Regional Shoreline Adaptation Plan | Phase 1: The Framework

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The Regional Shoreline Adaptation Plan (RSAP) for the Bay Area is a long-term planning effort to protect communities, critical developed shoreline areas and natural ecosystems, enhance the resilience of Bay and shoreline systems and increase their adaptive capacities to flooding and rising sea level.

Over the next five years, the RSAP process is designed to build collaboration and consensus in the region around sea level rise adaptation along the bay shoreline and begin collective, coordinated local and regional actions to reduce the region's shared risk. The RSAP is composed of four primary elements:

- A **Framework Phase** to be completed by 2021 that results in a shared vision, policy platform, governance and financing strategies for the region to approach climate adaptation.
- A first round **Implementation Phase** that acts on the Framework recommendations, in alignment with Plan Bay Area.
- A robust and ongoing **Engagement Process** to ensure that all of the region's voices are reflected at all phases, and to ensure that ownership and responsibility for actions are collectively distributed.
- A **Legislative Track** that consists of two stages – (1) authorizing legislation for the process and seek funding and (2) potential implementation legislation to facilitate new authorities and structures identified as critical to adaptation based on the outcomes of the Framework.

While the RSAP effort is of critical importance, it is important to recognize that there are ongoing adaptation projects that should and will continue during this time period. This effort is not intended to delay or prevent such projects from moving forward, but rather to continue to coordinate and build on them.

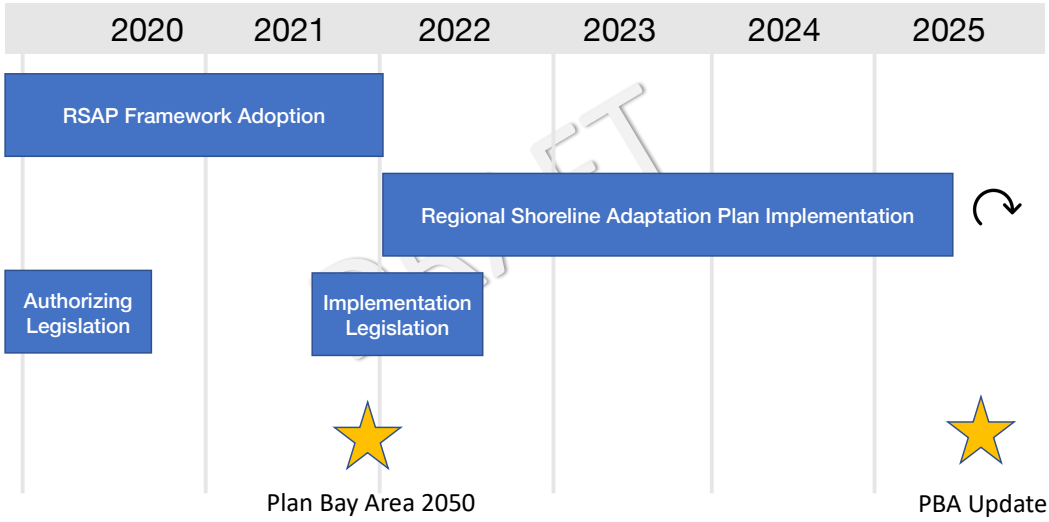

Figure 1: Long-term RSAP timeline and Plan Bay Area alignment

Purpose

The RSAP will be a Bay-wide, stakeholder-driven regional strategy to prioritize the projects and actions that will address the most critical flood risks posed to the region by rising sea level. The RSAP will help protect communities and the built and natural environment located along the Bay shoreline by making smart funding decisions today to limit future post-disaster recovery expenditures and prevent the loss of regionally-critical functions and disproportionate impacts to vulnerable communities. It will help ensure that the rising sea level will not result in a real-life "tragedy of the commons" in which the scores of local governments and special districts that ring the Bay

could implement self-interested flood control projects whose consequences on housing, transportation, and the economy will negatively affect their neighbors. Development of the RSAP will be collaborative and involve staff from local governments, special districts, and the private and nonprofit sectors, each of which will provide in-kind and/or direct support for the project.

Specifically, the RSAP aims to:

1. Develop a long-term vision and action plan for the region's future to protect communities and the natural and built environment in the face of rising sea level
2. Guide near-term investments in green *and* gray projects of regional significance
3. Align existing resources and seek new funding to support RSL adaptation measures

Justification

We all know that rising sea level will dramatically affect our way of life in the Bay Area. Our daily commute, the goods and services we depend on, the places we live and work, and the natural spaces that make the Bay a beautiful place to live are each vulnerable to increased flooding.

The California Natural Resources Agency forecasts between one and three feet of RSL by 2050 and between three feet and ten feet by 2100 – a 50% increase over its previous forecast. Analysis by BCDC's Adapting to Rising Tides Program shows that the risk of flooding is not a far-off threat but exists *today* and will only worsen in the future:

- Approximately 72,000 people are at risk of flooding *today* from a major storm event. These same people could be *permanently* inundated in 30 years.
- The most socially vulnerable populations are the most at risk. Of the 72,000 people at risk of flooding today, 46% of those people exhibit demographic characteristics that likely will constrain their ability to respond or adapt. Renters and low-income populations are most disproportionately impacted by early flooding.
- Major transportation assets in the North Bay, such as Highways 37 and 101, are the "canaries in the coal mine" for sea level rise flooding given that they flood today. Other major transportation assets, including BART, SFO and OAK also are at risk at higher sea levels.
- The San Francisco Bay and Delta regions of California have the most acres of habitats vulnerable to sea level rise, according to a recent report by The Nature Conservancy evaluating California's habitats at risk of sea level rise.[1]

Rising sea level will exacerbate our existing regional challenges – flooding will increase pressure on an already unaffordable housing market, strain at-capacity transportation systems, and make it more challenging to access living-wage jobs.

The impacts of temporary flooding from sea level rise and storm surge today will have serious impacts on critical services, public health, the economy and daily life. Permanent flooding in the near future will cause even more deep-seeded problems.

There are several key reasons why *regional* collective action is necessary to address these challenges:

- Local flood impacts can have regional consequences, yet local jurisdictions often lack funding and capacity to address them.
- Within a closed Bay system, flood management projects in one location can inadvertently increase flood risk in other areas if not designed properly.

[1] Heady, W. N., B. S. Cohen, M. G. Gleason, J. N. Morris, S. G. Newkirk, K. R. Klausmeyer, H. Walecka, E. Gagneron, M. Small. 2018. Conserving California's Coastal Habitats: A Legacy and a Future with Sea Level Rise. The Nature Conservancy, San Francisco, CA; California State Coastal Conservancy, Oakland, CA. 143 pages.

- Adaptation is happening unevenly across the region, and may result in a situation of "have and have-nots" that disproportionately impact low income, marginalized communities.

What are the Region's Strengths?

The Bay Area is taking climate change seriously and is widely-viewed as a national leader in climate change mitigation and adaptation. There is widespread recognition among regional stakeholders that this issue is bigger than any one city or county and that collective action in needed.[2] This consensus is grounded in a strong foundation in climate science, thanks to state leadership and guidance.[3] The Bay Area has a legacy of coming together around environmental issues, from the Save the Bay movement in the 1960s to the passage of Measure AA in the 2016. The geophysical characteristics of the Bay also lend themselves to using nature-based strategies in many locations, and the region has embraced this as an initial preferred approach, whenever feasible.[4] Efforts such as Resilient By Design Challenge have jump-started innovative design solutions, and major regional planning efforts, such as Plan Bay Area 2050, are proactively integrating sea level rise into collective regional visions for the future. There has also been significant adaptation planning effort at the county and sub-county level (i.e. Marin Bay Wave, San Mateo Sea Change, Adapting to Rising Tides projects and numerous city efforts). Several major adaptation projects are moving forward, albeit with incomplete funding (Embarcadero Seawall, SR37, South Bay Salt Ponds), thanks in part to Measure AA grants, U.S Army Corps of Engineers funds and other sources.

What are the Region's Challenges?

The Bay Area lacks agreement among stakeholders on the specific shared decisions and outcomes to prevent flooding.[5] While many local governments and special districts recognize how a major flood could affect their jurisdictions, no single public agency has the incentive, much less the financial ability and staff capacity, to prevent the regional problems that will arise due to local flooding. Additionally, there is no mechanism in place to ensure that flood control measures in one location do not worsen flood risk in in adjacent areas or across the Bay. Some portions of the Bay are much farther along in their adaptation efforts than others, creating challenges around social and environmental inequity. Just as important, we need to work with Bay Area legislators to coalesce around regional solutions to this challenge – solutions that will need to be integrated with pressing issues such as affordable housing, highway congestion, and wildfires.

How Will the RSAP Be Created? The Framework

The RSAP will build a new type of regional collaboration among agencies and stakeholders, building on a strong foundation of climate science, planning and assessment and local and regional needs.

The first step requires developing the *framework* through which the RSAP will operate: the "user manual" for how the plan will function.

[2] Lubell et al (2019). The Governance of Sea Level Rise in the San Francisco Bay Area: results from a survey of stakeholders. Center for Environmental Policy & Behavior, Dept of Environmental Science and Policy, University of California, Davis. 20 March 2019
[3] California Ocean Protection Council (2018). California Sea Level Rise Guidance.
[4] SFEI/SPUR (2019). San Francisco Bay Shoreline Adaptation Atlas.
[5] Lubell et al (2019).

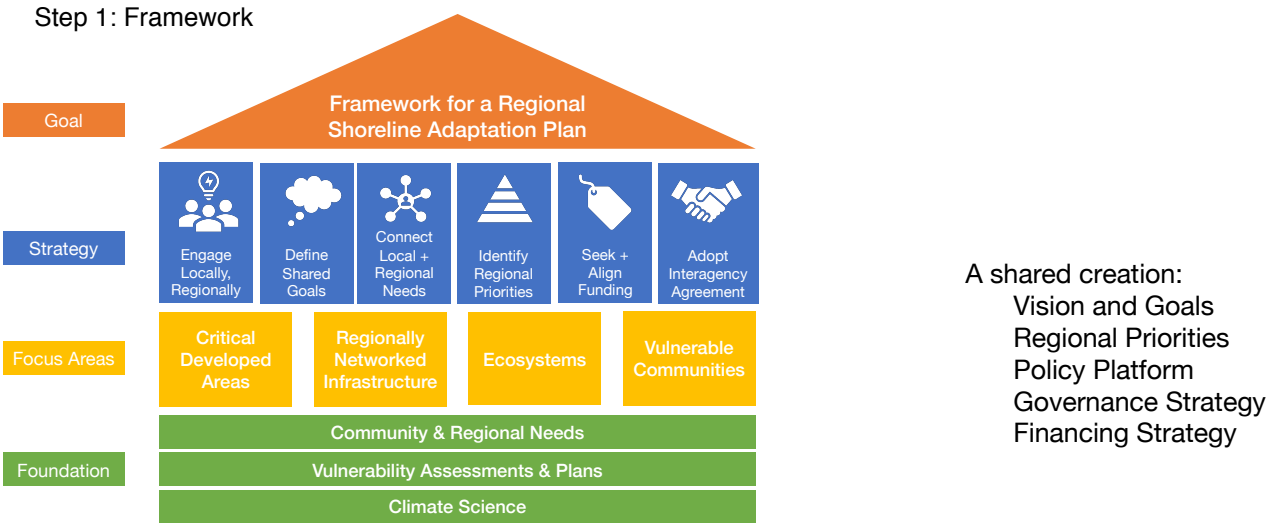

Figure 2: RSAP Framework Overview

Scientific and Locally-Grounded Foundation

The framework will build on a strong foundation of existing climate science, mapping and vulnerability assessments. It will also build on the latest in science-based planning and guidance, such as the Adapting to Rising Tides program, California Sea Level Rise Guidance, Baylands Habitat Goals Update, the San Francisco Bay Adaptation Atlas and others.

Focus Areas

The framework will focus on challenges facing issues or assets that have a regional nexus, i.e., that cannot be addressed by local solutions alone. These focus areas are:

- Critical Developed Areas
- Regional Networked Infrastructure
- Ecosystems
- Vulnerable Communities

Strategy

To develop a framework, we propose taking the following strategic approach:

1. **Engage locally and regionally.** Develop the plan in partnership with communities, city, county and special districts, including flood control districts, and the non-profit and private sectors. This will require input from a wide variety of sources: leaders, technical and academic expertise, local governments and communities, with particular attention given to marginalized communities.
2. **Define shared goals.** Develop a clear vision and set of ambitious and achievable goals to generate shared ownership.
3. **Connect local with regional needs.** Regional planning is at its best when it is driven by bottom-up input that benefits a wide variety of stakeholders. Therefore, this effort will formalize clear, predictable mechanisms for feedback and communication similar to the Regional Transportation Plan. The plan will synthesize local vulnerability assessments, and support filling in gaps. It will establish a filter for regional priorities based on local needs and input.
4. **Identify regional priorities**. The framework will set up an iterative process to identify alternatives, analyze tradeoffs, and establish priorities quantitatively through data and modeling (such as a decision-support tools) and qualitatively through stakeholder input. These priorities may be physical interventions (e.g., a specific project), policy recommendations (e.g., processes for ensuring certain flood protection projects do

not negatively impact other areas) or legislative requests (e.g., establishment of new responsibilities to agencies).

5. **Seek and align funding.** A financing strategy will identify existing and new funding streams and develop long-term recommendations for funding. This will be developed in partnership with BCDC's Financing the Future Working Group.
6. **Adopt interagency agreement(s).** Establish responsibilities among the various participating agencies to implement the plan. What are various roles and responsibilities? How will it integrate local, regional and state roles? A Governance Strategy will outline the recommended approach.

Framework Outcomes

The following outcomes of the framework will set up the implementation of the RSAP:

- Shared Vision and Goals
- Vulnerability Analysis Gap Assessment, and additional assessment as needed
- Decision-support mechanism to identify regional priorities
- Multi-lateral Agreement / Policy Platform (what it does)
- Governance Strategy (how it works and who does it)
- Financing Strategy (how to fund it)
- Two phase legislative initiative with (1) Enabling State Legislation and (2) implementation legislation, as determined necessary

Roles and Responsibilities

BCDC Staff

- Project Management
- Stakeholder Engagement
- Research
- Policy development
- Technical support

Leadership Advisory Group	A diverse leadership group that provide high level direction and champions the effort across their organizations. Meet every two months. (Chair: Zack Wasserman, Staff: BCDC)
Local Advisory Group	Local jurisdictional representation from across the region, including counties and large and small city representation. Potentially split into sub-regional groups. Meet quarterly. (Chair: Dave Pine. Staff: BayCAN?)
Leadership Sub-Groups	Leadership sub groups will focus on top strategic issues. Each sub-group will be co-chaired by two Leadership Advisory Group members, and staffed by partner organizations. Co-chairs will select participants, set meeting schedules and agendas. Leadership sub-groups include: o *Legislative* (Co-Chairs: Warner Chabot, TBD. Staff: TBD) o *Communication and Engagement:* (Co-Chairs, TBD, Staff: TBD) o *Financing* (Co-Chairs: Zack Wasserman via BCDC Financing the Future Working Group, Staff: TBD) o *Ad-hoc additional groups as needed*
Technical Committee	A broad, staff-level group with a range of expertise that will provide in-depth input and guidance to BCDC staff and the Leadership Advisory Group on various technical topics. Meet as needed. (Chairs: TBD, Staff: BCDC).

Technical Sub Groups	Topic-specific technical sub groups formed on specific technical themes. Potential sub-groups may include: o *Modeling technical sub-committee* (Co-Chair: CHARG, TBD, Staff: TBD) o *Nature-based sub-committee* (Co-Chair: TBD, Staff: TBD) o *Decision-Support Tool sub-committee* (Co-Chair: TBD. Staff: TBD) o *Economic Analysis sub-committee* (Co-Chairs: BAC? TBD. Staff: TBD) o *Focus-Area based sub-committees* (Co-Chair: TBD. Staff: TBD)