Adapting to Rising Tides

Working together to increase the resilience of Bay Area communities to sea level rise and storm events

San Francisco Bay Conservation and Development Commission

Contra Costa ART Working Group

Working Group Meeting #8 – November 16, 2016

Objectives

- Recap Project Steps and Outcomes
- Work together on implementation options
- Develop a path forward for the working group and individual agencies

Agenda

9:00	Welcome, Meeting Objectives, Announcements and Updates
9:15	Presentation: Project Recap
9:30	Exercise: Implementation Pathways
11:00	Break
11:15	Implementation Pathways Summary and Report Back
11:45	Wrap Up and Next Steps

Project Timeline

ART Contra Costa Project

Project Initiation – Fall 2014

Project Scoping – Fall/Winter 2015

Conduct Assessment – Winter/Spring 2015

Determine Assessment Outcomes – Summer 2015

Transition to Adaptation – Fall 2015

Develop Adaptation Responses – Spring 2016

Evaluate and Select Adaptation Responses + Opportunities for Implementation – Fall 2016

Working Group Meeting

Individual or small group meetings

ART Planning Process

ART Contra Costa Project

ART Planning Process

ART Contra Costa Project

Working Group Meeting #8

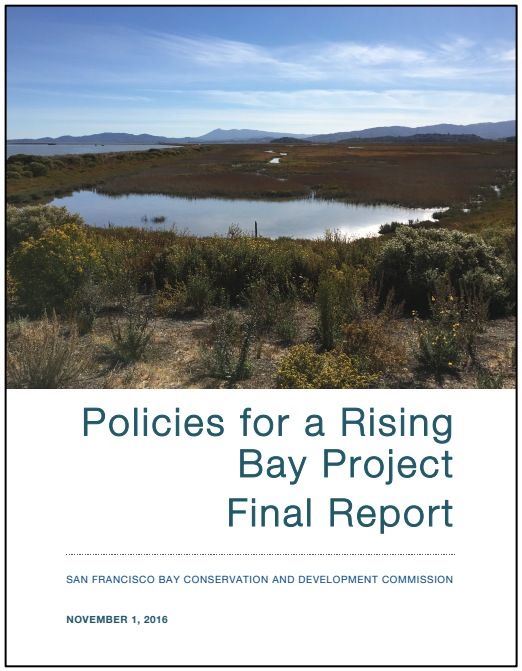
News and Announcements

ART Contra Costa Project

- **BCDC Sea Level Rise Workshop Series**
  Workshop Five: Implementing Priority Actions
  December 1st at the new Bay Area MetroCenter
  (www.bcdc.ca.gov/workshops.html)

- **BCDC's Policies for a Rising Bay** report now available (www.bcdc.ca.gov/prb.html)

- **Your news?**

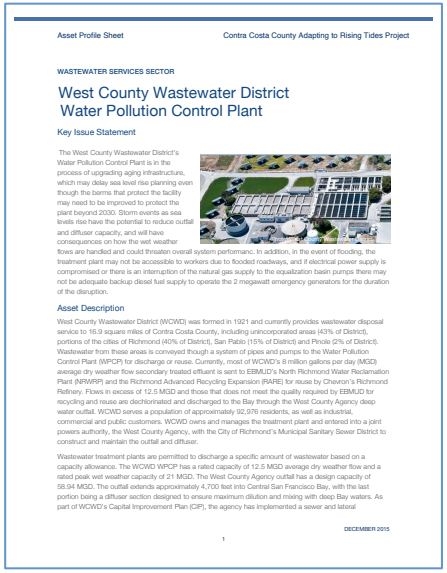


ART Contra Costa Outcomes

ART Contra Costa Project

- A diverse and capable working group
- Broad resilience goals
- A robust vulnerability assessment
- An understanding of how flooding may impact the four sustainability frames
- Locally refined sea level rise maps and shoreline analyses
- Detailed adaptation responses
- A clear and compelling case for taking action both together and individually
- A path forward toward resilience

Many ART Products (+ more to come)



Asset Profile Sheet — Contra Costa County Adapting to Rising Tides Project

WASTEWATER SERVICES SECTOR

West County Wastewater District Water Pollution Control Plant

Key Issue Statement

The West County Wastewater District's Water Pollution Control Plant is in the process of upgrading aging infrastructure, which may delay sea level rise planning even though the berms that protect the facility may need to be improved to protect the plant beyond 2030. Storm events as sea levels rise have the potential to reduce outfall and diffuser capacity, and will have consequences on how the wet weather flows are handled and could threaten overall system performanc. In addition, in the event of flooding, the treatment plant may not be accessible to workers due to flooded roadways, and if electrical power supply is compromised or there is an interruption of the natural gas supply to the equalization basin pumps there may not be adequate backup diesel fuel supply to operate the 2 megawatt emergency generators for the duration of the disruption.

Asset Description

West County Wastewater District (WCWD) was formed in 1921 and currently provides wastewater disposal service to 16.9 square miles of Contra Costa County, including unincorporated areas (43% of District), portions of the cities of Richmond (40% of District), San Pablo (15% of District) and Pinole (2% of District). Wastewater from these areas is conveyed though a system of pipes and pumps to the Water Pollution Control Plant (WPCP) for discharge or reuse. Currently, most of WCWD's 8 million gallons per day (MGD) average dry weather flow secondary treated effluent is sent to EBMUD's North Richmond Water Reclamation Plant (NRWRP) and the Richmond Advanced Recycling Expansion (RARE) for reuse by Chevron's Richmond Refinery. Flows in excess of 12.5 MGD and those that does not meet the quality required by EBMUD for recycling and reuse are dechlorinated and discharged to the Bay through the West County Agency deep water outfall. WCWD serves a population of approximately 92,976 residents, as well as industrial, commercial and public customers. WCWD owns and manages the treatment plant and entered into a joint powers authority, the West County Agency, with the City of Richmond's Municipal Sanitary Sewer District to construct and maintain the outfall and diffuser.

Wastewater treatment plants are permitted to discharge a specific amount of wastewater based on a capacity allowance. The WCWD WPCP has a rated capacity of 12.5 MGD average dry weather flow and a rated peak wet weather capacity of 21 MGD. The West County Agency outfall has a design capacity of 58.94 MGD. The outfall extends approximately 4,700 feet into Central San Francisco Bay, with the last portion being a diffuser section designed to ensure maximum dilution and mixing with deep Bay waters. As part of WCWD's Capital Improvement Plan (CIP), the agency has implemented a sewer and lateral

DECEMBER 2015

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DRAFT Key Planning Issues — Contra Costa County Adapting to Rising Tides Project

Key Planning Issues

Key Planning Issue #1: Water-dependent industries

Contra Costa County's seaport, marine oil terminals, and shoreline refineries rely on transportation and utility networks that are vulnerable to sea level rise and storm events. Flooding of critical roads, rail lines, or pipelines both within the county or without could hinder critical goods export and import as well as processing operations within the County, negatively impacting the local and regional economy.

The Port of Richmond and associated industrial marine terminals handle the majority of the region's liquid bulk and automobile tonnage. Contra Costa County's seven marine oil terminals transfer bulk fuel from ships to distributors and processors, including four of the region's five refineries that are located in the county. All of these facilities are large, sit at fairly fixed locations, and rely on both waterside and landside connections to move goods on and off-site, as well as in and out of the region. Their continued operation depends on a functioning regional network of pipelines, rail lines, roadways and interstates, as well as on- and off-site energy and water supplies. These facilities also rely on local road access, which is critical to ensuring that necessary materials and supplies, as well as workers, can reach them, and that goods and products can be shipped from the facilities to other locations in the region and beyond.

Transportation and utility connections both within the county and beyond are vulnerable to flooding and sea level rise. Damage or disruption to these connections could cause the slow down or cessation of operations at the facilities they serve, such as the Port of Richmond, the county's marine terminals, and refineries. For example, while both the city-owned and private terminals at the Port of Richmond may not flood, or be damaged disruption of the Union Pacific or Burlington Northern Santa Fe rail lines would significantly impact seaport operations, because commodities such as automobiles and bulk materials cannot be easily moved by truck. The rail lines in the project area, which serve many shoreline industries, cross an estimated nine miles of coastal and riverine 100-year floodplain, run directly on the shoreline in many locations, and cross multiple creek and channels on bridges that are below potential flood heights. In addition, the entire rail network is highly vulnerable because damage at any point in the system can result in system-wide disruptions. Loss of the rail service to the seaport could result in increased truck traffic, congestion, and air quality impacts in surrounding neighborhoods, local roadways, and interstates.

Flooding of local streets and roads as well as local access to the region's interstates will impact the water-dependent industries that rely on them. A number of the roads that provide access to the Port of Richmond seaport are low in elevation, and exposed to future flooding that could disrupt access and operations. This includes low-lying areas of West Cutting Boulevard and Canal Boulevard as well as Harbour Way South, Wright Avenue and Ohio Avenue. In addition, Waterfront Road, which provides access to a

MAY 2016

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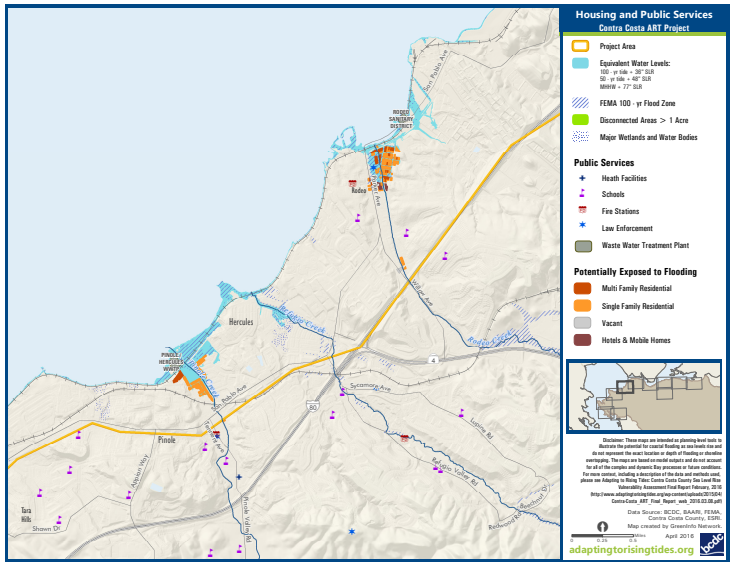
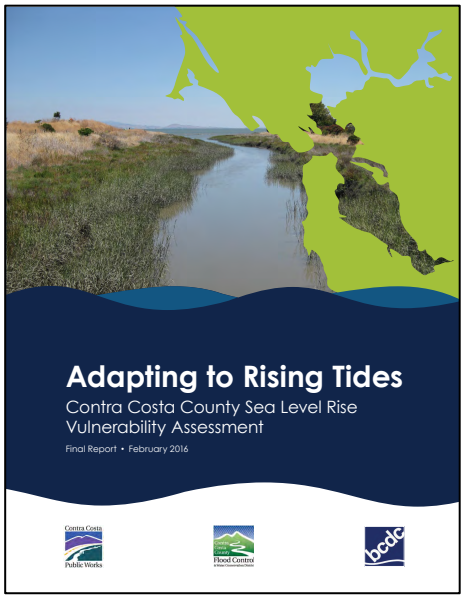


Key Planning Issue #6: Parks and Open Space

Shoreline parks and open spaces are not only the first line of defense against inland flooding, they are also themselves vulnerable to the early impacts of sea level rise and therefore are key early adaptation opportunity sites. Damage or loss of these parks and open spaces would have significant impacts on recreational uses and health of the communities in the project area, many of which could not be replaced. Reduction in access to parks and open spaces would affect some individuals and communities more adversely than others, depending on their unique needs and capacity.

Action				Implementation			
Timing	Number	Description	Related Actions	Lead(s)	Support	Is this action a priority for further evaluation and potential implementation?
Near-term	6.1	Identify, monitor and repair (as feasible) natural and recreational areas within parks that are experiencing erosion, bluff collapse, increased flooding and salinity intrusion.	RP2.1	EBRPD	EBRPD, County, Cities, SCC, SFEP, CA DFW, Bay Trail, BCDC, RWQCB, USACE	
	6.2	Develop guidance for regional shoreline park planning and project development activities that consider sea level rise to ensure impacts are factored into tidal wetland restoration and park management activities.	RP4.4	EBRPD	EBRPD, County, Cities, SCC, SFEP, CA DFW, Bay Trail, BCDC, RWQCB, USACE	
	6.3	Educate the public about the early risk to parks from sea level rise, the multiple benefits parks provide (flood protection, wildlife, educational and recreational values), and the opportunities for adaptation to protect these functions.	RP1.2	EBRPD	EBRPD, County, Cities, SCC, SFEP, CA DFW, Bay Trail, BCDC, Nonpofit and Community-based Organizations	
Mid-term	6.4	Form or expand existing partnerships among park districts, park and recreation departments, private entities, community-based organizations and community members to develop a shared vision for protecting the function of parks and open space in the project area.	RP1.1	EBRPD, County, Cities	EBRPD, County, Cities, SCC, SFEP, Bay Trail, BCDC, Nonpofit and Community-based Organizations	
	6.5	Develop a county-wide park enhancement and protection plan that identified opportunities for increasing the resilience of parks that are vulnerable to sea level rise and the capacity of park that are not at risk.	RP7.1, RP7.2, CPS.1	County	EBRPD, County, Cities, SCC, SFEP, Bay Trail, BCDC, Nonpofit and Community-based Organizations	
	6.6	Develop and implement a decision-making and funding framework to guide shoreline landowners in addressing Bay Trail vulnerabilities in a manner that protects connectivity and maintains the trail as a regional connector.	BT1.1, BT4.3	Bay Trail	EBRPD, County, Cities, SCC, SFEP, Bay Trail, BCDC, Nonpofit and Community-based Organizations	
Long-term	6.7	Develop a multi-agency permit review and authorization program to expedite the ongoing maintenance, minor repair, or upgrade of shorelines that are already experiencing erosion, for example within existing parks and along the Bay Trail.	BT3.3, RP 2.3	BCDC	EBRPD, County, Cities, SCC, SFEP, CA DFW, Bay Trail, BCDC, RWQCB, USACE, NOAA, BAFPA, IWRMP	
	6.8	Establish a new authority, or expand an existing authority, to plan, fund, manage and maintain shoreline solutions to protect existing parks, open space, and the Bay Trail		EBRPD, Bay Trail	EBRPD, County, Cities, SCC, SFEP, Bay Trail, BCDC, Nonpofit and Community-based Organizations	



DRAFT Assessment Chapter — Contra Costa County Adapting to Rising Tides Project

People

People are the core of a community. It is critical to understand the unique needs of people, and the risks they may face during a hazard. The health of a community is dependent on the health of its residents. Within their communities, and throughout the region and beyond, people create social networks and culture, support the local economy as customers and employees, and contribute to the tax base.

Flooding can impact the health of a community if there are direct impacts on people or their homes, or if important services are disrupted in the days and weeks after the event. As flood hazards become more frequent and more severe as a result of climate change, greater proportions of the population will be impacted. The impact may be more severe for some communities, especially those with people, housing, employment sites and community services within the existing coastal or riverine floodplain, and those communities with underserved, resource limited or vulnerable populations. While in many cases, social cohesion can offset some of the consequences of flooding because impacted people will be more able to help each other meet some of their daily needs, not all have the strong community or social capital needed to be self resilient.

For this project, community vulnerability is described using the approach developed for the Stronger Housing, Safer Communities project completed by the ART Program in partnership with the Association of Bay Area Governments Resilience Program[1]. Stronger Housing, Safer Communities selected ten indicators that represent characteristics of individuals and households that affect their ability to prepare for, respond to, and recover from a disaster. These indicators include financially constrained households, renters, non-English speakers, people of color, educational attainment, transit dependent individuals, the elderly and the very young. Indicators were mapped at a regional scale to identify areas (block groups) that may have a higher than average concentration of one or more indicator. Together, these indicators begin to present a picture of community vulnerability. Regionally, the key themes that emerged included age-related vulnerabilities, language and ethnicity vulnerabilities, cost-burdened residents, housing tenure issues, and access to resources[2].

Exposure to Current and Future Flooding

The Contra Costa ART project area includes a portion of the shoreline cities of Richmond, Pinole, Hercules and Martinez, the inland adjacent cities of El Cerrito and San Pablo, and a very small portion of Pittsburg on the eastern boundary of the project area. Also included in the project area are portions of the unincorporated communities of North Richmond, Tara Hills, Bayview, Montalvin Manor, Rodeo, Crockett, Port Costa, Clyde, Vine Hill, Concord, Mountain View and Bay Point. There are a total of 156,203

[1] http://www.adaptingtorisingtides.org/project/stronger-housing-safer-communities-strategies-for-seismic-and-flood-risks/
[2] http://resilience.abag.ca.gov/projects/stronger_housing_safer_communities_2015/#community

May 2016

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Project Recap: Plan Step

ART Contra Costa Project

Together, ART project staff and the working group developed adaptation responses for 30 asset categories

People
Individuals, households, neighborhoods

Residential Housing
Single-family, multi-family, mobile homes

Public Services
Public health infrastructure
Emergency facilities and services
Waste collection and transfer stations

Business & Industry
Industrial land uses
Commercial land uses
Hazardous Materials Sites

Contaminated Lands
Brownfields
Landfills

Parks and Recreation Facilities
Shoreline parks
Bay trail
Marinas

Water Management
Water supply
Wastewater
Flood management
Stormwater infrastructure

Transportation
Passenger and freight rail
Local, state, interstate roads
Bay trail

Energy and Fuel Supply
Refineries
Pipelines
Power generation
Power distribution

Natural Areas

Seaport + Marine Oil Terminals

Vulnerability	Action	Action Type	Process	Possible Actors
GOV1: In Contra Costa, the CalARP and ISO sites have a high level of compliance with hazardous material inventories and contingency planning requirements, while the diverse and numerous other hazardous material sites that use, generate or transport smaller quantities of hazardous materials have differing levels of compliance with operational and regulatory requirements.	Develop and implement a self-assessment process for hazardous materials sites to gather critical information needed to assess site vulnerability and risk from sea level rise, storm events, and elevated groundwater	Evaluation	New Initiative	DTSC, RWQCB, USEPA, CCHS, Cities, County, private entities
	Require consideration of sea level rise impacts including flooding, increased groundwater levels, salinity intrusion, and increased liquefaction susceptibility risk in all hazardous materials operational and regulatory programs	Program/ operation	Operations	DTSC, RWQCB, USEPA CCHS
	Educate businesses that use, generate or transport smaller quantities hazardous materials about sea level rise impacts and the options for reducing the consequences of a flood event, i.e., elevating stored materials and limiting amount of materials stored	Education/ outreach	Emergency and Hazard Planning	DTSC, RWQCB, USEPA, CCHS, Cities, County, private entities

Project Recap: Plan Step

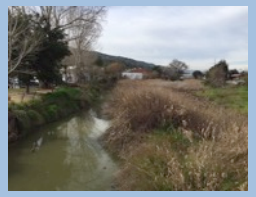
ART Contra Costa Project

Asset category responses were used to develop the adaptation responses for the Key Planning Issues

Water-dependent Industries

Employment Sites

Creek-side Communities



Access to Services

Ad-hoc Flood Protection

Parks and Open Spaces

Working group members voted for their three top priority actions

Key Planning Issue #6: Parks and Open Space

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Project Recap: Plan Step

ART Contra Costa Project

Four overarching, or cross-cutting, themes emerged during the Plan step highlighting the need to focus on:

- A resilient transportation system
- Integrated shoreline management
- Targeted education and outreach
- Improved emergency and hazard mitigation plans

A summary of the adaptation responses will be included in the project report

Implement & Monitor

ART Contra Costa Project

Identify implementation options and develop recommendations for advancing high priority adaptation responses and further collaborations

Outcomes include ideas for:

- Advancing and funding “ready to go” adaptation responses
- Initiating additional assessments or feasibility studies
- Who will lead next steps, including launching new efforts and collaborations

Implement & Monitor

ART Contra Costa Project

Implementation Pathways are a tool that help partners develop a shared understanding and agreement on how specific actions should be implemented

Pathways visually depict:

- Who will lead and who will partner
- The information, resources or support needed to initiate the action
- The steps to take that will ultimately address the resilience goals

Implementation Pathways

ART Contra Costa Project

For today's **Implementation Pathways** exercise staff selected four actions that reflect:

- The working group's priority actions
- The four overarching themes that emerged during the Plan step
- Opportunities to address vulnerabilities affecting a range of assets, geographies, and communities

Four Actions

ART Contra Costa Project

Action #1 - Develop and disseminate **guidance to business and industry** on the best practices for reducing the potential impacts of flooding and sea level rise on their facilities and the services and systems they rely on

Action #2 - Create a public-private **shoreline working group** tasked with developing a plan to fund and implement integrated shoreline solutions to reduce flood risk

Action #3 - Develop a **county-wide program** to monitor, maintain, and repair (as feasible) **at risk shorelines** most in need of intervention

Action #4 - Establish a **public-private partnership to better understand** the consequences of flooding on commercial and industrial supply chains, employee access to job sites and the **regional transportation networks** goods and commuters rely on

Implementation Pathways Exercise

ART Contra Costa Project

Outcomes of this exercise will include:

- An understanding of the resources, information and steps needed to initiate action implementation
- An evaluation on how well the action will address the four sustainability frames
- A concise statement, or pitch, that can be used to motivate decision makers, funders and partners

Implementation Pathways Exercise

ART Contra Costa Project

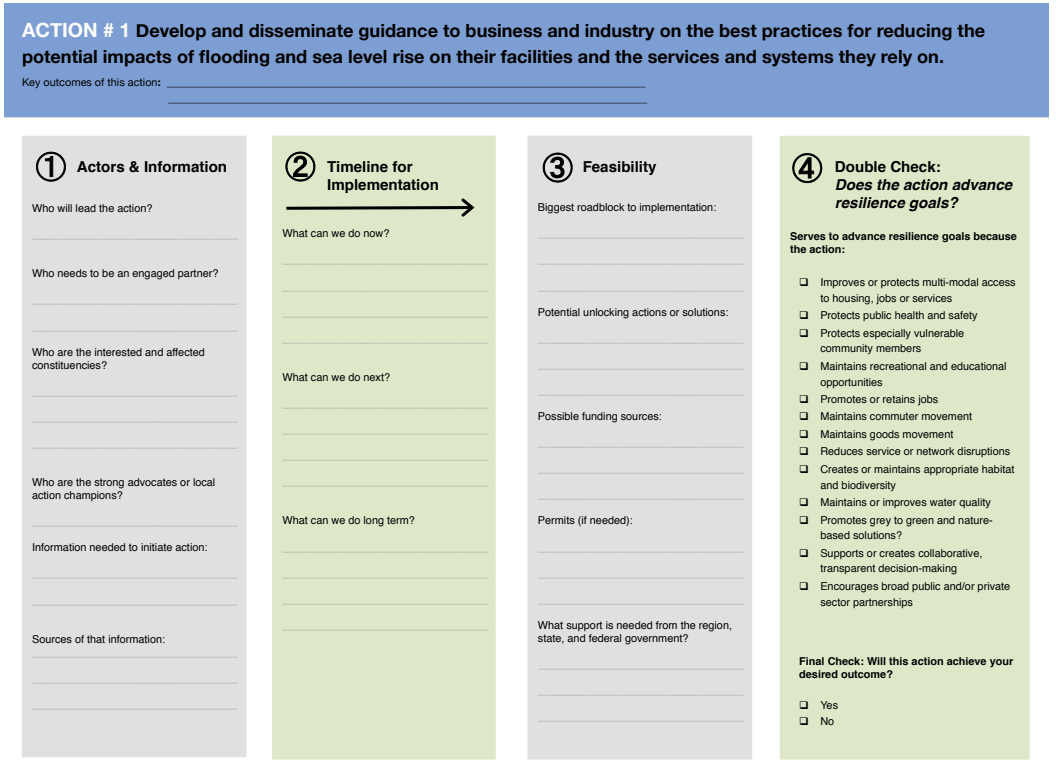
Break into four groups, starting at one action work as a group to fill in the Implementation Pathway, at the end of each round, rotate to the next action and add onto the information provided by the previous groups

1st round: 30 minutes

2nd round: 25 minutes

3rd round: 20 minutes

4th round: 15 minutes



ACTION # 1 **Develop and disseminate guidance to business and industry on the best practices for reducing the potential impacts of flooding and sea level rise on their facilities and the services and systems they rely on.**

Key outcomes of this action: _____

① Actors & Information

Who will lead the action?

Who needs to be an engaged partner?

Who are the interested and affected constituencies?

Who are the strong advocates or local action champions?

Information needed to initiate action:

Sources of that information:

② Timeline for Implementation →

What can we do now?

What can we do next?

What can we do long term?

③ Feasibility

Biggest roadblock to implementation:

Potential unlocking actions or solutions:

Possible funding sources:

Permits (if needed):

What support is needed from the region, state, and federal government?

④ Double Check: ***Does the action advance resilience goals?***

Serves to advance resilience goals because the action:

- ❑ Improves or protects multi-modal access to housing, jobs or services
- ❑ Protects public health and safety
- ❑ Protects especially vulnerable community members
- ❑ Maintains recreational and educational opportunities
- ❑ Promotes or retains jobs
- ❑ Maintains commuter movement
- ❑ Maintains goods movement
- ❑ Reduces service or network disruptions
- ❑ Creates or maintains appropriate habitat and biodiversity
- ❑ Maintains or improves water quality
- ❑ Promotes grey to green and nature-based solutions?
- ❑ Supports or creates collaborative, transparent decision-making
- ❑ Encourages broad public and/or private sector partnerships

Final Check: Will this action achieve your desired outcome?

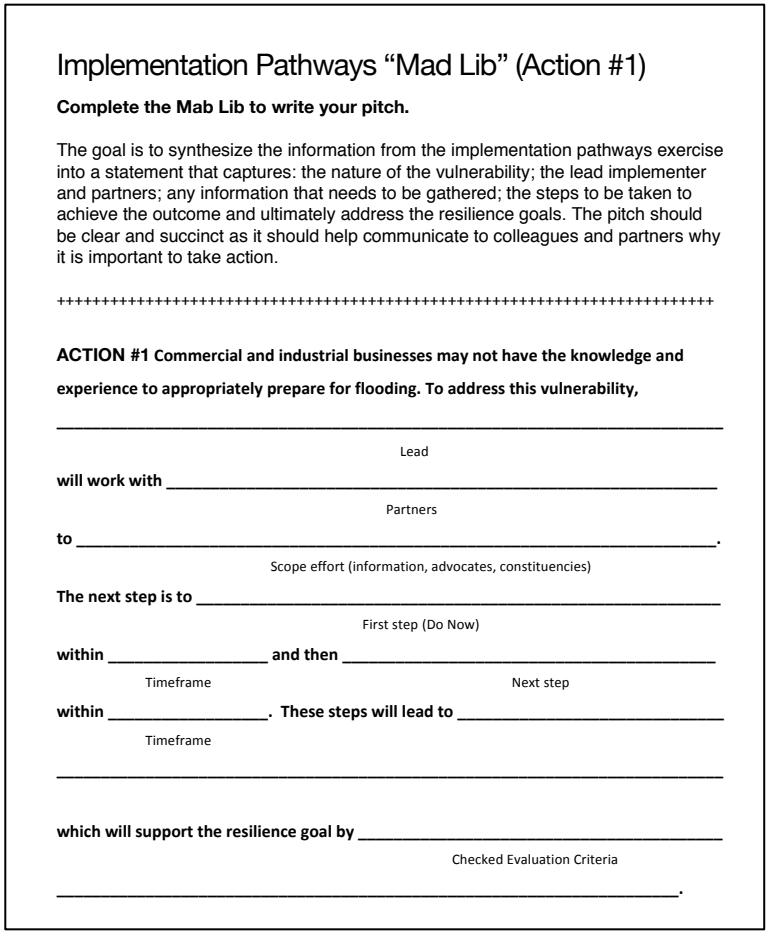
- ❑ Yes
- ❑ No

Implementation Pathways Exercise

ART Contra Costa Project

At the end of round 4, stay at your poster and work as a group to create a "pitch" that describes:

- The nature of the vulnerability
- Who will lead and who will partner on the action
- What information needs to be gathered
- What the timeline and steps towards action are
- How the outcome ultimately address the resilience goals



Implementation Pathways "Mad Lib" (Action #1)

Complete the Mab Lib to write your pitch.

The goal is to synthesize the information from the implementation pathways exercise into a statement that captures: the nature of the vulnerability; the lead implementer and partners; any information that needs to be gathered; the steps to be taken to achieve the outcome and ultimately address the resilience goals. The pitch should be clear and succinct as it should help communicate to colleagues and partners why it is important to take action.

++

ACTION #1 Commercial and industrial businesses may not have the knowledge and experience to appropriately prepare for flooding. To address this vulnerability,

_____

Lead

will work with _____

Partners

to _____.

Scope effort (information, advocates, constituencies)

The next step is to _____

First step (Do Now)

within _____ **and then** _____

Timeframe Next step

within _____. **These steps will lead to** _____

Timeframe

_____

which will support the resilience goal by _____

Checked Evaluation Criteria

_____.

Report Back and Discussion

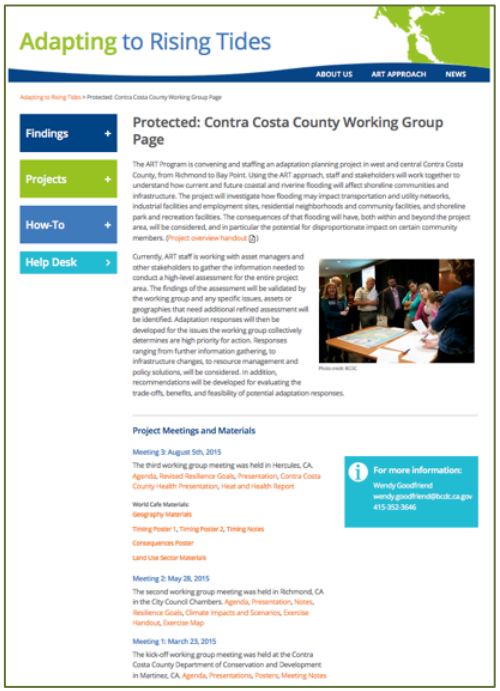
ART Contra Costa Project

- Share your pitch with the whole group
- Discuss and reflect on:
  - ✓ What opportunities did you identify that will keep the momentum going?
  - ✓ Who is motivated to lead, partner, advocate?
  - ✓ Is regional support needed?
  - ✓ What are some of the near term next steps?
  - ✓ What steps are farther out on the horizon?

Wrap Up & Next Steps

ART Contra Costa Project

- Project report coming soon!
- Other ART Program Initiatives
  - ✓ Regional Assessment and Adaptation
  - ✓ Regional Sea Level Rise Mapping
  - ✓ Commissioner Workshop Series
- ART Program Help Desk
  - ✓ Support for assessments, adaptation plans, action implementation
  - ✓ Assistance with Local Hazard Mitigation Plans and Safety Element updates
  - ✓ Connections to adaptation practitioners within and beyond the Bay Area



Thank You!

ART Contra Costa Project