CLIMATE CHANGE STRATEGY

BACKGROUND

The East Bay Regional Park District owns and manages over 120,000 acres of shorelines, redwood forests, oak woodlands, and grasslands located in Alameda and Contra Costa Counties. The District is arguably the largest owner and manager of shoreline properties in the San Francisco East Bay. In accordance with its mission to provide recreational opportunities, ensure natural beauty of the land, and protect wildlife habitat, these lands are predominately managed in a natural state while protecting critical habitat corridors, providing outdoor recreation opportunities, and providing a natural greenbelt throughout the East Bay. These lands also buffer communities from shoreline and wildland risks/vulnerabilities, making the District uniquely situated to implement green infrastructure projects that provide co-benefits to environmental and community health, safety, and well-being. Specifically, the Master Plan states the following goals related to climate change:

> **RM1:** Climate change is expected to affect these resources in various ways. Changes in the ranges of various species, increased potential for wildfires and pests are anticipated with this change in the weather. In a manner consistent with the desire to "conserve and enhance" its resources, the District must closely track the impact of this phenomenon and if necessary, act to relocate or protect in-situ resources that are being degraded or potentially lost by this change.
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> **RM1b:** Track and monitor the effects of climate change on the District's resources, interceding when necessary to relocate or protect in-situ resources that are being degraded or lost by this shift in the environment.
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> **NRM1b:** To mitigate the effects of climate change, the District will endeavor to conserve and connect habitat for native species through its acquisition and planning processes.
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> **PA5:** The District will cooperate with local and regional planning efforts to create more walkable and bikeable communities and coordinate park access with local trails and bike paths developed by other agencies to promote green transportation access to the regional parks and trails.

RECOMMENDATIONS

In order to implement the above Master Plan policies and continue the District's legacy of being a pioneer in responding to environmental challenges, District staff can increase its capacity to do so in a number of ways.

First, staff can build internal support for a comprehensive climate change strategy and program that addresses short-term and long-term risks/vulnerabilities as well as includes both mitigation and adaptation. This includes the formation of a multi-disciplinary working group discussed below.

Second, staff can partner with external organizations whose missions relate to climate change and align with the District's interests so that all of these organizations can leverage their strengths and resources. Staff has been actively engaged with the Hayward Area Shoreline Planning Agency, which is a Joint Powers Agency whose primary goal is addressing sea level rise, for a number of years. Staff has also already started building relationships with representatives from the San Francisco Bay Conservation and Development Commission (BCDC), Point Blue Conservation Science, and UC Berkeley/Climate Readiness Institute to gage their interest in working on climate change projects together.

Third, staff can raise funds to implement pilot projects that demonstrate the value to the District of responding to climate change. Potential funding sources have been identified below.

RISKS/VULNERABILITIES

SHORELINES

Climate change is a man-made phenomenon and results in impacts such as sea level rise that coastal communities and ecosystems are experiencing now. The District is on the front line of defense against sea level rise with 40 miles of shoreline properties throughout the East Bay and Sacramento-San Joaquin Delta region, including the Martin Luther King Jr. Regional Shoreline along the Oakland waterfront and the Hayward Regional Shoreline. These shorelines buffer underserved communities from the impacts of sea level rise: namely, levee failure (that could also result in loss of wetlands and habitat) and Bay Trail overtopping. District staff can calculate the cost of Bay Trail overtopping and acreage lost due to projected sea level rise to determine the real lost value of parklands.

Franks Tract Bay Trail Overtopping

Oro Loma Marsh Storm Damage

Sea level rise is also expected to exacerbate erosion of coastal areas, and District shoreline properties are vulnerable to potential inundation. District shorelines present opportunities for pilot projects for innovative management techniques, such as beneficial re-use of dredged materials, and cost-effective green infrastructure that promote the integration of natural resource and community interests. BCDC's draft sea level rise maps for Contra Costa County show Browns Island as being inundated under all three scenarios that they presented. The District needs an internal framework that this strategy provides as well as decision-making support to figure out a strategy and the return on investment of responding to such threats, especially given that the District probably owns the most shoreline properties in the East Bay.

FUELS MANAGEMENT

In addition to shoreline risks/vulnerabilities, the District can expect increased threats from wildfire and will need to ensure its fuels management program can adequately respond to this risk/vulnerability. The District's parklands primarily include grasslands and oak woodlands with some forests located within the urban/wildland interface where fuels management is critical to preventing the increased risk of wildfires as a result of climate change. This issue is predicted to become worst over time in terms of severity and costs to control it. Recently, a new study co-led by academics at UC Berkeley quantified the amount of carbon stored by and released from California forests and wildlands and found that wildfires are contributing more than expected to the state's greenhouse gas emissions. Conversely, the principal investigator also said that protected areas, such as District parklands, "clearly provide an important function in removing carbon from the atmosphere and storing it". Currently, the District Fire Department is working on a biomass utilization project that could be included in this strategy.

WATER AND HABITAT

During the drought, the District has experienced the rise of algae and has had to close our various lakes to public access. Similarly, the many conservation easements and habitat areas that the District manages for the benefit of species might not be able to meet management obligations that we are held to with a changing climate—for example, despite all of the District's best efforts to protect Red Legged Frog in East Contra Costa County, they might be at risk to loss of breeding habitat associated with drought conditions. Our easements with the US Fish and Wildlife Service require the District to protect the species, but it might be beyond our ability to control. The District could monitor properties that are held for habitat purposes to, at least, track the effects of climate change.

MITIGATION AND ADAPTATION

The Green Transportation Initiative mitigates some climate change impacts by providing low-carbon options for the public to access parklands and improve their health. Additionally, the renewable energy projects that the District is currently undertaking mitigates greenhouse gas emissions and positions the District to potentially participate in the Alameda County Community Choice Aggregation program once the utility tariff issue is resolved. These initiatives are consistent with the above Master Plan policies. Regardless, the District would benefit from having a comprehensive strategy that includes transportation and renewable energy for how it could reduce its greenhouse gas emissions and adapt to climate change so that it can prioritize its actions and position itself as a leader in providing a sustainable legacy.

Furthermore, the District's oak woodlands, grasslands, and wetlands sequester carbon, and land acquisition and wetland restoration projects could be funded through the State's Cap and Trade program that is discussed in greater detail below. Restoration and enhancement of wetlands provides the co-benefit of buffering communities, particularly underserved ones located in Oakland, Richmond, and Martinez, from sea level rise, storm surge, and inundation. For example, the Bruener Marsh Restoration Project (soon to be re-named *Dotson Family Marsh*) located along the Point Pinole Regional Shoreline in Richmond will provide future opportunities to connect multiple sectors and maximize

resilience by incorporating bicycle paths, public recreation, and wetland restoration. Crown Memorial State Beach and McLaughlin Eastshore State Park are lands that can also promote nature-based solutions for adapting to climate risks. Finally, wetland restoration might also be needed to mitigate the impacts of increasing the height and width of levees along the shoreline to address sea level rise.

This strategy is a living document and as risk/vulnerabilities are addressed and the District increases its capacity to address longer-term impacts and adaptation actions, public health will increasingly become a priority. Public health issues related to climate change can be incorporated into Land Use Plans (LUPs) to guide design features that would help the public in dealing with factors such as extreme weather and heat that are expected as the climate changes. Features such as shade shelters and potentially water fountains could be incorporated into LUPs. The District could also coordinate with County Health Departments to use visitor centers with air conditioning as cooling centers.

POTENTIAL FUNDING

CAP AND TRADE

The District is well-positioned to potentially receive Cap and Trade funds, which were $2.7 billion in 2015, for a couple of reasons. It owns and manages lands in close proximity to point-source emitters, and the parklands buffer underserved communities from the effects of climate change. The Cap and Trade program seeks to specifically distribute funds to underserved communities—such as Oakland, Richmond, and Martinez—because they are expected to experience a disproportionate amount of the negative effects of climate change. Cap and Trade funds are being distributed through state agencies as well as are available as auction proceeds through the emerging California carbon market. Proceeds might be able to fund land acquisition, especially if a greenhouse gas analysis is verified by a third party.

The California Department of Fish and Wildlife (CDFW) received Cap and Trade auction proceeds and created a Wetland Restoration for Greenhouse Gas Reduction Grant Program to fund on-the-ground restoration projects that directly result in greenhouse gas emissions reductions. The program is focused on Sacramento-San Joaquin Delta wetlands and recently had a round of funding. The California Department of Forestry and Fire Protection (CAL FIRE) also received auction proceeds and will be administering them on behalf of the California Air Resources Board. The Urban Forestry Legacy Greenhouse Gas Reduction Fund Grant Program is funded by CAL FIRE.

PROPOSITION 1

Agencies such as the State Coastal Conservancy (SCC—Climate Ready grants) and the Ocean Protection Council are administering Proposition 1 funds for coastal adaptation pilot projects. SCC plans to specifically allocate funding for underserved coastal communities for which shoreline projects located in underserved communities could qualify. They have already administered the first round of this funding. CDFW and Sacramento-San Joaquin Delta Conservancy have also received Proposition 1 funds that they can administer to organizations implementing on-the-ground projects.

BAY RESTORATION AUTHORITY BALLOT MEASURE

District leadership has been actively advocating for the Bay Restoration Authority measure that will be on the June 2016 ballot and proposes a $12 parcel tax for 20 years in all nine Bay Area counties. It will generate $500 million in funding for projects to restore thousands of acres of tidal marsh. Regional public funds will be able to leverage even more state and federal funding for San Francisco Bay, including wetland restoration that will improve resilience to the effects of climate change. An April 2015 survey of 1,200 likely June 2016 voters found 70 percent of them said they would vote in favor of the measure after hearing arguments for and against it—that number is more than the two-thirds vote necessary to win.

MEASURES BB AND J

Transportation expenditure plans in both Alameda and Contra Costa Counties could fund District green transportation initiative projects that would mitigate climate change impacts. These funds could also be used to address Bay Trail overtopping, and staff from Alameda County Transportation Commission have expressed interest in this issue, since millions of dollars have been invested in the Bay Trail.

OTHER FUNDING

The Strategic Growth Council, federal government, and private foundations also fund climate change projects. The Kresge Foundation, San Francisco Foundation, the Gordon and Betty Moore Foundation, and even the Parks Foundation can and do fund this type of work. The working group could work with District grants staff to track future opportunities as they become available.

NEXT STEPS

The following steps will allow the District to move forward with the climate change strategy:

- Work with consultant to update carbon sequestration study with possible third-party verification and develop Executive Summary that can be used as a one–page (front and back) fact sheet to use when talking with elected officials and decision-makers.

- Create an internal working group to facilitate communication among operations, design, grants, planning, and government affairs and coordinate action. The working group can also disseminate information to District decision-makers about the importance of addressing these issues sooner rather than later, especially since it will only become more costly over time and some assets might be permanently lost.

- Operations could present to the Board of Directors what effects of climate change they are already experiencing along with staff from BCDC, preferably before the June ballot measure so that Board members are fully informed of the issues District staff are facing that could be addressed by passage of the measure.

- Quantify risks of climate change and sea level rise to District assets.

- Participate in various regional working groups focused on climate adaptation and vulnerability such as the BCDC Adapting to Rising Tides program, the San Francisco Bay Regional Coastal Hazards Adaptation Resiliency Group, and others.

- Raise funds to demonstrate the value of pursuing climate change action.

WORK PLAN

The projects listed below represent pilot climate change projects that align with this strategy and provide opportunities to implement it. Other opportunities for projects might arise such as ones that address fuels management issues in wildlands and asset evaluation related to exposure to projected risk of sea level rise along the shoreline and the cost/benefit of different District. Regardless, the working group can immediately fund raise for the opportunities listed below.

Project	Description	Team	Funding Deadlines
Browns Island Beneficial Re-use	Feasibility study/opportunities and constraints analysis to decide whether the District should protect this asset and/or use it as a beneficial re-use site for habitat restoration, protect the asset from inundation, Water Trail use, and potentially buffer nearby underserved community from sea level rise in the Delta area	BCDC, the National Estuarine Research Reserve, SFEI, Shoreline Unit, Stewardship, and Planning	Sacramento- San Joaquin Delta Conservancy Proposition 1 end of June 2016
Hayward Shoreline Protection (or could be a plan for all of the District shoreline properties with the Hayward Marsh as a case study)	Strategy to efficiently and effectively protect Hayward Shoreline and associated habitat from sea level rise and Bay Trail from overtopping	BCDC, Hayward Area Shoreline Planning Agency, SFEI, Shoreline Unit, Environmental Programs, Stewardship, and Planning	To be determined
Bay Trail Asset Management	Develop and maintain database that includes location, elevation, condition, and management status	Alameda CTC, ABAG, Shoreline Unit, Trails Management Program, and Advance Planning Group	To be determined
Parkland Carbon Credits	Register District to receive Cap and Trade auction proceeds for carbon sequestration and acquisition of wetlands and grasslands	ESA, Government Affairs, Acquisitions, and Planning	To be determined
Grasslands/fuels Management Best Management Practices	Develop Best Management Practices for grazing and fuels management for wildlands to benefit soil carbon sequestration efforts and protect urban areas from wildfire	Wildland Vegetation Program, Point Blue, and Planning	To be determined