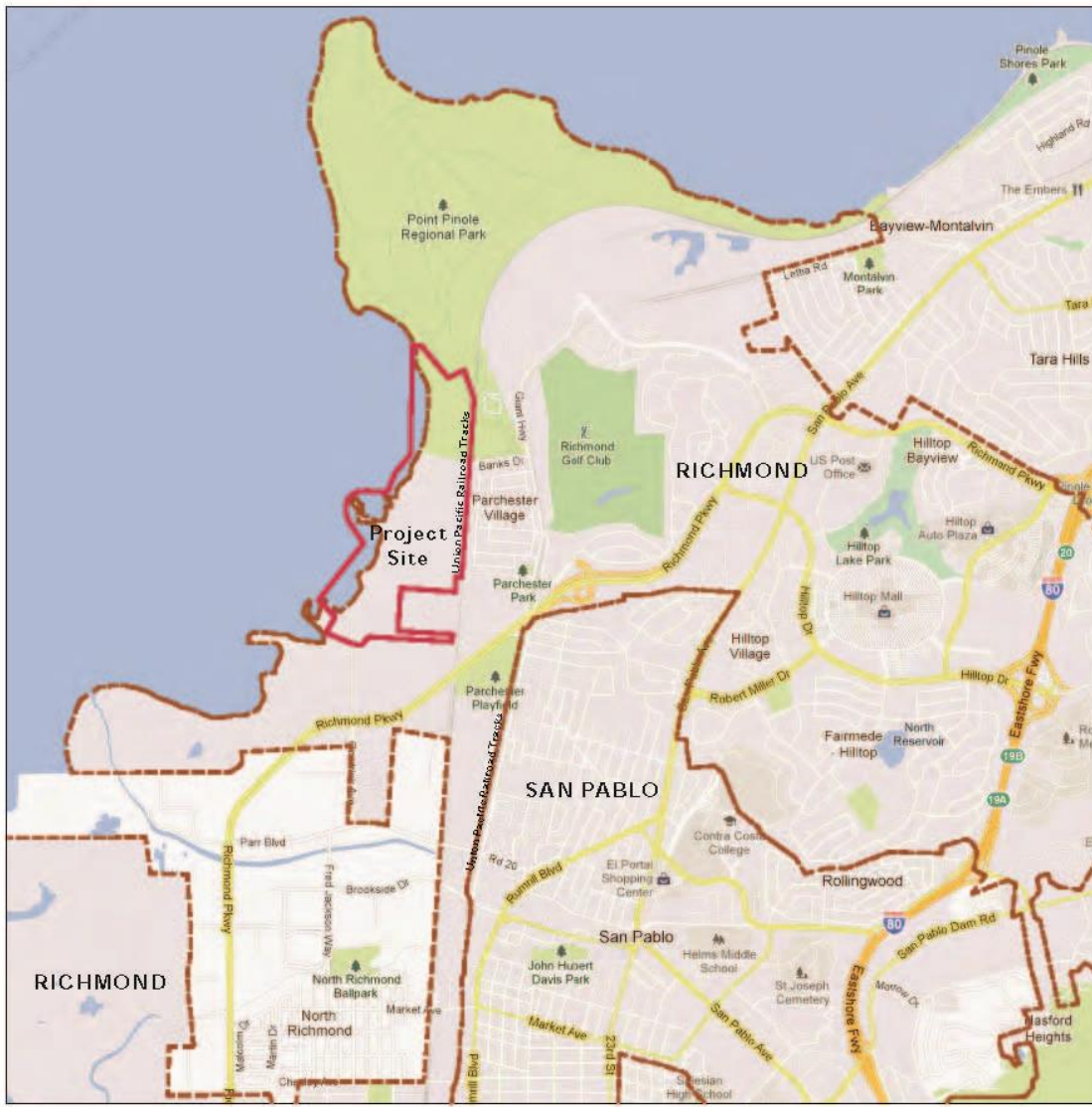
The project is scheduled to open to the public in early 2016.

Monitoring and Management: A Habitat Mitigation and Monitoring Plan will be prepared at the end of project construction. The plan will include planting, maintenance, and plant establishment monitoring instructions, specific performance criteria, scientific monitoring and reporting protocols and requirements, and a list of actions that will be taken for the management and control of non-native invasive plants. Annual monitoring reports detailing the results of monitoring activities, additional management measures and recommendations for future actions will be prepared for five years.

Post-project management will include maintenance of weeds, trash collection, facility repair and police and ranger patrol. The Habitat Mitigation and Monitoring Plan will include a plan for adaptive management.

Lessons Learned: The careful planning process for this project involving extensive technical input from scientific experts and input from the public has worked well.

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Source: Google, 2011.

Figure 1 Project Location