



# **BAY ADAPT**

## **REGIONAL STRATEGY FOR A RISING BAY**

***DRAFT***  
***Joint Platform***

July 2021



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Jaclyn Mandoske (BCDC), Schyluer Olsen  
(BCDC), Jaclyn Mandoske (BCDC); Page 3  
Elizabeth Constantine.

# Getting ready for sea level rise

The Bay is rising. The time to act is now.

For most of the eight million of us who live around San Francisco Bay, sea level rise seems like a sleeper issue. As we walk the dog along our favorite waterfront, the waves don't seem any taller. As we wait in traffic at the Bay Bridge toll plaza, the water level looks the same as ever. After a storm, however, those trying to traverse Marin's Lucky Drive, Sonoma's Highway 37, or San Jose's 237 underpass are noticing more flooding. Sea level rise is already starting to affect our highways and commutes; another foot or two will seriously impact our homes, jobs and safety.

It's subtle, but the Bay, fed by a swelling Pacific and melting glaciers and ice sheets, is growing faster than you think. The rise is slow and steady now, but around about 2040 scientists project it will speed up. By then, in the time it will take a kindergartener to get through college, it will be too late to start to prepare for water pouring onto our airport runways and into our shoreline streets. And though you can't see it, the groundwater table is also rising under your feet – pushed up as the Bay pushes in. Before long a big storm—like the train of atmospheric river events that drenched us over and over in 2017—will bring water into our basements and BART stations, onto our bridge approaches, even to the ballpark.

Going into another California drought, on high alert for another fire season, it's easy to push sea level rise to the back burner. But the San Francisco Bay Area metropolitan region stands to be one of the hardest hit coastal areas in North America. Sea level rise will be worse here than other places for a variety of reasons involving ocean conditions, atmospheric changes, and Pacific geography—not to mention the fact that we've built right up to the edge of every shore. The threat is no longer vague. It's past time for us to get ready.

## People, Economies and Ecosystems At Risk of Rising Seas



28,000 socially vulnerable residents



13,000 existing housing units and another 70,000 new housing units



104,000 existing jobs and another 85,000 new jobs



20,000 acres of depressional wetlands, lagoon and tidal marsh habitat



5 million daily highway vehicle trips



60,000 daily rail commuters

**Figure 1** | Impacts from flooding that could occur at 48" Total Water Level (TWL) from the ART Bay Area Regional Sea Level Rise Vulnerability and Adaptation Study (March 2020). We could see these impacts temporarily as soon as 2030, and they may become permanent by 2060. TWL is an approach to signifying a number of possible sea level rise and storm surge combinations contributing to the same level of flooding.





Community members enjoy the waterfront at Heron's Head park in San Francisco. Photo by the Port of San Francisco licensed under CC BY 2.0.

Many of our families came to this region for its freedoms, natural beauty, diverse cultures and myriad opportunities. Over the decades we've grown even more diverse, and ever more activist as we battle to save this creek, or stop that pollution, or insist on equity. We're restoring wetlands around the Bay, and taxing ourselves to do it, enhancing a natural first line of defense against flooding. So as we face down the advancing Bay we don't have to start from scratch. Your city, your county, your regional government is already working on it. Now it's time for everyone to join the effort.

Preparing for the flooding, erosion, disruption and losses to come – whether our home, business or favorite picnic area – is something we all have to do together. Whatever the best local solution, we have to consider our neighbors. If well-to-do waterfront towns build sea walls, the Bay will just find the next weak spots on the shore and flow there. That town may have a smaller tax base or more elderly or vulnerable residents. If we leave them unprotected, families will be forced to move away from familiar places such as schools and places of worship, sometimes with no place else to go. Waiting for the aftermath of this slow-moving disaster will just cost the region more later in

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emergency services, habitat loss, building repairs, and lost family time and productivity.

There's no way around the need to think and plan like a region, rather than as individual communities, because the water that's coming knows no boundaries. Space for solutions is limited. But, together, we can adapt to the increasingly scary checklist of challenges to Northern California: more flooding, more fires, more smoke pollution, hotter days and differeing availability of fresh water. We won't get this done, and it will cost too much in damage to lives and property, if we don't act now, together.

# What is the Joint Platform?


## A regional strategy for a rising bay.

Adapting to sea level rise will require a broad range of planning, policy, community, and project decisions that promote the protection of people, infrastructure, and natural systems. In such a diverse and engaged region, adaptation will also require balancing many interests and needs, ranging from the health of the most vulnerable residents and the Bay ecosystem to local economic growth and jobs, services, housing, and recreational opportunities.

Much adaptation will and should occur at the local city or county levels, where adaptation planning is already accelerating. However, we live in a highly networked region where impacts in one area, and responses to them, have cascading effects around the Bay. A coordinated approach across the region can reduce unintended consequences and greatly enhance local efforts. Collective action can be expedited by shared goals that help communities find and enact their own solutions. No one agency, jurisdiction or community can or should go it alone.

For the past five years, the Bay Area has been thinking about this problem in earnest. Forward-thinking planners, scientists and activists have already laid some important groundwork, and pinpointed the areas and communities that will be most at risk. Since 2019, Bay Adapt has worked to establish regional agreement on the actions necessary to protect people and the natural and built environments from rising sea levels.

Bay Adapt was convened by the San Francisco Bay Conservation and Development Commission, a state agency, in partnership with a broad range



*We envision a Bay Area  
that is resilient and  
adaptive far into the future.  
As the region grows and  
changes, such resilience  
can only be achieved by  
supporting collaborative  
action, fostering greater  
equity among residents,  
and sustaining the unique  
ecosystems we all rely  
upon and thrive within.*

of Bay Area leaders. The principles, actions, goals, and tasks in this document—a Joint Platform for adaptation—were developed in close collaboration among BCDC staff, a large Leadership Advisory Group, and hundreds of stakeholders.

In 2020 and 2021, stakeholders participated in dozens of work group meetings to discuss and shape the platform. The platform was also informed by one public forums, ten community and stakeholder focus groups, over 50 presentations to boards and groups around the region, and an environmental justice caucus convened regularly throughout the process. Bay Adapt staff also made dozens of presentations to interested groups, local government staff and elected officials all around the Bay to see their contributions. In other words, this platform, and the ideas in it, belong to everyone, and seek to serve everyone, now and into the future.

## Sea level rise in our regional plans.

Plan Bay Area 2050 is the region's long-range strategic plan focused on the interrelated elements of housing, the economy, transportation and the environment. Set to be adopted in fall 2021, Plan Bay Area 2050 is the first multi-topic plan of its kind to question what the future will look like in the face of sea level rise and other natural hazards. How will these threats impact housing, transportation, environmental and economic goals? What are the consequences if we don't plan ahead?

Starting with Horizon, Plan Bay Area 2050's preliminary research and analysis phase, MTC/ABAG integrated the best available sea level rise mapping into imagining the impacts of sea level rise within the 2050 timeline of the plan.

Plan Bay Area 2050's Implementation Plan identifies key actions that MTC/ABAG and its partners should take to adapt the region to sea level rise. While these actions are compatible with Bay Adapt's task and will be implemented in partnership with Bay Adapt, they are part of a larger, multi-element plan and do not go into the level of detail on sea level rise that Bay Adapt does.

Plan Bay Area has been, and will continue to be, a critical tool for region-wide resilient land use decisions as sea levels rise. MTC/ABAG will continue to be key partner for planning, funding, and implementing adaptation solutions in the Bay.



Rather than specifying individual projects, the platform lays out guiding principles, overarching region-wide actions, goals and tasks. Its aim is to overcome barriers, identify keys to success, and share targets to help the region achieve:

- Flood protection and reduced flood risk for communities, businesses, infrastructure, and habitat.
- Robust integration of adaptation into community-focused local plans.
- Recognition and support for frontline communities.
- Accelerated permitting and faster project construction.
- Technical assistance for local governments to plan and implement projects faster.
- More funding for adaptation that is easier to get.
- Metrics for deciding what makes the best kind of adaptation plan or project (equitable, efficient, multi-benefit, nature-based, and coordinated with others).

The Joint Platform will help the Bay Area engage in faster, better, and more equitable adaptation to a rising Bay. In the coming months, those who developed it—from waterfront residents to government leaders to climate scientists and business owners — will make it more public. Engaging the entire region in collective action requires clear agreement on the path forward and checks and balances to ensure no voice is left unheard, and no community left behind. This platform provides that roadmap for adaptation.



A vertical satellite image of the San Francisco Bay Area, showing the bay, surrounding cities, and green hills. The image is positioned on the left side of the page.

# Where do we start?

## Preserving what we care about.

The Bay Area is the most culturally and geographically diverse region in the United States, with people of color comprising 59% of our population. More than 75% of residents believe that racial diversity is what makes the Bay Area such a great place to live. Our region is also called the “Bay Area” for a reason - the Bay is the defining characteristic of our geography and defines so much of our economy, infrastructure, and lives. Residents cherish the beautiful blue expanse of San Francisco Bay, and their ability to walk beside it, sail over it, and marvel at its open horizons. With its diverse habitats—beaches, wetlands, grasslands, tidal flats, lagoons and more—the Bay supports hundreds of species, ranging from critically endangered salmon and marsh mice to charismatic sea lions, busy beavers, and wayward whales. Thanks to decades of careful stewardship and public investments in shoreline parks and habitats, the West Coast’s largest Estuary is both more habitable and healthier for humans and wildlife alike. Our diversity of people and habitats also supports one of the most innovative economies in the world. The Bay Area is a hub of technology, industry, agriculture, services, and more, though it now faces significant challenges in income equality.

Within this context is both diversity and inequity. Deciding which climate change adaptation options are right for each community can be complex. Across our cities, counties and communities, we have different histories, different challenges and different opportunities. Many people contribute to making these decisions, and lots of considerations go into deciding what the right solutions may be for each particular waterfront. But if we are to prepare ourselves fully for sea level rise on a regional basis, cities and counties must work with local communities and the state and federal governments to make decisions about what should—and shouldn’t—exist along the shoreline in the future.



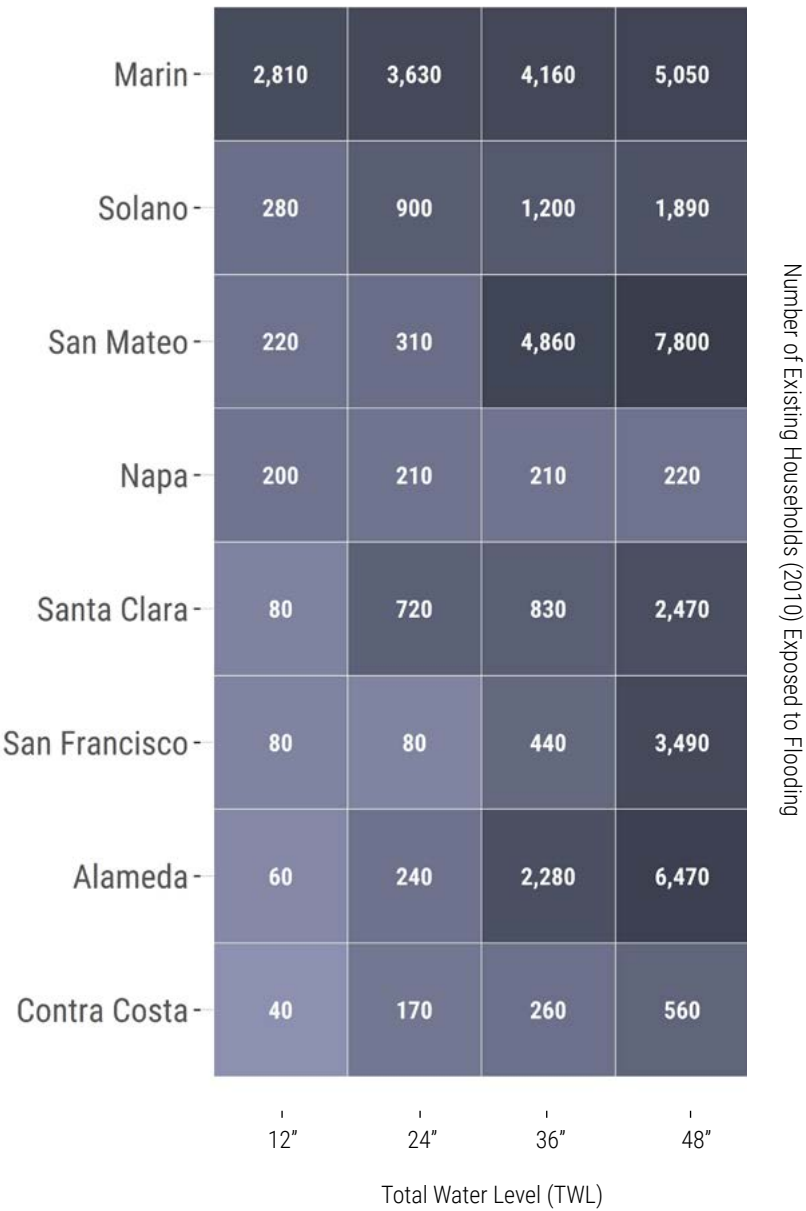
# Centering and protecting people and wildlife.

The risks from sea level rise, and the resources necessary to address those risks, are unequally distributed across the Bay Area. New laws and policies at the federal, state, regional, and local level acknowledge the unequal burdens faced by low-income communities of color and begin to take steps to address these inequities. Our most vulnerable neighbors in the Bay Area are those who must contend with social and economic barriers that diminish their capacity to prepare for, respond to, and recover from a harmful event such as a flood. More specifically, communities living close to the water, such as in East Palo Alto, San Rafael's Canal District, Vallejo, San Francisco's Bayview, West Oakland and San Jose's Alviso neighborhood are most at risk.

Natural ecosystems could face a similar plight. When given a choice between an endangered salmon and a farm, a wetland or a vineyard, a nesting island or a waterfront hotel, it can be difficult for wildlife and open space to prevail in the battle over priorities and money. Preserving shoreline habitats will require prioritizing sediment to built up wetlands and providing room for habitats to migrate upslope. But sediment is limited and most wetlands abut development and levees.

The health of Bay ecosystems is inextricably linked to our way of life and quality of life. We continue to learn how nature protects people from natural disasters and improves public health. But as water levels rise coastal habitats risk being drowned and lost. Both nature, and people, will suffer.

## Unequal Distribution of Sea Level Rise Risks to Vulnerable Communities



**Figure 2 |** Counties with highest impacts to socially vulnerable residential units from flooding at four TWLs as measured by impacts to 2010 residential units. Darker colors reflect greater consequences. Data from ART Bay Area Regional Sea Level Rise Vulnerability and Adaptation Study: Chapter 2.6 Vulnerable Communities (March 2020).

## Working with communities.

Recognizing the critical importance of community voices and perspectives on the development of the Joint Platform, the Bay Adapt team partnered with Nuestra Casa in East Palo Alto and Vallejo Housing Justice Coalition in Vallejo to conduct a series of community focus groups. Community members were introduced to flooding issues specific to their communities, proposed actions in the Bay Adapt joint platform, and invited to share their experiences, concerns, and priorities for their communities. In East Palo Alto, community voices were represented by African American, Pacific Islander, and Latinx cohorts, while in Vallejo, community voices were represented by residents involved in a range of local organizations such as housing, climate change, environmental justice, and others. Bay Adapt recognizes that these community meetings provided an essential first step in building trust with communities, and that continued participation and partnerships must continue to occur to advance equitable adaptation outcomes for the region.



Nuestra Casa's Parent Academy provides programs for community members and has begun Environmental Justice community trainings. Photo by Nuestra Casa.

The Joint Platform places a high value on both the region's diverse people and its ecosystems. The document explicitly acknowledges the disproportionate risks and burdens on communities of color and other historically marginalized populations, and suggests actions to elevate the communities most affected by sea level rise and increase decision-making power in them. With people at the center of solutions, the Bay region can be a national model for equity in resilience planning.

The Joint Platform also prioritizes natural habitats to support a healthy, resilient Bay. Going green, deploying as many nature-based strategies for shoreline adaptation as possible, is already a regional priority. Taking actions to support healthy Bay ecosystems now and as sea levels rise is

essential, not only for the many other benefits they provide but as they are also our first—and most at risk—line of defense from rising seas. Our efforts now will affect the health and livability of the Bay Area for generations.



# Guiding Principles for the Joint Platform



## Support socially vulnerable communities

Actively ensure that socially vulnerable communities don't just bounce back in the face of sea level rise, but "bounce forward" by providing additional resources and support to areas where socially vulnerable communities live, work, and play and reducing negative impacts to these communities. Climate change will disproportionately impact marginalized communities with fewer resources.



## Put nature first whenever possible

Prioritize natural infrastructure solutions that benefit ecosystems and the health of the Bay as well as people, especially in the near-term. Adapting to rising sea level will require a mix of green and gray infrastructure. There is a national realization that working with nature, instead of against it, can produce better results for both people and wildlife.



## Solve multiple problems together

Prioritize adaptation actions that maximize regional risk reduction to flooding and sea level rise and minimize tradeoffs within the context of other regional priorities such as housing, economy, social equity, habitat protection, and other climate risks. Sea level rise and flooding is just one of several regionally interconnected crises facing the Bay Area.



## Practice inclusive, community-led governance and decision-making

Remove barriers and enhance capacity to increase transparent, coordinated decision-making among community members and organizations and local, regional, state, and federal governments that acknowledges and leverages the unique roles, responsibilities, and authorities at each scale. Adaptation outcomes will better protect the entire region when all interests, including those who know their neighborhoods and communities best, contribute and collaborate in reducing risk.



## Support existing efforts but plan for the long term

Support, encourage, and learn from early innovators charting a new course for the region, especially for wetland restoration, while maintaining a long-term vision for more complex planning and investments. Early action is important for regional learning, setting precedents, and shorter-term flood control, and widespread or significant capital investments require careful and collaborative planning.



## Pick the right strategy for the right place at the right time

Ensure that local and regional investment strategies to address flooding and sea level rise are grounded in local needs, conditions, and plans, and are phased to allow for uncertainty, flexibility, and iteration. The Bay is a collection of distinct places with unique physical and social conditions and there is no "one size fits all" solution – or timeline – to address climate-related impacts.

# What does adaptation look like?

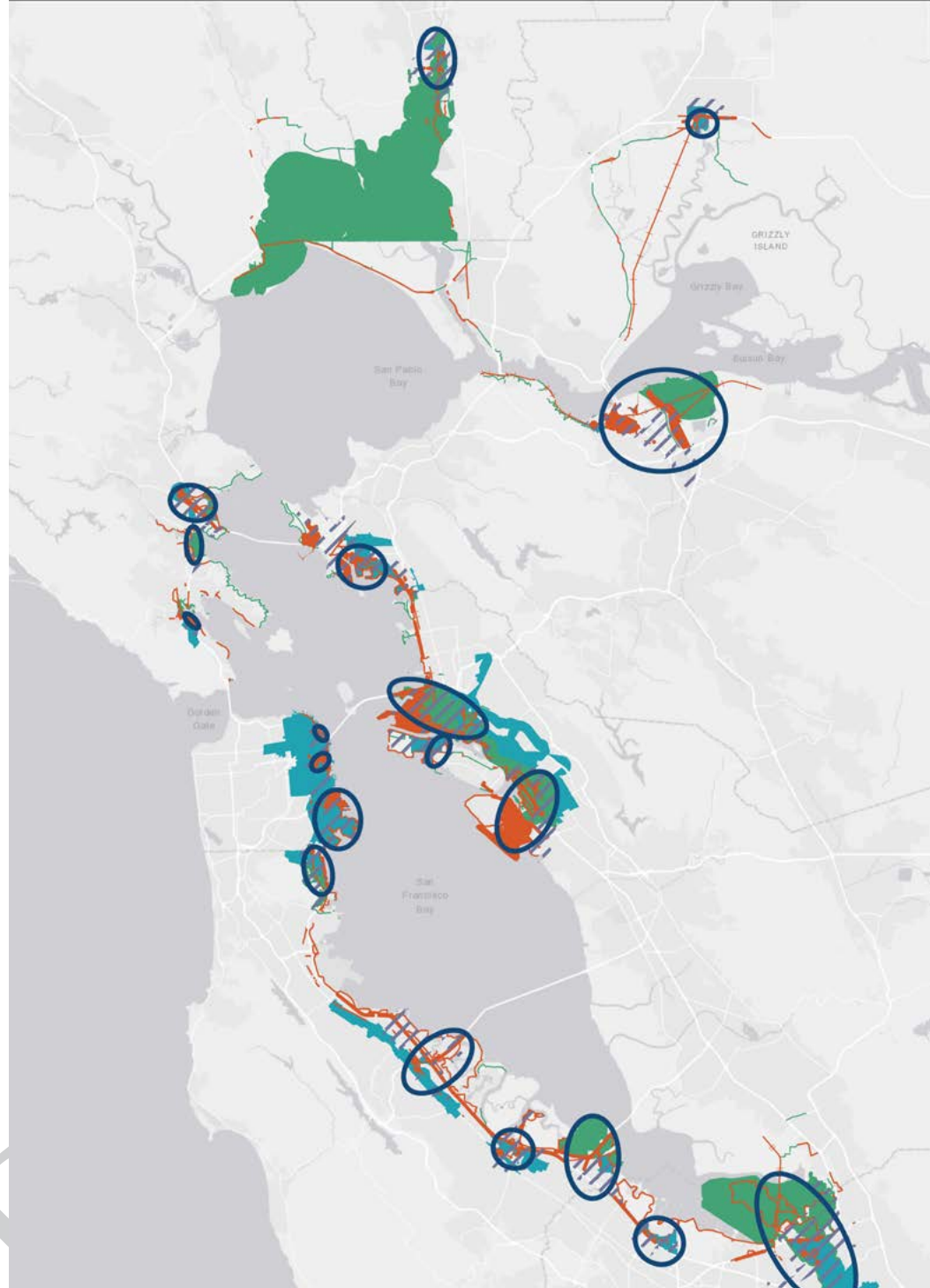
## Developing targeted solutions.

In the climate change arena, adaptation is different from mitigation, through which we all try to reduce our carbon footprints. On the other hand, adaptation refers to our making changes to how we live based on changing conditions, to reduce hazards and increase resilience to future conditions.

In the Joint Platform, adaptation refers to plans and projects that either prepare us for sea level rise or improve our ability to alter our shorelines to reduce its risk. Adaptation also will spur innovation as we learn how to co-exist with more water in the future.

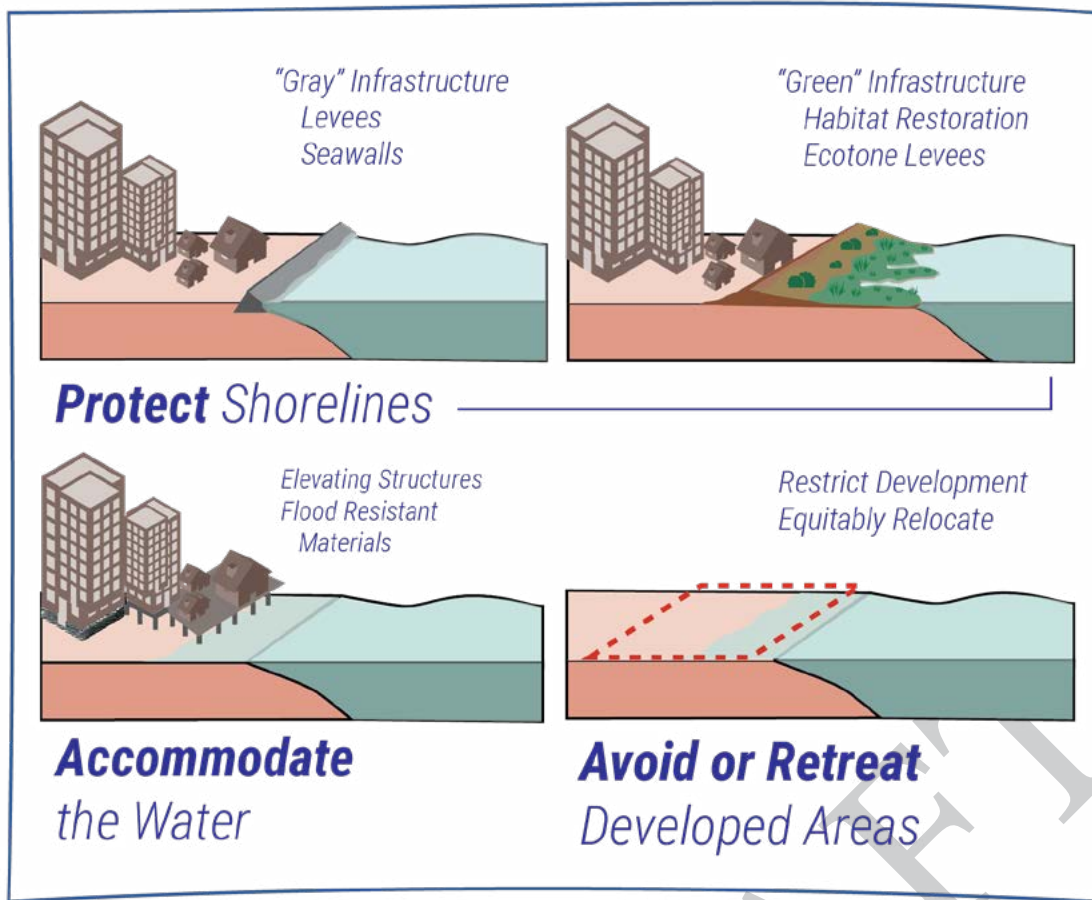
In some cases, we will adapt by restoring natural wetlands to absorb more water and buffer us from storms, while in other places we will build higher protections, such as seawalls, to keep water out. We may also avoid building new roads or homes in areas that are likely to flood or become wetland habitat. Sometimes adaptation may even require removing things that are already built out of harm's way.

Bay Adapt helps to set the stage for successful adaptation. Each community will need to decide which approach is best now, and over time. The actions in Bay Adapt help support multiple adaptation approaches we need to think about before it's too late.



**Figure 3 |** Regional “hot spots” for ten TWLs (12” - 108”) identify areas in the region with highest consequences to flooding to vulnerable communities, transportation networks, and urban growth areas or open space. Data from ART Bay Area Regional Sea Level Rise Vulnerability and Adaptation Study: (March 2020).





**Figure 4** | Different adaptation approaches facilitated by the actions in Bay Adapt seek to prepare the region to equitably respond to sea level rise, while also strengthening implementation and ensuring lessons are learned over time.

## Prepare

- Actions that help us set the stage to make decisions about what to do next that are equitable, inclusive, and based on science, local knowledge and values.
- Agreement on a shared approach and best practices about who makes decisions, what informs those choices, and how we plan and fund those decisions equitably to address disproportionate impacts and consequences of flooding on the most vulnerable.

## Protect, Accommodate, Avoid or Retreat

- Actions that change the physical characteristics of the shoreline, such as building engineered structures (gray infrastructure) and/or using and integrating natural ecosystems (green infrastructure) to

protect shorelines from flooding.

- Projects that accommodate flooding such as preserving transition zones for wetlands, elevating structures, or using flood resistant materials.
- Efforts to retreat from the shore, such as removing existing development or avoiding placing new development in areas at risk of flooding.

Sea level rise will change our way of life in the Bay Area dramatically. Our daily commutes, the goods and services we depend on, the places in which we live and work, the natural spaces that protect habitat and make the Bay Area a beautiful place to live, will all be affected. The Bay Adapt Joint Platform's 6 Guiding Principles, 9 Actions and 21 Tasks suggest a way forward for us all.

# Joint Platform Actions

## PEOPLE

**Action 1: Collaborate on a “one Bay” vision to adapt to rising sea levels.**

Task 1.1: Create a long-term regional vision rooted in communities, bay habitats, and the economy.

Task 1.2: Lay the foundation for a proactive regional legislative agenda.

**Action 2: Elevate communities to lead.**

Task 2.1: Improve how communities and public agencies learn from each other and work together.

Task 2.2: Fund the participation and leadership of CBOs and frontline communities in adaptation planning.

## INFORMATION

**Action 3: Broaden public understanding of climate change science and impacts.**

Task 3.1: Tell local and regional stories about people and places adapting to climate change.

Task 3.2: Weave climate literacy into school programs.

**Action 4: Base plans and projects on the best science, data, and knowledge.**

Task 4.1: Align research and monitoring with information gaps.

Task 4.2: Make scientific data, information, and guidance easier to access and use.

Task 4.3: Increase access to technical consultants for local adaptation partners.

## PLANS

**Action 5: Align local and regional plans into a unified adaptation approach.**

Task 5.1: Provide incentives for robust, coordinated adaptation plans.

Task 5.2: Align state-mandated planning processes around adaptation.

**Action 6: Figure out how to fund adaptation.**

Task 6.1: Expand understanding of the financial costs and revenues associated with regional adaptation.

Task 6.2: Establish a framework for funding plans and projects.

Task 6.3: Help cities and counties expand ways to fund adaptation planning and projects.

## PROJECTS

**Action 7: Refine and accelerate regulatory approvals processes.**

Task 7.1: Accelerate permitting for equitable, multi-benefit projects.

Task 7.2: Tackle environmental regulations and policies that slow down progress on projects.

**Action 8: Fund and facilitate faster adaptation projects.**

Task 8.1: Incentivize projects that meet regional guidelines.

Task 8.2: Encourage collaboration among people doing projects in the same places.

Task 8.3: Facilitate faster construction of nature-based projects.

## PROGRESS

**Action 9: Track and report progress to guide future actions.**

Task 9.1: Measure regional progress using metrics and share results.

Task 9.2: Monitor and learn from pilot projects.





# People

Community forum in East Palo Alto on rising sea level. Photo by BCDC.

*As we adjust the way we live, work, and play to adapt to a changing climate, we must ensure that we both act together with true regional vision, and also ensure that this transition does not reinforce pre-existing inequities. It's time to ask ourselves who is leading, who is deciding, and how do we all get on the same page? Frontline communities that will feel the most acute impacts from sea level rise have the local knowledge needed to come up with equitable solutions. Likewise, legislators in Sacramento and Washington need to hear our collective voice loud and clear -- while the Bay is only one third of California's shoreline, two-thirds of the State's total sea level rise impacts will occur in the Bay Area.*

## ACTION 1: Collaborate on a "one Bay" vision to adapt to rising sea levels.

### Goals:

- A shared vision for regional adaptation that reflects the Bay Area's diverse conditions and communities.
- A proactive legislative agenda supporting sustained adaptation.

### TASK 1.1: Create a long-term regional vision rooted in communities, bay habitats, and the economy.

Engage communities and stakeholders in envisioning a resilient future shoreline, relying on grassroots input from start to finish. The vision must be built on a deep understanding of local needs to reflect their unique social, cultural, economic, and physical needs and be integrated with regional environmental, housing, transportation, economic and other priorities, including visions already established for these sectors, such as in Plan Bay Area 2050 or the Baylands Ecosystem Habitat Goals.

The vision should use Bay Adapt's guiding principles to explore what adaptation looks like at ground level, and around the Bay, beginning in the most at-risk frontline communities.

Develop the vision using a transparent and iterative process. The deliverables from this task will be

utilized throughout many other tasks included in the Joint Platform and should include:

- Regional and sub-regional objectives, tied to measurable metrics (such as safety, equity, a functioning and thriving ecosystem, shoreline access, and economic growth), to be used for tracking progress in Task 9.1.
- Guidelines, evaluation methodologies, and technical modeling capacities for evaluating local plans and projects for funding and other incentives (Tasks 5.1, 6.2, and 8.1).
- An assessment of the suitability of locations around the Bay for different project types and timelines, building off existing analysis such as the Adaptation Atlas. This can be used in conjunction with the above guidelines to incentivize the right kinds of actions in the right locations.



**Figure 5** | Many different tasks outlined in the Joint Platform directly flow from the vision, guidelines, and metrics outlined in Task 1.1, either directly or indirectly.

## TASK 1.2: Lay the foundation for a proactive regional legislative agenda.

Build a unified advocacy voice for Bay Area adaptation needs. In the short term (next two years), pilot a legislative working group to work toward consensus on regional priorities and shared criteria for future legislation while taking advantage of opportunities within current state and federal legislative sessions. Foster relationships with state and federal legislators. Build support for the 9-county Bay Area as the basis for new regional climate adaptation programs. In the mid-term (2-4

years), build support for multi-year sources of funding for a wide range of adaptation activities, such as a regional ballot measure. Identify and collectively advocate for additional regional needs that would require legislation, such as regulatory changes, planning guidance, new fiscal authorities, and funding support. In the long term (5+ years), coordinate, update and communicate legislative needs on a biennial basis, such as through an annual legislative agenda.

## ACTION 1 BENEFITS



### EQUITY

Elevates frontline community voices in long-term regional visioning and advocacy.



### ENVIRONMENT

Elevates environmental advocacy voices in long-term regional visioning and advocacy.



### ECONOMY

Elevates business and economic voices in long-term regional visioning and advocacy.

## ACTION 2: Elevate communities to lead.

### Goals:

- Adaptation grounded in local vision.
- Increased capacity of community members, especially those historically excluded from decision-making, to contribute to the process.
- Long-term funding that supports sustained community leadership and equitable partnerships among communities and governments.

### TASK 2.1: Improve how communities and public agencies learn from each other and work together.

Support a region-wide training program to help shift governments value place-based expertise, and build community capacity to influence government. Adopt and share best practices for equity-focused adaptation decision-making throughout the region. Ensure that best practices nurture meaningful relationships, center community concerns and priorities, and make community and social benefits clearer.

Training topics for agency staff may include general environmental justice and local histories, community mapping, culturally appropriate communication, meaningful community engagement at all phases of planning, use of community benefit agreements, alternative approaches to traditional cost-benefit analyses, and measuring successful engagement.

In addition, support community leaders in raising awareness and capacity within their own communities. Host trainings for communities on sea level rise risks, adaptation options, community storytelling, and best practices for engaging effectively with governments. Whenever possible, choose community-based organizations (CBOs) or community members to lead trainings geared toward government and communities.

**“Conversations and decisions are being made without the community’s input. How do we make sure that people’s stories and perspectives are at the forefront?”**

**- East Palo Community Focus Group Participant**

### Ideas for the Bay Area

*BayCAN, the Bay Area’s Climate Collaborative, hosts an Equity Work Group that has developed trainings and an equity resource guide that is available on its website. [Access the BayCAN Equity Work Group Resource.](#)*

*The Greenlining Institute, an Oakland-based advocacy group, has created a guidebook to help users embed equity in a meaningful way in climate adaptation and community resilience policies and programs. [Access the Guidebook.](#)*

*A coalition of community organizations in East Oakland partnered with the City of Oakland to secure a **Transformative Climate Communities** grant for local equitable climate planning. City staff and community groups collaborated on the scope of work, goals, and budget for the project. The resulting community-driven plan led to a \$28 million implementation grant. [Access the Plan.](#)*

*The **West Oakland Environmental Indicators Project** received a Restoration Authority grant to lead a Shoreline Leadership Academy to raise the capacity of local frontline community residents to engage and lead in climate adaptation. Participants are paid for their time to develop plans for the shoreline while increasing their knowledge and participation.*



## TASK 2.2: Fund the participation and leadership of CBOs and frontline communities in adaptation planning.

Establish a stable and ongoing funding program to support frontline communities and CBOs as full partners and leaders in adaptation planning. Use the funding to build and sustain community capacity to participate in decision making. Support CBO operating expenses, staffing, stipends for community representatives in planning processes and meetings, and expenses associated with participation such as transportation, food, and childcare. Also fund the community training and capacity-building programs identified in Task 2.1, and CBO staff dedicated to community engagement.

Consider state budget or bond allocations, legislation, grants, development fees, or regional funding measures as sources of funding. Equity

**“It is harder to ask communities to engage on something that they have not been involved in shaping. You need representatives with direct experience and engagement in these communities, what they want, and agency staff typically doesn’t have that.”**

**- Bay Adapt EJ Caucus Member**

initiatives could receive a dedicated percentage of resilience-focused funding, for example. Other initiatives to increase community funds could include supporting collaborative grant-writing or streamlining the process for governments or industry partners to contract with CBOs (such as setting up a bench of CBOs available for fee-based consulting and managing those contracts on behalf of the CBOs).

## ACTION 2 BENEFITS



### EQUITY

Elevates frontline community members as key decision-makers and compensates them for their time and expertise.



### ENVIRONMENT

Community-based solutions often prioritize natural resources that people value, promoting local stewardship.



### ECONOMY

Community-based solutions often prioritize local businesses and jobs, keeping local economies thriving.



Community forum in East Palo Alto on rising sea level. Photo by BCDC.

# Information

Stakeholder working group for ART Bay Area in San Jose. Photo by BCDG.

*Cities, landowners, residents and students all need to understand how the latest science on sea level rise, and the changes it will bring to our region, applies to their lives and decisions. We also need ways to share our stories, struggles, and successes as we confront climate change and do our best to adapt. But where do we find this science and these stories? How do we share the best of them? Stories of individual and shared experiences of change are the foundation of future action. Engaging youth through school programs focused on climate literacy can also help build a more resilient future. Understanding risks, consequences, options, and tradeoffs enables everyone to be part of the solution.*

## ACTION 3: Broaden public understanding of climate change science and impacts.

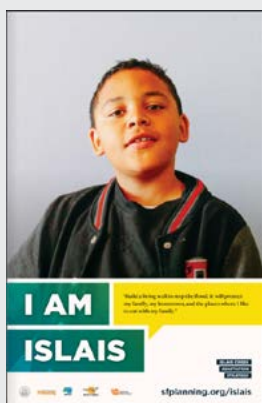
### Goals:

- Increased climate literacy in the region's general public.
- Communities and youth who are better prepared to plan and implement adaptation solutions.
- More value placed on community history and first-hand experience.

### TASK 3.1: Tell local and regional stories about people and places adapting to climate change.

Launch a sustained storytelling campaign to amplify awareness of climate change and sea level rise impacts in the Bay Area. Listen and learn from residents' direct experiences and empower them to advance their own solutions for climate adaptation. Encourage youth, neighborhoods, and frontline communities to shape and share their own stories. Base stories on local successes and hopeful narratives about what makes the Bay Area special,

including the region's unique natural ecosystem and culture of activism. Share stories widely, and make them available on diverse platforms – newspapers, radio, television, social media, neighborhood news apps, and the web. Use these stories to train local government staff about the communities they serve and increase trust between communities and local staff (coordinated with the trainings outlined in Task 2.1).



### Ideas for the Bay Area

As part of the **Islais Creek Adaptation Strategy**, the San Francisco Planning Department developed a magazine, **I Am Islais**, that provided a platform for residents and stakeholders to speak about sea level rise in the neighborhood and how it would affect their lives. Platforms like these allow residents to have their voices heard.

**TASK 3.2: Weave climate adaptation literacy into school programs.**

Support partnerships between public and private schools and community-based organizations (especially those led by youth and frontline community members) to educate students about ways to adapt to climate change. Public schools in particular engage a wide audience. Share adaptation visions, tools, and local pilot projects showcasing innovation with teachers, students, school districts and parent associations. Support schools so they can get more involved as partners in educating their local communities about rising sea levels and as leaders in elevating the importance of climate action and adaptation. Help schools offer both climate-literate curriculum and career pipeline opportunities based in diversity and inclusivity. Provide our future workforce with the knowledge and experience to tackle climate problems with equitable and innovative solutions.

**Ideas for the Bay Area**

*The **Mycelium Youth Network** partnered with The Exploratorium and BCDC to engage local youth in the science, political issues, and civic processes involved in responding to climate change and its impacts on infrastructure and people. The collaboration produced **Water Is Life**, a program that offered an in-depth analysis of water justice issues with a specific focus on sea level rise, and how sea level rise will impact the entire Bay Area. The program reached 150 students at several Title I schools around the Bay Area, including Leadership High School and Mission High School in San Francisco, and Elmhurst United Middle School in Oakland. [See it Here.](#)*

*The **San Mateo County Environmental Literacy Program** works with school districts, community-based environmental literacy partners, educators, and youth to actively integrate environmental sustainability into school communities, classrooms, and program. [Learn More Here.](#)*

**ACTION 3 BENEFITS**



**EQUITY**

Empowers frontline community members through increasing awareness about climate risks, sharing their stories about their own communities, and engaging youth in schools.



**ENVIRONMENT**

Raises awareness of the health and future of the Bay and its resources and the value of natural and nature-based solutions in addressing rising sea levels.



**ECONOMY**

Prepares youth to enter climate resilience careers and increases public awareness and support of adaptation actions, lessening likelihood of economic damages during flooding.



## ACTION 4: Base plans and projects on the best science, data, and knowledge.

### Goals:

- Data and research tailored to the region's specific needs.
- Accessible research, science, and monitoring information.
- User-friendly technical support.

### TASK 4.1: Align research and monitoring with information gaps.

Partner with academics, scientists, and residents to fill information gaps through original research, data collection, analysis, or monitoring observations. Value local knowledge from residents, particularly in frontline communities, and use it to inform research needs and priorities. Prioritize co-production of data and tools with communities through community-based asset mapping and storytelling or participatory science to form a more complete data picture. Tailor the interpretation of science to the audience. Curate and archive information for use across decades.

From a technical perspective, information needs include:

- Enhanced regional flood modeling related to multiple hazards (such as groundwater, watershed, riverine/tidal, subsidence, erosion).
- Expanded networks of water elevation monitoring stations for real-time updates to the rate and timing of sea level rise in the Bay.
- Expanded open data initiatives to facilitate sharing.
- Standard operating procedures for validating and nominating data for common use.
- More research on the cost and suitability of adaptation strategies for different Bay conditions.
- Research on the equitable distribution of burdens and benefits of adaptation.



### Ideas for the Bay Area

Created in 2000, the **California Ocean Science Trust** recognizes the value of independent science and the opportunity to better connect the wealth of scientific expertise in academia with policy and management decisions in the state. The Ocean Science Trust seeks and provides funding for ocean resource science projects and encourages coordinated, multiagency, multi-institution approaches to ocean resource science. It can serve as a model for how to connect real-world planning and policy needs with scientific and academic research but be adapted for the unique needs and constraints of the Bay Area. [Learn More Here.](#)

The **Wetlands Regional Monitoring Program (WRMP)** is convening stakeholders from a broad range of backgrounds and expertise to develop a regional monitoring program for wetlands in the Bay Area. The program aims to use wetland habitat data to improve the efficiency of permitting and monitoring wetland restoration projects and to evaluate the condition of the tidal marsh ecosystem at a regional scale. [Learn More Here.](#)

## TASK 4.2: Make scientific data, information, and guidance easier to access and use.

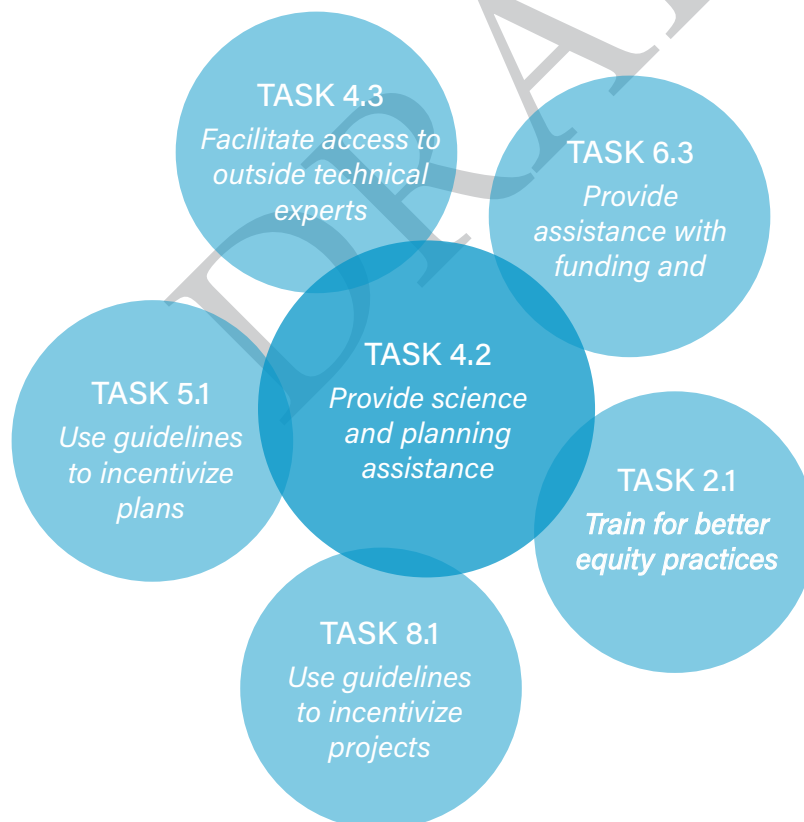
Help users understand where, when, and how to use climate science and planning tools. Provide technical information to everyone involved to facilitate all stages of their adaptation journeys. Improve and ease access to the most relevant information, helping users achieve equitable adaptation outcomes faster and more efficiently. This can come in the form of a technical assistance “storefront” that offers:

- Standardized, up-to-date scientific data, such as common flood models and sea level rise projections, as created by the Climate Science Consortium.
- Individualized consultations via a professional help desk network.
- How-to guidance on the best use of vulnerability assessments in developing

adaptation plans.

- Adaptation plan and project examples and case studies.
- Tools for evaluating adaptation options.
- Best available science white papers on groundwater rise or expanded financing options, and other issues.
- Lecture series, conferences, trainings, working groups, and/or workshops.
- Access to a technical consultant bench (Task 4.3).

This assistance should be closely linked to an independent Climate Science Consortium to provide high-quality science translation tailored to the Bay Area’s needs and fed by the research outlined in Task 4.1.



**Figure 6** | Many different tasks outlined in the Joint Platform should connect to and coordinate with the technical assistance outlined in Task 4.2; however, they are not included in the task because they have technical assistance as their secondary function and/or have a natural home elsewhere.

**TASK 4.3: Increase access to technical consultants for local adaptation partners.**

Establish a region-wide consultant bench that cities, counties, and for and non-profit organizations can tap for technical services. Use regional planning and project guidelines (Task 1.1) to articulate common technical needs in region-wide RFPs for consultants to serve on the bench. Also use guidelines (Task 1.1) to evaluate proposals from potential consultants. Contract with consultants to be “on call” for cities and counties, as needed. Simplify and manage contracting processes. Vet consultant-led goods and services to ensure they align with the region’s vision and objectives.

**Ideas for the Bay Area**

**MTC/ABAG’s Housing Technical Assistance (TA) Consultant Bench** *is an effort to recruit and vet multiple consultants with various skill sets to support local planning at favorable rates to facilitate access to consultant resources, achieve economies of scale, and reduce costs. ABAG will use this bench to support regional TA efforts, and local jurisdictions will be able to use it to connect with specialized resources on a wide range of issues and services using their SB2, LEAP, REAP, and PDA planning funds. [Learn More Here.](#)*

**ACTION 4 BENEFITS**



**EQUITY**

Elevates local knowledge and needs in the development of data to inform decision-making and ensures data transparency and accessibility to communities.



**ENVIRONMENT**

Better guidance, data, and feedback on projects that preserve and enhance habitats and on natural and nature-based solutions to increase support, usage, design, and implementation of these projects.



**ECONOMY**

Increased information and better planning and project processes will expedite shoreline projects, and standardized use of data will help normalize costs and protection of assets.





# Plans

Community engagement for Plan Bay Area 2050. Photo by Karl Nielsen.

*Now is the time to plan for what carrying out the region's adaptation vision should look like to communities around the Bay, and to seek the billions needed to pay for it. Decisions in one community, municipality or new development can displace costs and impacts to others. How can we help locals make successful plans? And how will we pay for new initiatives? As shoreline communities incorporate adaptation into local plans, we must ensure that those plans contribute to a "one Bay" solution, whose goals and objectives are shared across cities, counties and the region.*

## **ACTION 5: Align local and regional plans into a unified adaptation approach.**

### Goals:

- Local plans that are coordinated across the region, and incentivized by expanded adaptation funding.
- Improved and coordinated state planning requirements for adaptation plans and projects.

### **TASK 5.1: Provide incentives for robust, coordinated local adaptation plans.**

Utilize collectively-developed plan guidelines and minimum requirements (Task 1.1), tied to financial incentives (Task 6.2), to develop strong local and community-driven adaptation plans that also contribute to regional goals. Guidance should be available through regional technical incentive programs (Task 4.2). Incentives should include funding to the develop plans.

#### Guidelines may provide:

- Common minimum short and long-term sea level rise climate projections for planning.
- Standard flood data sets.
- Best practices for community engagement and community-led adaptation planning processes.
- Regionally-appropriate strategies for protecting natural areas, frontline communities, public access, regional transportation links, and other critical regional assets.
- Guidance on how to and where to prioritize nature-based solutions along the shoreline where feasible and appropriate.

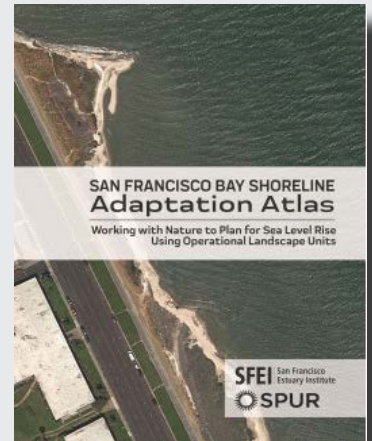
- Land use guidance such as how to plan for habitat migration with sea level rise.
- Guidance on how to consider long-term implications of sea level rise beyond current planning horizons.
- Guidance on how to connect sea level rise planning to other critical topics, including public and environmental health and housing considerations.

### **TASK 5.2: Align state-mandated planning processes around adaptation.**

Assess the state's myriad planning requirements (such as those for housing, local hazard mitigation, social equity, and climate action) through the lens of adaptation planning for conflicts, redundancies, and synergies. Jointly advocate for updated legislation to coordinate these requirements. Also create opportunities and incentives for cross-jurisdictional planning to improve the siloed scope of local plans that are often limited to jurisdictional boundaries.

## Ideas for the Bay Area

*The San Francisco Bay Shoreline Adaptation Atlas has extensively evaluated the Bay shoreline to identify the most appropriate adaptation strategies for the unique physical characteristics shared by different “Operational Landscape Units” around the Bay. It identifies where nature-based approaches can help create a resilient shoreline with multiple benefits and where these solutions can work together across the interconnected Bay to avoid unintended impacts in neighboring locales. The Adaptation Atlas can provide a guide toward appropriate plans and projects in different locations around the Bay to ensure that the most appropriate strategies are considered in any given location.*



## ACTION 5 BENEFITS



### EQUITY

Plan guidelines reward planning processes that value inclusive engagement and equitable outcomes.



### ENVIRONMENT

Plan guidelines reward planning processes that value long-term protection of Bay habitats and natural and nature-based adaptation outcomes.



### ECONOMY

Plan guidelines reward planning processes that value adaptation outcomes that protect jobs, businesses, and infrastructure.

## ACTION 6: Figure out how to fund adaptation.

### Goals:

- Clear assessment of the region's adaptation funding needs.
- Identification of local and regional funding sources and tools.
- Mechanism for prioritizing and distributing funds for adaptation over the next several decades.

### TASK 6.1: Expand understanding of the financial costs and revenues associated with regional adaptation.

Reduce unknowns and uncertainties related to the costs of adaptation. Start by expanding on the existing MTC/ABAG Sea Level Rise Needs and Revenue Assessment, which supports Plan Bay Area 2050 and also advocates for more state and federal funding. Build on and improve the assessment's calculations of what it may cost the region to adapt to sea level rise as well as the cost of inaction. As part of this calculation, consider both actual project costs and the costs of untested or new construction or restoration techniques, as well as the costs for pre-construction phases of action such as engagement, planning, and land acquisition. Also consider when those funds may be needed as sea levels rise. Develop a more in-depth understanding of possible revenue from related special assessments, taxes, and fees to pinpoint the potential financing gap.

### Ideas for the Bay Area

*There are several existing resources that can help serve as the foundation for the services outlined in Task 6.3:*

- **Finance Guide for Resilient by Design Bay Area Challenge** Design Teams, *NHA Advisors, 2018*
- **Paying for Climate Adaptation in California**, *AECOM, 2018*
- **Climate Adaptation Finance and Investment in California**, *Routledge Focus, 2018*
- **Adaptation Finance Challenges: Characteristic Patterns Facing California Local Governments and Ways to Overcome Them**, *California Natural Resources Agency, 2018*
- *The California Grants Portal is an access portal to all grants and loans offered on a competitive or first-come basis by California state agencies. [Learn more here.](#)*
- *The Funding Wizard, hosted and maintained by the California Air Resources Board, is a searchable database of grants geared towards sustainability projects, including climate change mitigation and adaptation. [Learn more here.](#)*

### Ideas for the Bay Area

*The San Francisco Bay Restoration Authority is a regional agency created to fund shoreline projects that will protect, restore, and enhance San Francisco Bay through the allocation of funds raised by the Measure AA parcel tax. The parcel tax generates \$25 million in grants annually for wetland restoration projects throughout the region. The Restoration Authority is overseen and staffed by representatives from several Bay Area government agencies with various types of expertise and authority. The Restoration Authority could either be expanded to fund a wider variety of adaptation projects or could serve as a model for a new adaptation-focused finance authority for the Bay.*



**SAN FRANCISCO BAY**  
RESTORATION AUTHORITY



## TASK 6.2: Establish a framework for funding plans and projects.

Develop and implement a method to aggregate, generate, and distribute adaptation funding for plans and projects. Use guidelines developed in Task 1.1 to direct funding for successful local planning (Task 5.1), and to evaluate and assign funding to proposed adaptation projects included in such plans (Task 8.1). Consider modeling the process on the MTC/ABAG Transportation Project Performance framework, in which partners nominate local projects for evaluation based on specific criteria and then prioritize them for funding. Actively advocate for adaptation funding (Task 1.2), and consider spearheading new regional taxes, fees, or other financing mechanisms to fund plans and projects.

## TASK 6.3: Help cities and counties expand ways to fund adaptation planning and projects.

Provide local governments with expertise and assistance to generate additional funds by identifying, evaluating, and applying local financing tools for local adaptation needs and to apply for other sources of climate action funds (aside from the model proposed in Task 6.2). Work with cities and counties to identify their needs and match the myriad federal, state, regional, and local funding sources to local needs for planning, community engagement, and project implementation. Help local governments understand grant requirements and shape projects to fit them. Assist with project cost-benefit analysis, grant writing, and fulfilling reporting requirements. This assistance should be provided through regional technical assistance outlined in Task 4.2.



**“How can we see future things happening if we can’t even fix our streets and drains?”**

**- East Palo Community Focus Group Participant**

**Figure 7 |** Many different tasks outlined in the Joint Platform should be considered in the funding framework outlined in Task 6.2; however, they are not included in the task because 6.2 focuses on the *creation* of the funding framework while the related tasks rely on the *outcomes* of the funding framework.

## ACTION 6 BENEFITS



### EQUITY

Outlines a process to pay for adaptation that does not rely on a community's wealth, advocacy skills, or grant-writing success to fund plans and projects.



### ENVIRONMENT

Identifies ways to prioritize long-term protection of Bay habitats and natural and nature-based adaptation outcomes in funding decisions.



### ECONOMY

Increases funding for shoreline projects and protection of key assets critical to the region's economic health.

DRAFT



# Projects

Conceptual drawing from Resilient By Design of the Islais Hyper-Creek project.

*Getting adaptation projects approved and built can mire project proponents and contractors in a complex web of regulations and into uncharted territory. It shouldn't be as difficult to build resilient shoreline adaptation projects that value ecosystems and people, align with the region's vision and funding priorities, and apply innovative approaches to the problem before us. Measures to smooth and speed regulatory approvals for multi-benefit projects are important. Other measures can help facilitate place-based collaboration around project development and remove logistical challenges to construction.*

## ACTION 7: Refine and accelerate regulatory approvals processes.

### Goals:

- Less time and fewer resources spent on permitting adaptation projects so they can be constructed ahead of the mid-century increases in the rate of sea level rise.
- Updated laws, regulations, and policies that reflect the changing shoreline.

### TASK 7.1: Accelerate permitting for equitable, multi-benefit projects.

Dedicate a multi-agency group to work collaboratively on permits for adaptation projects that reflect regional guidelines and have been identified as regional priorities (see *Ideas for the Bay Area* below for a possible model or forum).

Achieve smoother, speedier regulatory approvals that don't compromise environmental protections by:

- Using standard, transparent criteria and checklists (linked to Task 1.1. guidelines) to

### Ideas for the Bay Area

*The San Francisco Bay Restoration Regulatory Integration Team (BRRIT) is a multi-agency team dedicated to improving the permitting of multi-benefit habitat restoration projects and associated flood management and public access in and along San Francisco Bay. The BRRIT consists of staff from state and federal regulatory agencies who work closely with project proponents from the pre-permit application stage through permit completion. However, the BRRIT is a small team that reviews only a limited number of habitat projects and has a limited scope. The BRRIT could be expanded to cover more types of projects, or a similar team could be created to handle projects that BRRIT does not consider.*





evaluate candidate projects for eligibility for accelerated permitting.

- Sharing criteria and checklists with project proponents early in the design process.
- Providing opportunities for proactive coordination and collaboration between agencies and project proponents.
- Improving coordination across agencies and between potential project proponents and regulators before projects are even designed (such as regular engagement with the groups outlined in Task 8.2).
- Establishing a dispute resolution process among permitting agencies.
- Conducting CEQA and permitting concurrently.
- Enhancing the technical knowledge of permitting staff (via working groups and by tapping outside expertise).
- Increasing regulatory capacity for permit review.

## **TASK 7.2: Tackle environmental regulations and policies that slow down progress on projects.**

Review plans and acts including BCDC's Bay Plan, RWQCB's Basin Plan, the California Endangered Species Act, California Environmental Quality Act, National Environmental Policy Act, Federal Clean Water Act, and Federal Endangered Species Act to pinpoint policies that may unintentionally impede permitting or construction of adaptation projects. Starting with local and regional plans and policies (BCDC, RWQCB), develop consensus on recommended policy changes that balance original intent with changing conditions due to sea level rise, and help facilitate multi-benefit projects.

The scope of the review could include:

- Clarifying or creating policies on climate change.
- Identifying conflicting regulatory mandates.
- Clarifying design standards for nature-based projects.
- Integrating data from pilot projects into planning for new projects.



### **Ideas for the Bay Area**

*In 2016, BCDC completed Policies for a Rising Bay, which outlines the policy issues identified in the Commission's laws and policies in light of new challenges, including sea level rise. The report identifies four policy issues where BCDC's policies were found to be inadequate regarding risks associated with rising sea levels, including:*

1. *Fill for Resilience and Adaptation - Habitat Restoration and Protection*
2. *Fill for Resilience and Adaptation - Innovative Shoreline Solutions*
3. *Environmental Justice and Social Equity*
4. *Adaptive Management*

*In 2019, BCDC adopted its Fill for Habitat and Environmental Justice Bay Plan Amendments that formally amended its regulatory program to address these policy gaps.*



The East Bay Shoreline looking towards Emeryville and Oakland. Photo by Andre Perrin-Martinez.

- Reevaluating restrictions on Bay fill for shoreline protection.
- Reevaluating criteria for dredged material disposal to incentivize beneficial reuse over in-Bay or ocean disposal.
- Reevaluating contaminant criteria for beneficial reuse.
- Identifying more funding sources for the sediment delivery to beneficial reuse sites and other adaptation projects.
- Updating land use policies to allow for habitats to migrate upland.
- Permitting that allows for temporary impacts to achieve long-term adaptation goals.
- Ensuring that construction work windows provide the expected benefit to special status species.
- Addressing the short and long-term impacts of turbidity plumes in water.
- Strengthening long-term monitoring of adaptation outcomes to inform regulatory and policy updates.

## ACTION 7 BENEFITS



### EQUITY

Incentives reward projects that value inclusive engagement and equitable outcomes.



### ENVIRONMENT

Incentives reward projects that value long-term protection of Bay habitats and natural and nature-based adaptation outcomes.



### ECONOMY

Incentives reward projects that value adaptation outcomes that protect jobs, businesses, and infrastructure.

## ACTION 8: Fund and facilitate faster adaptation projects.

### Goals:

- Accelerated projects that advance the regional adaptation vision.
- Faster implementation of nature-based and restoration projects.
- Better and faster implementation of large-scale, complex multi-benefit shoreline adaptation projects.
- More efficient construction processes for multi-benefit, equitable shoreline adaptation projects.

### TASK 8.1: Incentivize projects that meet regional guidelines.

Jump start critical local projects that also contribute to regional goals using collectively developed plan guidelines and minimum requirements (Task 1.1), tied to financial incentives (Task 6.2) and permitting incentives (Task 7.1). Projects eligible for financial incentives should be included in successful local plans (Task 5.1).

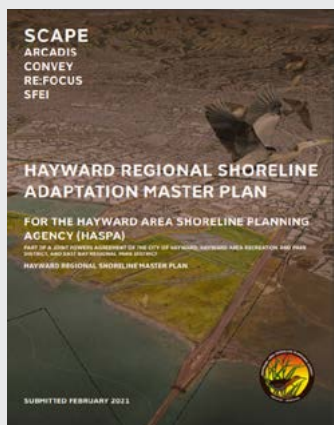
#### Guidelines for projects may include:

- Inclusion of robust and meaningful community engagement in the project planning process.
- Evaluation of the degree to which a project protects the health of the bay and local ecosystems, and considers space for habitat migration.
- Evaluation of project impacts on natural areas, frontline communities, and other consequences to neighbors or the region, such as exacerbating flooding or wave erosion.
- Use of an equitable cost-benefit analysis that values frontline communities and other non-monetary benefits.

- Adaptive project plans that consider flooding above and beyond the design level or flooding that occurs more rapidly than planned.

### TASK 8.2: Encourage collaboration among people doing projects in the same places.

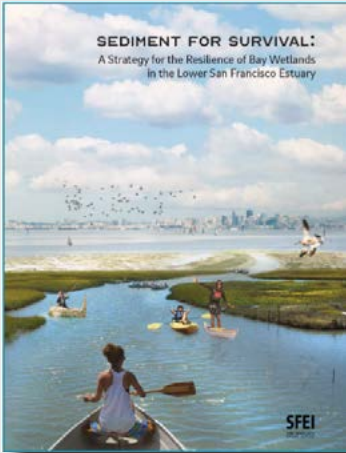
Establish place-based, ongoing work groups to coordinate large-scale, multi-jurisdictional projects. Use a neutral, third-party facilitator to balance all voices, achieve consensus on common project goals, help resolve challenges, identify and nurture project champions, and broker community benefits agreements. Provide a forum for building relationships among stakeholders, enhancing communication, transparency, and synergies among diverse players, and connecting communities to projects they care about. Share best practices for project design, governance, and delivery.



### Ideas for the Bay Area

*The Hayward Area Shoreline Planning Agency Joint Powers Authority brings together the City of Hayward, East Bay Regional Parks District, and Hayward Area Recreation and Parks District and works with the Hayward Area Shoreline Citizens Advisory Committee to coordinate agency planning activities and adopt and carry out policies for the improvement of the Hayward Shoreline. It has recently completed and adopted a Shoreline Master Plan that outlines adaptation measures to prepare for sea level rise.*





## Ideas for the Bay Area

**Sediment for Survival**, published by the San Francisco Estuary Institute in 2021, analyses current data and climate projections to determine how much natural sediment may be available for tidal marshes and mudflats and how much supplemental sediment may be needed under different future scenarios, and offers a strategy for sediment delivery that will enable wetlands to survive a changing climate and provide benefits to people and nature for many decades to come. This report can form the foundation for a region-wide conversation about how to meet the region's future sediment needs for nature-based shoreline adaptation projects.

### TASK 8.3: Facilitate faster construction of nature-based projects.

Increase the capacity of contractors to build multi-benefit or nature-based projects. Establish training programs on techniques and approaches to construct natural and nature-based shoreline projects for contractors, aligned with regional project guidelines (Task 1.1) and informed by monitoring data (Task 9.2). Coordinate the use of the limited regional supply of fill across the region and improve fill logistics (e.g. stockpiling, contaminant testing, movement, etc). Strengthen partnerships with regulated communities. Expand RFP and State bond proposition language to make

funding such complex projects more flexible.

Improve construction bidding and contracting processes by:

- Demystifying project costs.
- Contracting earlier in the design process (via construction management general contracts).
- Incentivizing contracts with local or equity-focused businesses.
- Incentivizing the reduction of construction impacts on communities.

## ACTION 8 BENEFITS



### EQUITY

Place-based standing groups advocate for community voices in projects; supports construction practices that minimize impacts to communities and support local businesses.



### ENVIRONMENT

Expands the ability of contractors to build natural and nature-based solutions.



### ECONOMY

Place-based standing groups facilitate cross-pollination early on, resulting in multi-benefit projects with shared costs; supports construction practices that support local businesses.

# Progress

People visiting and exploring recreational trails near the Baylands of Palo Alto. Photo by Jitze Couperus licensed under CC BY 2.0.

*The cycle of adaptation never stops. Science evolves and we learn lessons from existing projects, all requiring updates to our plans and policies. But how do we know if our efforts have been successful, and whether everything is working out as planned? Tracking and learning from our successes and failures will allow the region to adjust course, celebrate progress, maintain transparency, and adapt to uncertainty. Accountability, for how well we achieve our collective adaptation goals goes hand-in-hand with future support for this critical work.*

## ACTION 9: Track and report progress to guide future actions.

### Goals:

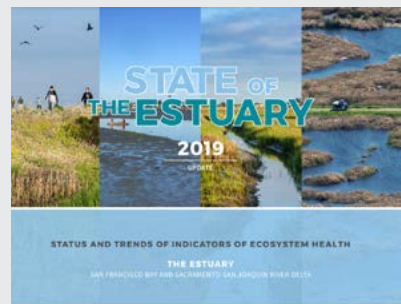
- A process for gathering feedback and measuring progress on local and regional adaptation efforts.
- Enhanced monitoring of nature-based projects to better understand the benefits and challenges of an ecosystems approach to adaptation.
- Clarity on how to adapt plans and projects to changing conditions and outcomes.

### TASK 9.1: Measure regional progress using metrics and share results.

Regularly check and report adaptation progress based on established and shared regional metrics identified in Task 1.1. Metrics should measure the difference between today's "baseline"—the region's current risk profile and adaptation status—and changes related to adaptation activities. Resulting "report cards" should be transparent and understandable (through visually compelling online dashboards) to partners, stakeholders and the public. When appropriate, they should suggest ways to increase alignment with the regional vision, such as changes to incentives, funding models, technical assistance programs, or planning tools.

#### Ideas for the Bay Area

*The **State of the Estuary** report tracks indicators and trends that measure the San Francisco Estuary's ecological health. Likewise, the Delta Stewardship Council's **Delta Plan Performance Measures** uses several metrics to measure progress and track performance across the coequal goals of a reliable water supply for California and a healthy Delta ecosystem. It uses an easy-to-access, graphics-rich online interface to illustrate performance measure information and data to ensure transparency around the Delta Plan's goals and performance measures. This website and the metrics it tracks could be a model for how the Bay Area could transparently track its adaptation goals and progress.*



**TASK 9.2: Monitor and learn from pilot projects.**

Monitor pilot projects to identify lessons learned and update or establish guidance based on these lessons. Expand and support existing monitoring programs, such as the Wetland Regional Monitoring Program and the San Francisco Bay National Estuarine Research Reserve, to increase the context for learning and adaptation. Use monitoring to update and refine best practices for innovative, multi-benefit projects covered in regional vision (Task 1.1), funding criteria (Task 6.2), technical assistance guidance (Task 4.2), and permitting processes (Task 7.1).



**Ideas for the Bay Area**

*Pilot projects don't have to be limited to nature-based solutions. The **San Francisco Bay Area Rapid Transit District (BART)** can serve as a model for other agencies pursuing adaptation. With limited funding and resources, BART has conducted a number of pilot projects to evaluate resiliency risks and develop adaptation solutions. Pilot findings have been used to inform BART capital projects of risks. As a pilot outcome, BART requires in the BART Facilities Standards (BFS) that capital projects account for SLR risk in their designs. BART's approach to leverage existing data and partnerships to maximize pilot outcomes are examples of practices that can be shared and benefit other agencies.*

**ACTION 9 BENEFITS**



**EQUITY**

Metrics tied to the regional vision keep accountability for equity and community-focused adaptation outcomes.



**ENVIRONMENT**

Metrics tied to the regional vision keep accountability for nature-based, ecosystem, and habitat-based adaptation outcomes; monitoring and reporting will improve the design, permitting, funding, and construction of nature-based adaptation strategies.



**ECONOMY**

Metrics tied to the regional vision keep accountability for job and housing growth adaptation co-benefits; monitoring of pilot projects will lead to more efficient and effective projects and expedited protection for critical assets.



# How do we get there?

The people, agencies, and groups that will lead the charge.

	Possible Lead(s)	Possible Support	Possible Working Group
People	<b>Action 1: Collaborate on a One Bay vision for adapting to rising sea levels.</b>		
	Task 1.1: Create a long-term regional vision rooted in communities, bay habitats, and the economy.		
	Task 1.2: Lay the foundation for a proactive regional legislative agenda.		
	<b>Action 2: Elevate communities to lead.</b>		
	Task 2.1: Improve how communities and public agencies learn from each other and work together.		
	Task 2.2: Fund the participation and leadership of CBOs and frontline communities in adaptation planning		
Information	<b>Action 3: Broaden public understanding of climate change science and impacts.</b>		
	Task 3.1: Tell local and regional stories about people and places adapting to climate change.		
	Task 3.2: Weave climate literacy into school programs		
	<b>Action 4: Base plans and projects on the best local science, data, and knowledge.</b>		
	Task 4.1: Align research and monitoring with information gaps.		
	Task 4.2: Make scientific data, information, and guidance easier to access and use.		
	Task 4.3: Increase access to technical consultants for local adaptation partners.		

	Possible Lead(s)	Possible Support	Possible Working Group
Plans	<b>Action 5: Align local and regional plans into a unified adaptation strategy.</b>		
	Task 5.1: Provide incentives for robust, coordinated adaptation plans.		
	Task 5.2: Align state-mandated planning processes around adaptation.		
	<b>Action 6: Devise a strategy to fund adaptation.</b>		
	Task 6.1: Expand understanding of the costs and revenues associated with regional adaptation.		
	Task 6.2: Establish a framework for funding plans and projects.		
Projects	Task 6.3: Help cities and counties expand sources of adaptation financing and funding.		
	<b>Action 7: Refine and accelerate regulatory approvals processes.</b>		
	Task 7.1: Accelerate permitting for equitable, multi-benefit projects.		
	Task 7.2: Tackle environmental regulations and policies that slow down progress on projects.		
	<b>Action 8: Fund and facilitate faster adaptation projects.</b>		
	Task 8.1: Incentivize projects that meet regional guidelines.		
Progress	Task 8.2: Encourage collaboration among people doing projects in the same places.		
	Task 8.3: Facilitate faster construction of nature-based projects.		
	<b>Action 9: Track and report progress to guide future actions.</b>		
	Task 9.1: Measure regional progress using metrics and share results.		
	Task 9.2: Monitor and learn from pilot projects.		

# Bay Adapt process and Leadership Advisory Group

Bay Adapt was convened by the San Francisco Bay Conservation and Development Commission (BCDC) in partnership with a broad range of Bay Area leaders that comprise the Leadership Advisory Group (LAG). The LAG consists of leaders from public agencies, interest groups, community-based organizations, and academia and provides strategic direction, feedback, and leadership in implementing the Joint Platform actions.

The strategies in this document were developed by BCDC staff with nearly 100 stakeholders who participated in hundreds of hours of working group meetings. The strategies were also informed by one Public Forum, ten Community and Stakeholder Focus Groups, an Environmental Justice (EJ) Caucus which was convened regularly throughout the process, and many presentations to other region-wide existing groups consisting of local government staff and elected officials.

For a summary of feedback from the Public Forum, Community and Stakeholder Focus Groups, and a list of outreach presentations, visit the Bay Adapt website at [www.bayadapt.org](http://www.bayadapt.org).

## **Leadership Advisory Group Members:**

Ana Alvarez, Deputy General Manager, East Bay Regional Parks (EBRP)

Tessa Beach, Ph.D, Chief, Environmental Section, U.S. Army Corps of Engineers, San Francisco District

David Behar, Climate Program Director, San Francisco Public Utilities Commission (SFPUC)/ Bay Area Climate Adaptation Network (BayCAN)

John Bourgeois, Representative, Coastal Hazards Adaptation Resiliency Group (CHARG)

Allison Brooks, Executive Director, Bay Area Regional Collaborative (BARC)

Amanda Brown-Stevens, Executive Director, Greenbelt Alliance

Paul Campos, Sr. Vice President, Building Industry Association

Warner Chabot, Executive Director, San Francisco Estuary Institute (SFEI) (alt. Jeremy Lowe)

John Coleman, CEO, Bay Planning Coalition (alt. Emily Loper)

Dina El-Tawansy, District 4 Director, Caltrans

Tian Feng, District Architect, San Francisco Bay Area Rapid Transit District (BART)

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Terri Green, Director, Shore Up Marin City

Amy Hutzell, Deputy Executive Officer, State Coastal Conservancy/SF Bay Restoration Authority

Alicia John-Baptiste, Executive Director, SPUR (alt. Teresa Alvarado)

Melissa Jones, Executive Director, Bay Area Regional Health Inequities Initiative (BARHII) (alt. Matt





Vander Sluis)

David Lewis, Executive Director, Save the Bay (alt. Cheryl Brown)

Mark Lubell, Ph.D, Professor, University of California, Davis

Therese McMillan, Executive Director, MTC/ABAG (alt. Brad Paul)

Mike Mielke, Sr. Vice President, Silicon Valley Leadership Group

Michael Montgomery, Executive Officer, San Francisco Regional Water Quality Control Board (RWQCB)  
(alt. Lisa Horowitz McCann)

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#### **Working Group Members:**

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Heidi Nutters, SFEP	
Gail Payne, City of Alameda	
Erik Pearson, City of Hayward	
Dave Pine, San Mateo County (elected)	
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Erika Powell, CHARG (Chair)	
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# Acronyms

ABAG	Association of Bay Area Governments
BARC	Bay Area Regional Collaborative
BARHII	Bay Area Health Inequities Initiative
BART	Bay Area Rapid Transit
BayCAN	Bay Area Climate Action Network
BCDC	SF Bay Conservation and Development Commission
BRRIT	Bay Restoration Regulatory Integration Team
CHARG	SF Bay Regional Coastal Hazards Adaptation Resiliency Group
EBRPD	East Bay Regional Parks District
MTC	Metropolitan Transportation Commission
NERR	National Estuarine Research Reserve
NOAA	National Oceanic and Atmospheric Administration
RWQCB	Regional Water Quality Control Board
SCC	California State Coastal Conservancy
SFEI	San Francisco Estuary Institute
SFEP	San Francisco Estuary Partnership
SFBRA	San Francisco Bay Restoration Authority
SFPUC	San Francisco Public Utilities Commission
USACE	U.S. Army Corps of Engineers
WOIEP	West Oakland Environmental Indicators Projects