Objectives and agenda for the first Adapting to Rising Tides Bay Area Regional Working Group meeting. Before the official meeting starts, we would like to welcome you to the pre-meeting session where we are going to play a game that the Adapting to Rising Tides Program team developed with Janette Kim, a professor at the California College of the Arts (CCA). Thank you for joining us early to play the game!

The game that the ART Program team developed with Janette Kim is called Bartertown and it is a game about social cohesion and how the choices that we make to work individually or collectively can make a difference in how successful communities are in responding to shocks and stressors like flooding and sea level rise. Janette Kim of the California College of the Arts will introduce the game to get everyone started. Each table has a member of the ART Bay Area team to introduce and move you through the game.

How was Bartertown?

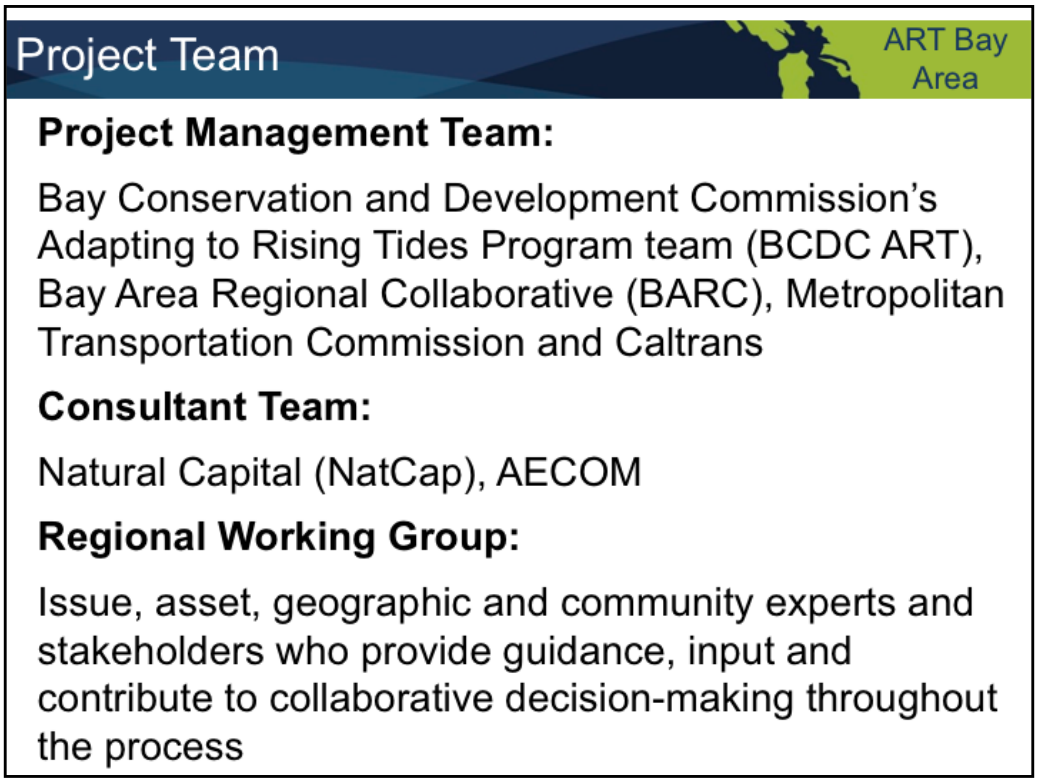
ART Bay Area

- What did you think of the game?
- Did you get most of your activities completed?
- Did you need to barter or trade activities? Did this happen more often during short and long term hazard events?
- How successful were your regional meetings? Did people agree on how to use the scarce infrastructure tiles?
- Who won?

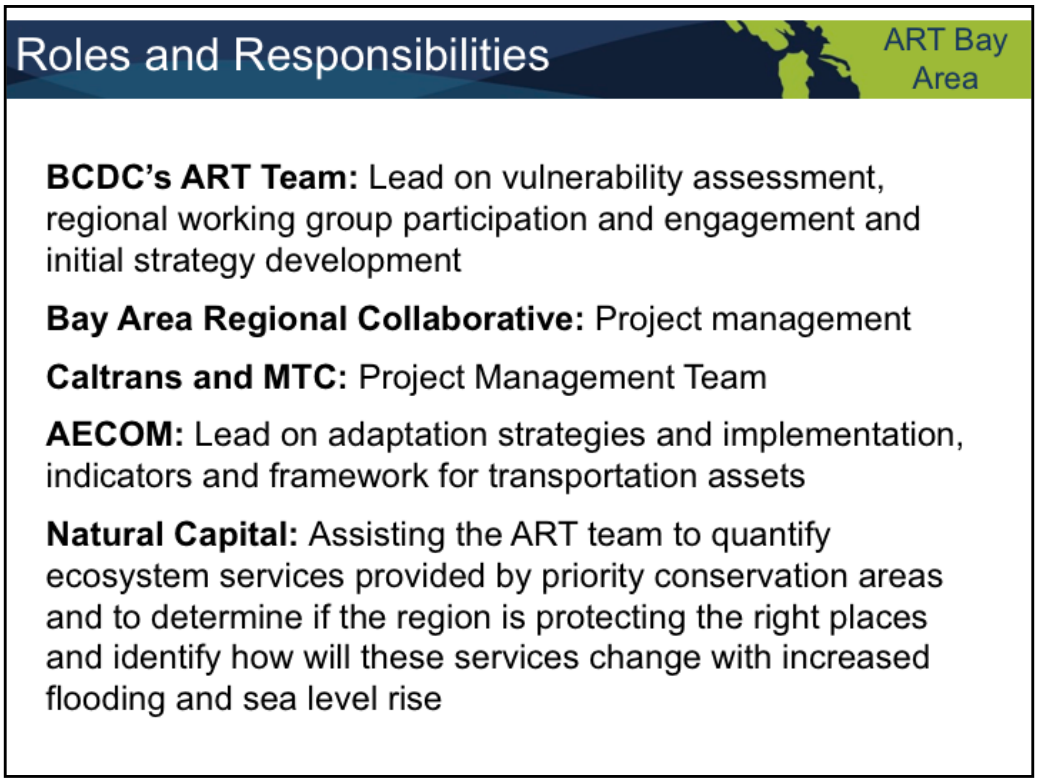
We want to hear your feedback about the game. Here are some questions to consider.

Welcome to the first meeting of the Adapting to Rising Regional Working Group. Thank you for joining us and we look forward to working together on this project with you.

Let me walk through the objectives for the first Regional Working Group meeting and outline the agenda for you. Please let me know if you have any questions or additions to the objectives or the agenda. Also, feel free to ask questions or make comments during this presentation. We want this process to be as participatory as possible, while still providing you with the information you need to engage in project.



In order to have a successful, cross sector, cross jurisdiction, multi agency project, the project management team includes regional and state agency staff, consultants and the regional working group. The Project Management Team includes the Bay Conservation and Development Commission's Adapting to Rising Tides Program (Lindy Lowe and Eliza Berry serve as representatives to the PMT and Heather Dennis, Elizabeth Felter, Todd Hallenbeck and Adam Fullerton are working on the project), the Bay Area Regional Collaborative (Allison Brooks and Vijay Kesavan serve as representatives to the PMT), the Metropolitan Transportation Commission (Dana Brechwald serves as the representative to the PMT) and Caltrans (Dick Fahey serves as the representative to the PMT). The consultant teams include Natural Capital (Anne Guerry and Jess Silver are the primary points of contact for the NatCap team) and AECOM (Claire Bonham Carter and Amruta Sudhalkar are the primary points of contact for the AECOM team) and the regional working group, which includes the people in this room today and people we need in this room for future meetings. Please let us know if you think we are missing anyone and connect us to either specific people, agencies or organizations or topic area representation that you think we need for this project.



The roles and responsibilities for the members of the project management team include: (see slide)

ART Bay Area Overview

ART Bay Area

The ART Bay Area project is a regional scale adaptation planning process funded by Caltrans and the Bay Area Toll Authority, that includes the following assets:

- Transportation assets (bridges, highways, Bay Trail, transit, airports)
- Priority Development Areas and residential areas
- Priority Conservation Areas and natural areas
- Disadvantaged and vulnerable community members

The ART Bay Area project is a multi sector, multi jurisdictional, regional scale adaptation planning project that includes transportation assets, community assets, natural and recreational assets, and community members and is intended to increase the region's resilience to current and future flood risk. The ART Bay Area project is the first regional adaptation planning project conducted in the Bay Area.

ART Bay Area Goals and Objectives

ART Bay Area

The preliminary goals and objectives of ART Bay Area include:

- Increase the resilience of the Bay Area's transportation system
- Improve the safety and sustainability of our communities, particularly our most vulnerable and disadvantaged communities
- Develop an adaptation planning framework for future efforts
- Increase public outreach, participation and engagement

One of the things we will do here today is to begin to discuss the appropriate goals and objectives for the ART Bay Area project. The Project Management Team developed these goals and objectives when applying for the Caltrans Sustainability grant that is funding this project. We will be revising these goals and objectives with your input over the next two Regional Working Group meetings.

Regional Scale Adaptation Planning

ART Bay Area

Networked Infrastructure

- Shoreline Protection
- Transportation
- Utilities

Regionally Significant Assets

- Airports and Seaports
- Refineries and Pipelines
- Baylands

Local Vulnerabilities = Regional Consequences

- Tidal Creeks and Channels
- Shoreline Protection

Communities with characteristics that place them at greater risk, e.g., low income, renters, transit dependent, elderly

In the past when I have made presentations or raised the issue of regional scale adaptation planning, some have asked the question, “What is regional scale adaptation planning? Doesn’t most adaptation planning happen at a specific place- a roadway is raised, a wetland is enhanced or restored in a way that reduces flood risk, homes are built above current and future flood elevations, etc.) While all of these examples are true and a lot of adaptation action will be taking place at a particular location, the work that the Adapting to Rising Tides team has been doing around the region has illustrated that there are also a lot of region issues and assets that will need to be addressed as well. These include: networked infrastructure, regionally significant assets, local vulnerabilities that will have regional consequences and the need to address the risk of disadvantaged and vulnerable communities. Additionally, water will not stop at property lines or jurisdictional boundaries and actions that are taken in a specific place (or not taken) can have significant impacts to other locations in our region.

Related Efforts and Projects

ART Bay Area

Plan Bay Area

A state-mandated, integrated long-range transportation, land-use and housing plan that is designed to:

- support a growing economy
- provide more housing and transportation choices
- reduce transportation-related pollution in the nine-county San Francisco Bay Area.
- develop an efficient transportation network and grow in a financially and environmentally responsible way

Incorporate outcomes and findings from ART Bay Area into the next update of Plan Bay Area and advance resilience actions recommended in the 2017 update, Plan Bay Area 2040

The ART Bay Area project will leverage and integrate with other projects, efforts and plans. The next three slides describe the way that we will ensure coordination and integration with other regional efforts and plans.

Several of the project management team members participate in the Resilient by Design project. Allison Brooks, the Executive Director of the Bay Area Regional Collaborative, is the project manager for the ART Bay Area project and is the co-chair of the RBD board. Lindy Lowe, the Deputy Director of Planning for the Bay Conservation and Development Commission assists in managing the ART Bay Area project, leads the ART team work and also on the Research Advisory Committee for RBD. The ART Bay Area team and the RBD team are working closely together to align these two regional efforts and ensure that they leverage and inform each other.

Related Efforts and Projects

ART Bay Area

Adaptation Planning Projects and Programs

- Metropolitan Transportation Commission/Association of Bay Area Government's Resilience Program
- Bay Conservation and Development Commission's Adapting to Rising Tides Program Projects
- Coastal Conservancy's Climate Programs
- San Mateo County's Sea Change
- Marin County's C-SMART for the outer coast
- Marin County's BayWAVE for the bay shoreline

ART Bay Area will use existing projects and programs as a foundation for the work to be done, incorporating findings and recommendations from completed projects and using best practices in process, communication and outreach and approach

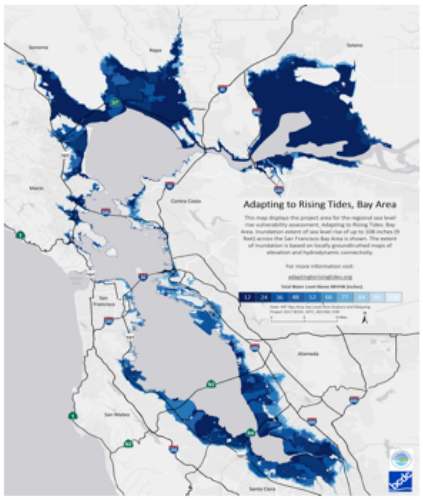
Additionally, ART Bay Area will incorporate completed and ongoing work from projects that have been led by the ART team, as well as projects that have been led by others. We will provide a way for the Regional Working Group to review the projects and efforts that we are including and provide us with any that we may have missed.

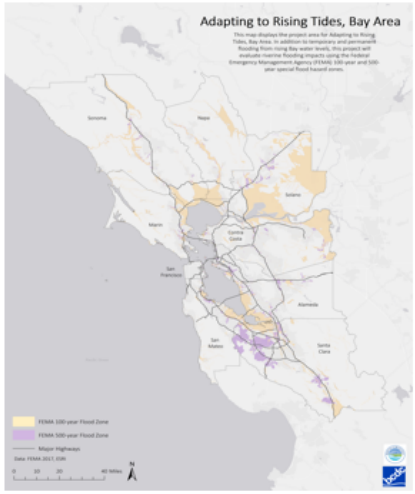
Does anyone have any additional questions or comments about the project overview, goals and objectives, project team, roles and responsibilities, related efforts and projects or anything else that is related to these topics?

Project Area

ART Bay Area

The nine county Bay Area, including both coastal and riverine flood risk, with an inland extent defined by the highest possible flood scenario based on new State SLR guidance and the 100 and 500 year zones





I will spend the next 20 minutes describing the initial, proposed scope and scale of the ART Bay Area project. The project area includes all nine counties and both coastal and riverine flood risk. For coastal inundation, we will use the Adapting to Rising Tides regional maps. For riverine risk, we will use the FEMA 100 year and 500 year flood zones. We will include parts of the outer coast where adaptation planning projects have already been conducted and we are able to use outcomes from those projects.

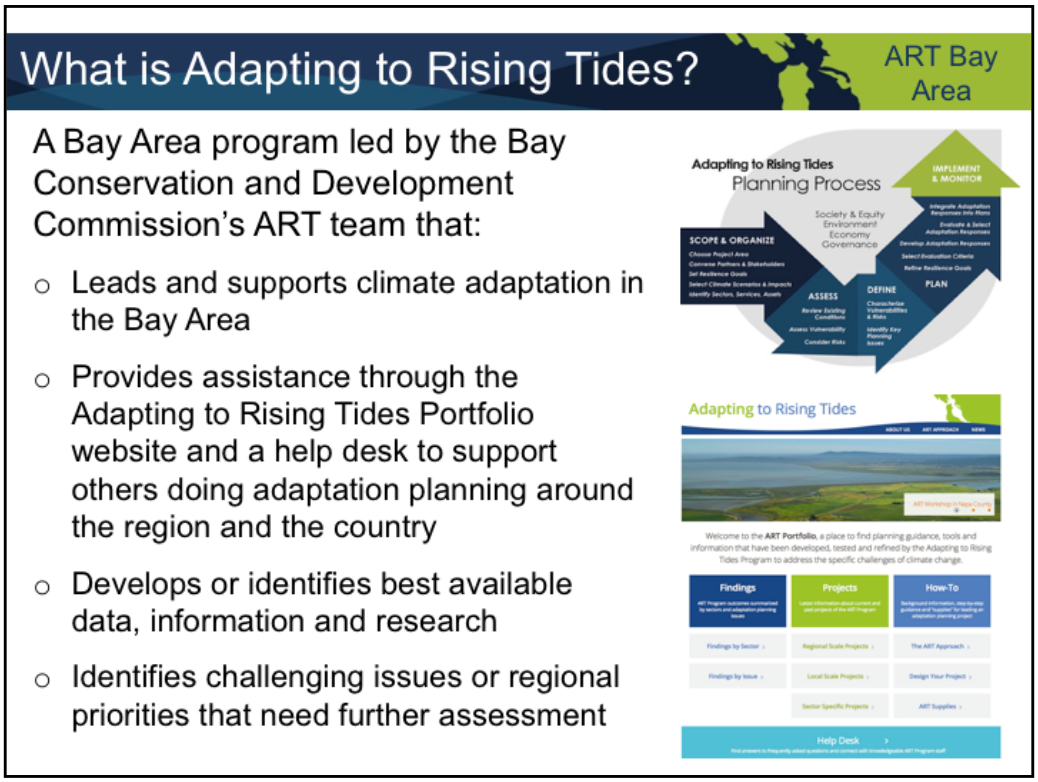
Adapting to Rising Tides Approach

ART Bay Area

ART Bay Area will use the ART approach which:

- Integrates equity, economy, environment and governance from start to finish
- Can be applied to different geographies, sectors and hazards
- Convenes and engages a working group to build local capacity and ensure outcomes resonate locally
- Results in a robust and transparent vulnerability assessment that makes the case for adaptation
- Establishes a clear roadmap for actors at all scales to take action

The ART Bay Area project will use the Adapting to Rising Tides Approach: http://www.adaptingtorisingtides.org/howto/art-approach/
The ART Approach was developed by BCDC's ART team in partnership with the ART Alameda County pilot project working group and has been refined in the ART Program projects that have followed over the last six years. The ART Approach was developed in partnership with the ART Alameda County working group and it addresses many of the challenges and barriers that others have found difficult in adaptation planning work and provides a roadmap for this work. Some key aspect of the ART Approach (see slide)



The Adapting to Rising Tides Program is led by the Bay Conservation and Development Commission's Adapting to Rising Tides team. The program was started in 2011 as a partnership between BCDC and the National Oceanic and Atmosphere Administration (NOAA). The program began as a pilot project to assist others in adaptation planning for sea level rise. Both BCDC and NOAA were concerned that local jurisdictions, all scales of agencies and organizations were not considering or advancing climate adaptation work. The idea behind the ART pilot project was to assist these agencies and organizations with multi agency, multi jurisdiction adaptation planning and learn how to do it in the most effective, efficient and resonant way possible. In the course of the ART Alameda County pilot project, the partners increased to include not only BCDC and NOAA, but also the Metropolitan Transportation Commission and Caltrans, as well as a number of other regional working group member agencies, such as BART, East Bay Regional Park District, Capital Corridor and the Hayward Area Recreation District. The pilot project became the ART Program, which continues to lead adaptation planning project, but also supports others through the Adapting to Rising Tides Portfolio (the ART Program website) and with staff support from the ART team to assist others leading the work.

ART Program Projects

ART Bay Area

Local-scale projects

- Alameda County
- Contra Costa County
- Hayward Shoreline Resilience Study
- Oakland/Alameda Shoreline Resilience Study

Regional-scale projects

- Stronger Housing, Safer Communities
- Hazard Mitigation and Adaptation Plans
- Regional Sea Level Rise and Shoreline Overtopping Maps and Analysis

Sector-specific projects

- EBRPD Shoreline Parks
- Bay Area Transportation Climate Resilience
- CCJPA Intercity Rail Hot Spots Assessment
- Corte Madera Baylands
- Tidal Creeks and Flood Control Channels

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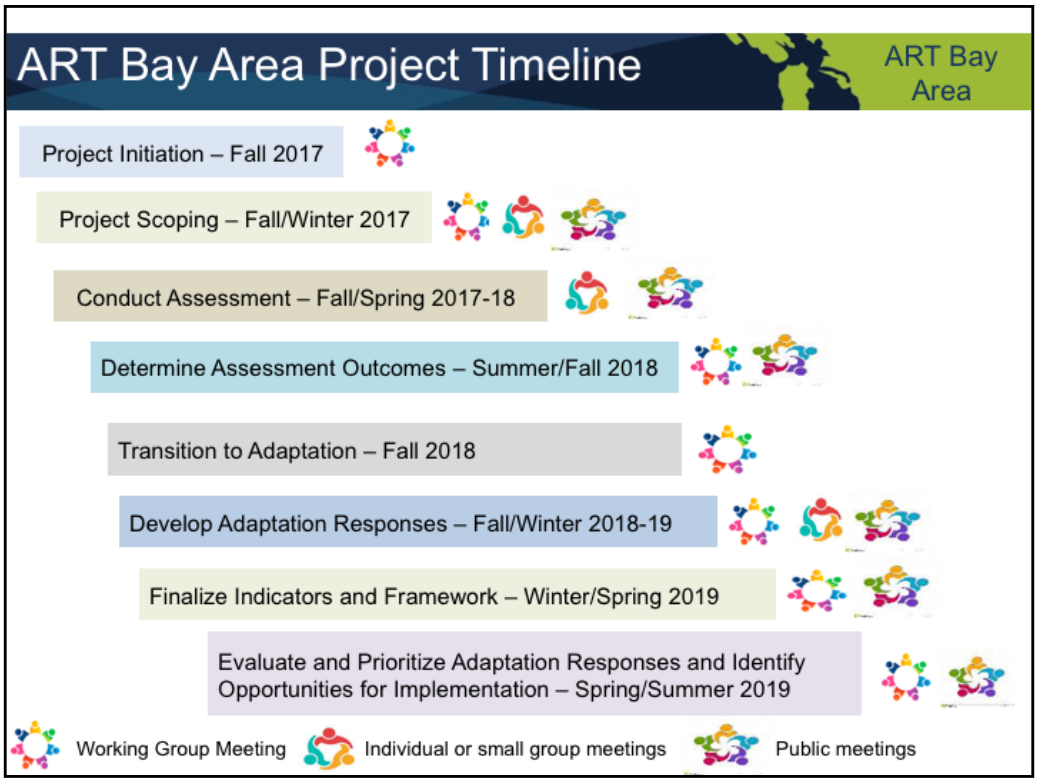
The ART Program has led local, regional and sector scale projects all over the region. Here is a list of some of them (see slide)

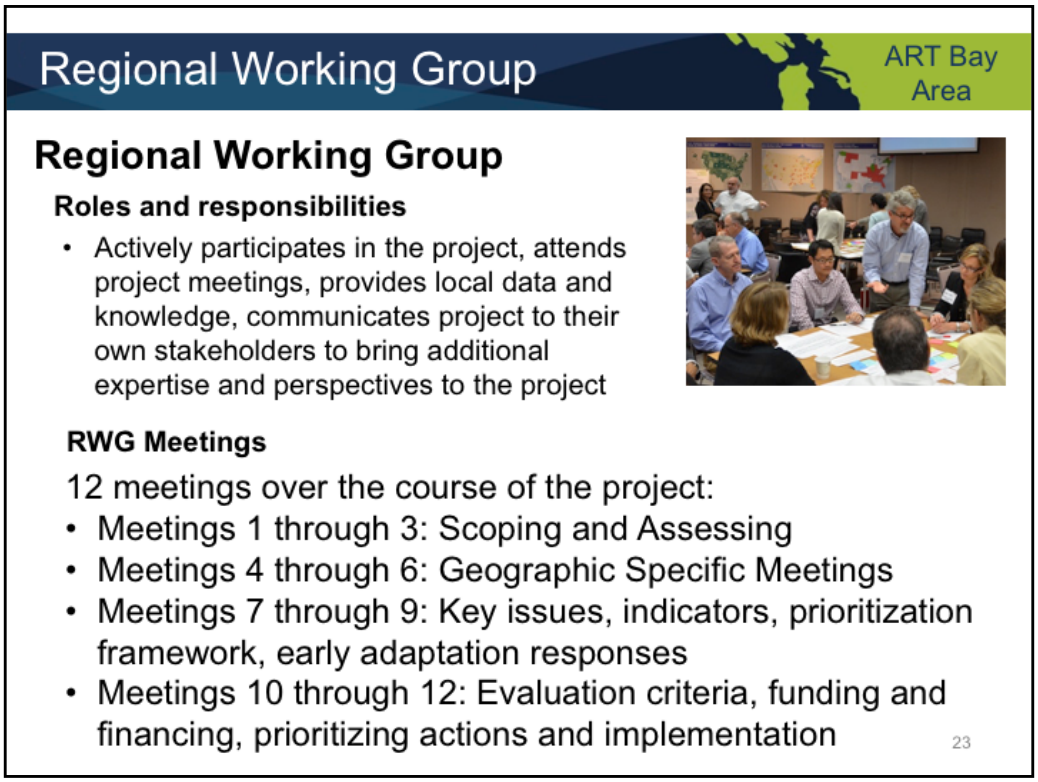
Some of the results that are outcomes from every ART Program project (see slide)



The project began in the Fall of 2017 and the team has been scoping the project and conducting early work on the assessment. The assessment will wrap up in the Spring of 2018 and we will work with the Regional Working Group, the consultant team and others on determining and finalizing the assessment outcomes by the Fall of 2018. The transition to adaptation strategies will take place in the Fall of 2018 and the consultants will begin to work with the project management team, the Regional Working Group and others on adaptation responses and actions during the Fall and Winter of 2018/2019. The project will wrap up in the Spring/Summer of 2019 with evaluation and prioritization of actions and taking prioritized actions towards implementation. Throughout this timeline you will see that there are a number of meetings that will occur at each of these critical steps- Regional Working Group meetings, of which this is the first, public meetings, which will begin early next year and small group meetings as necessary for the assessment and adaptation response development. In several slides I will provide more detail about Regional Working Group meetings and public meetings.

The Adapting to Rising Tides Program process includes five steps: Scope and Organize, Assess, Define (transition between assess and plan), Plan and Implement and Monitor. Throughout the process the four sustainability frames- society and equity, environment, economy and governance- are woven into each step, from setting the resilience goals to defining existing conditions to developing evaluation criteria and prioritizing actions. For more detail on each step in the process, please see Design your Project on the ART Portfolio here: http://www.adaptingtorisingtides.org/howto/design-your-project/

We are currently in the Scope and Organize part of the ART Bay Area project and you will be a critical contributor to this step. At this first Regional Working Group meeting we will be reviewing all of these tasks and finalizing them in the second Regional Working Group meeting. This includes convening the Regional Working Group, which we are doing today, and identifying any issues, organizations or individuals who are missing who should be included. Choosing a project area, which is somewhat simple because the project includes all nine counties within the Bay Area, with a focus on the Bay shoreline. The sectors, services and assets that will be included are somewhat predetermined by the grant that we received, but we hope to hear from you how you feel about those that have been included and what you think we may need to add or consider differently. I will also present the climate impacts and scenarios in several slides and you will have an opportunity to provide comments then or at a poster session that will occur after this presentation. And finally, we will begin to develop resilience goals for the project, conducting an exercise to start us off and providing draft goals and then finalizing them at Regional Working Group meetings two and three.



In case you don't already know, you are the beginnings of the Regional Working Group and I want to share the roles and responsibilities that ART Program Regional Working Group members have had in past projects and we are hoping you will have in this project. Regional Working Group members (see slide). The Regional Working Group will also have a significant role in which issues are prioritized and advanced for action. There will be twelve meetings of the Regional Working Group (see slide). Your ongoing participation will be important and if you are unable to attend a meeting or two, we will provide you with other ways to participate and may even set up small group meetings to close some of the gaps.

There will be at least seven meetings where we will try and engage the public to participate in the project, as well as other opportunities for the public to participate, including PMT and others attending public meetings and existing community group meetings and events to share information about the project. The goal of the public meetings is to obtain direction and input on each step or phase of the project from members of the public and provide multiple ways for the public to engage. We will also be enlisting you, the Regional Working Group, to request your ideas and help reaching out and hearing from members of the public that you represent or are members of. The meetings and engagement topics will include (see slide).

The Assess Step: A preview

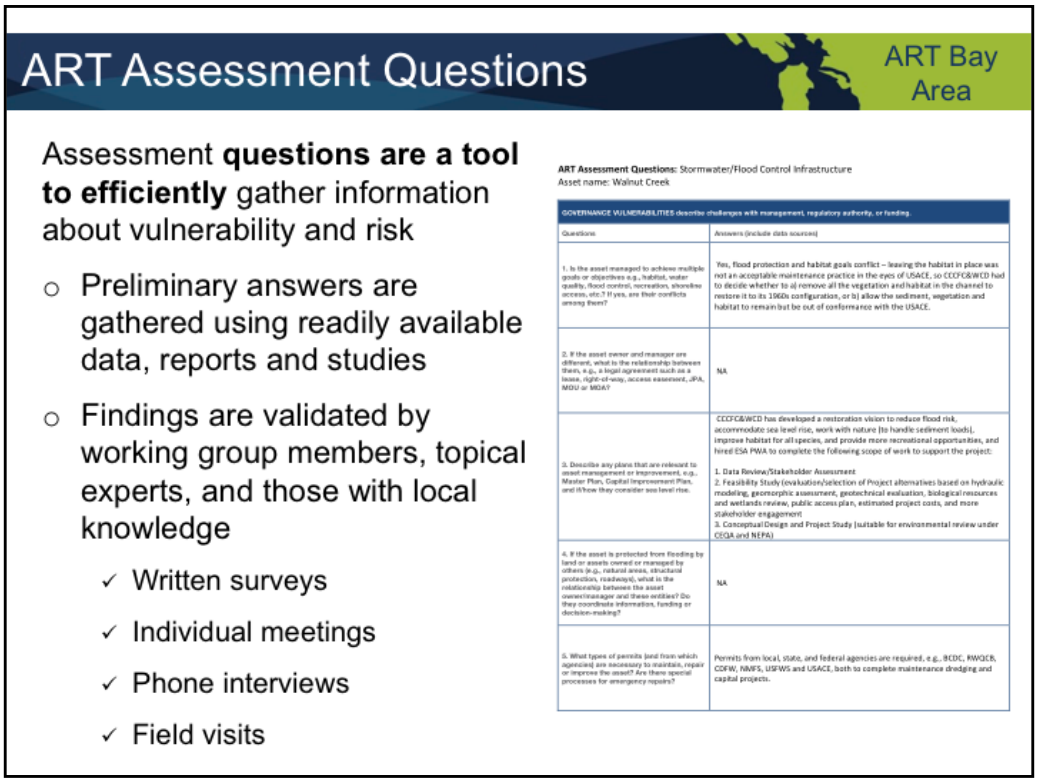
ART Bay Area

The **ART assessment** is designed to clearly and efficiently identify the underlying causes and components of vulnerability and risk

The assessment has three parts:

- Assessment questions that help efficiently gather information needed for action identification
- A step-wise exposure analysis that saves time and resources by pinpointing the most pressing issues and vulnerable areas
- Review and validation of assessment outcomes by stakeholders, asset managers, local and topical experts

I also wanted to provide you will an early preview of some of the work that we will be doing together in the Assess Step. I wanted to share this with you since the ART team have already begun the early stages of the asses step and may reach out to some of you in the next month or so for your assistance on those assets and services and issues that you are familiar with. The three steps of the assessment are: (see slide).



One of the tools that you will hear more about in the next few months are the ART Assessment Questions. The ART team has already started to answer the assessment questions for some of the assets and asset categories. Your role as working group members will be to validate their findings and fill in the gaps.

Assessment Approach

ART Bay Area

Upon completion of the assessment questions, the next step is to enhance and validate the assessment findings:

- Obtain input (reports, data, maps) from working group members, topical experts, and those with local knowledge
- Ask working group members and others to review preliminary assessment answers and exposure analysis

- ✓ Individual meetings
- ✓ Small group meetings
- ✓ Phone interviews
- ✓ Email
- ✓ Field visits

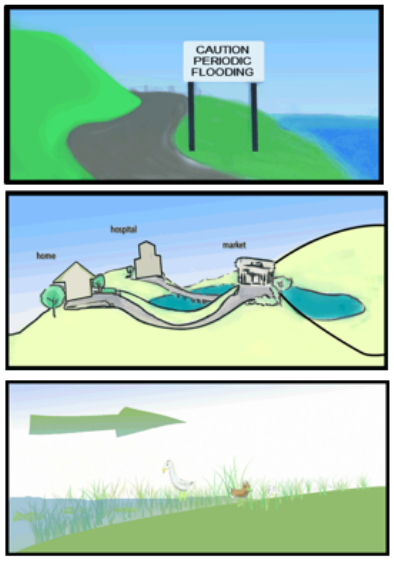
We will validate the findings in a number of ways and try and make it as easy on you, the Regional Working Group, as possible. Some of the ways in which we will validate the findings are setting up meetings with you or others in your group or staff or office or neighborhood either individually or in small groups, telephone interviews, email exchanges and field visits. Some issues are best addressed or considered in the field and the ART Program and its working group members have had a number of "aha" moments in the field.

ART Flooding Impacts and Scenarios

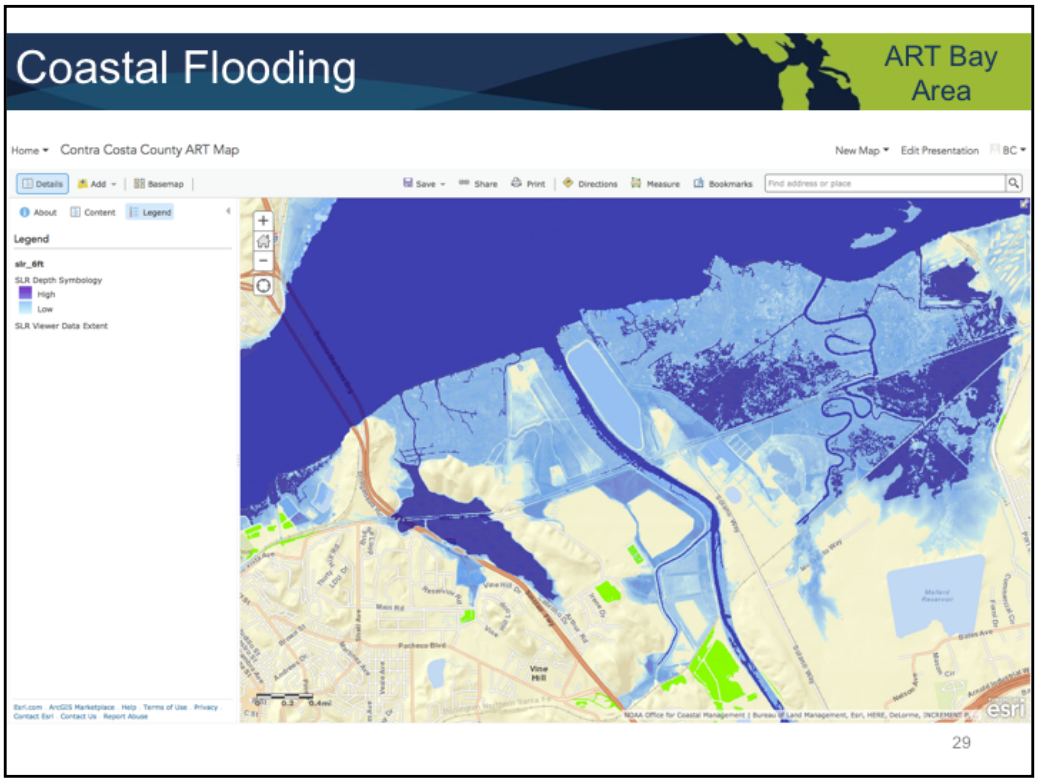
ART Bay Area

Impacts from coastal and/or riverine flood events including:

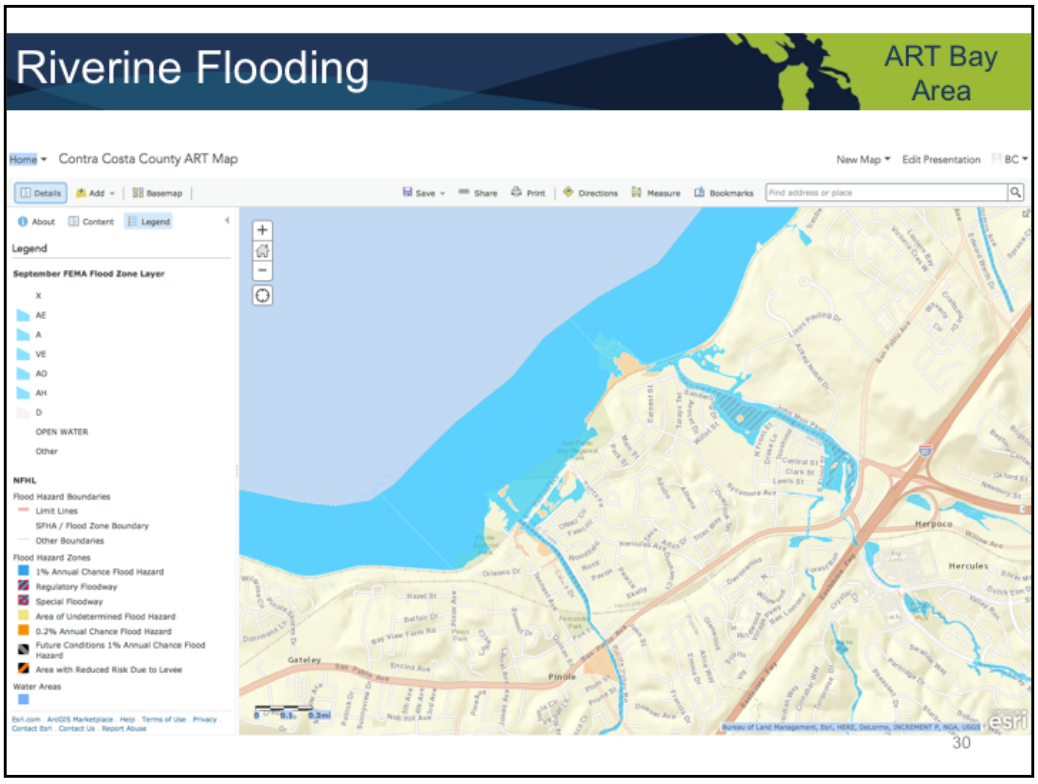
- More frequent flooding of existing flood-prone areas
- Flooding in areas that are not currently at risk
- Elevated groundwater and increased salinity intrusion
- Permanent inundation along the shoreline, in particular tidal wetland systems
- Shoreline erosion and overtopping
- Tidal creek and channel flooding



We propose that we use the following to frame the flooding and impacts and scenarios that will be included in the study: (see slide). It is important to note that the PMT and the consultant team have more information available for some of these issues and less available for others. We think it is important to include them all and consider them to greatest extent possible based on current resources and to identify those issues in particular parts of the shoreline where more analysis (and resources) is necessary in order to understand the potential problem.



The project will include current and future coastal inundation and will use the Adapting to Rising Tides Program maps in order to analyze where along the shoreline will be exposed to which water level. You will learn more about our coastal flooding data and maps during the poster session that follows this presentation and in Regional Working Group meeting two. For more information you can also visit the ART Portfolio page about the ART Programs maps at: http://www.adaptingtorisingtides.org/maps-and-data-products/

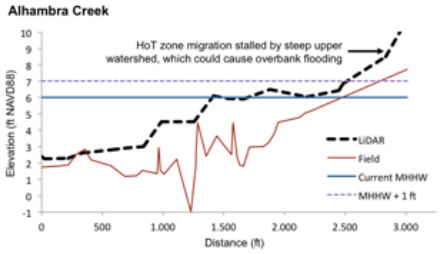


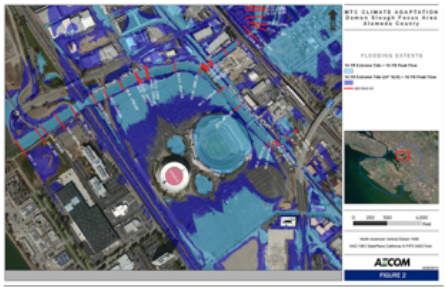
The ART Bay Area project will also evaluate riverine flooding by using the 100 year and 500 year Federal Emergency Management Agency maps for each county. We will provide more detail about this approach, and the challenges associated with it, at Regional Working Group meeting two.

Coastal + Riverine Flooding

ART Bay Area

Studies where available, best professional judgment based on current mapping, or new investigations where feasible





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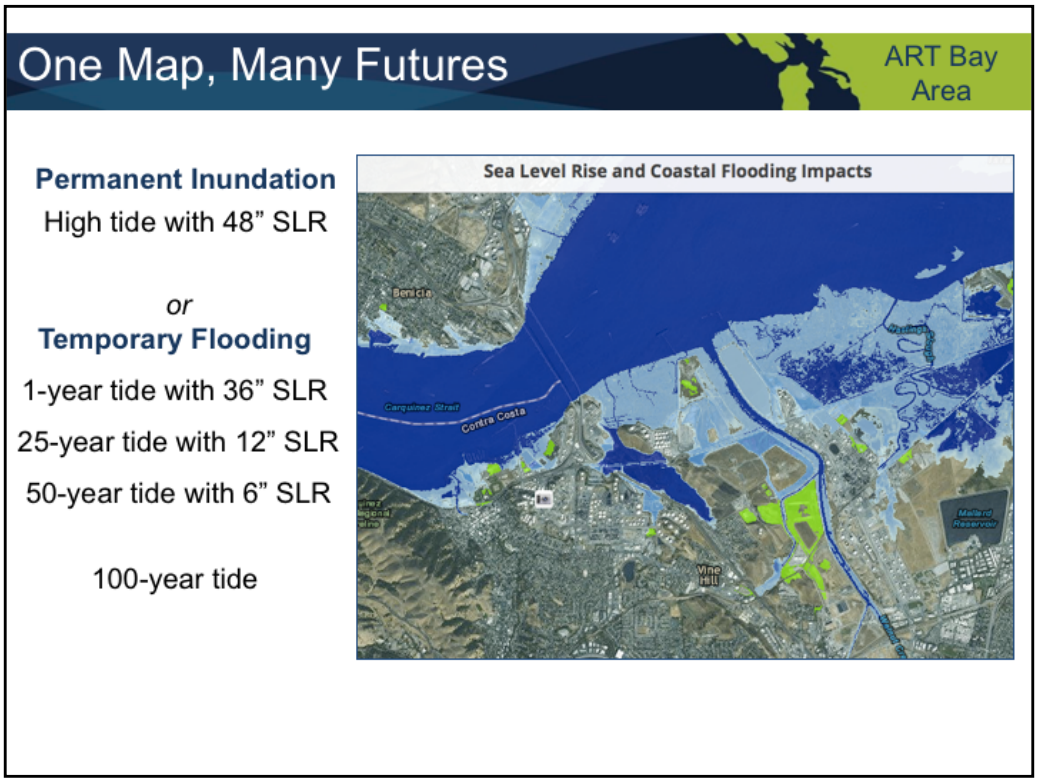
We recognize that it is critical to consider coastal and riverine combined flooding, which will result in flooding that is more significant than what is being projected by just considering coastal flood exposure and will likely expose more of our community and infrastructure assets because more of them are sited along our tidal creeks and channels. One example of where the ART Program modeled a joint riverine and coastal flood event is on Damon Slough, which runs along the Oakland Coliseum, where the Oakland A's, the Golden State Warriors and the Oakland Raiders currently play. This map depicts the flooding from the event that was modeled and demonstrates how significant the issue of joint Bay and riverine flooding can be for our communities.



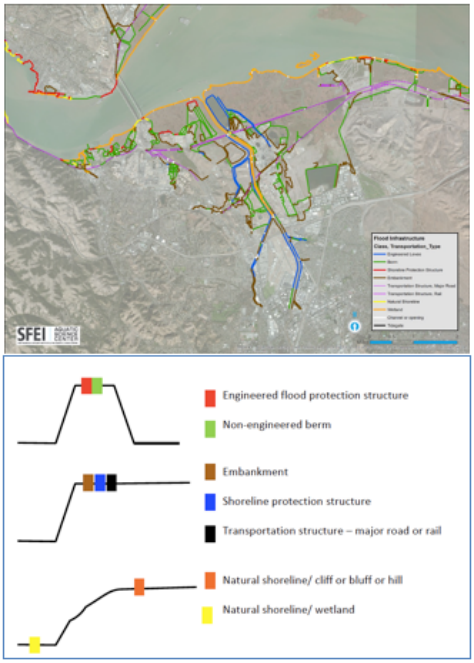
The ART Program maps and exposure analysis uses an approach called “One Map, Many Futures”. The selection of which sea level rise scenarios to use in the ART Alameda County project was so frustrating to our working group members that we began to explore other ways to map and analyze sea level rise. With support from the working group and the consultants on the project, we developed the One Map, Many Futures approach which provides more actionable information to jurisdictions, land managers, land owner and communities. It allows the ART team to analyze multiple scenarios with one map and identify thresholds for particular parts of the shoreline–identifying the water level that will begin to cause temporary flood events, the water level that will increase the frequency of those floods and the water level at which the flooding will become permanent. The map depicted here is of a part of the Contra Costa County shoreline around the City of Martinez and we can use this one map to provide us with all of this information- that this amount of water at this section of shoreline shows permanent inundation at either 48 inches of SLR or temporary inundation at (see slide). In fact, this is an amount of water that could occur at this section of shoreline currently with a 100 year tide. This information allows the ART team and working group members to develop adaptation strategies that are phased to address these different conditions from temporary flooding seen more frequently over time to protecting against permanent inundation in the more distant future.

Shoreline Mapping

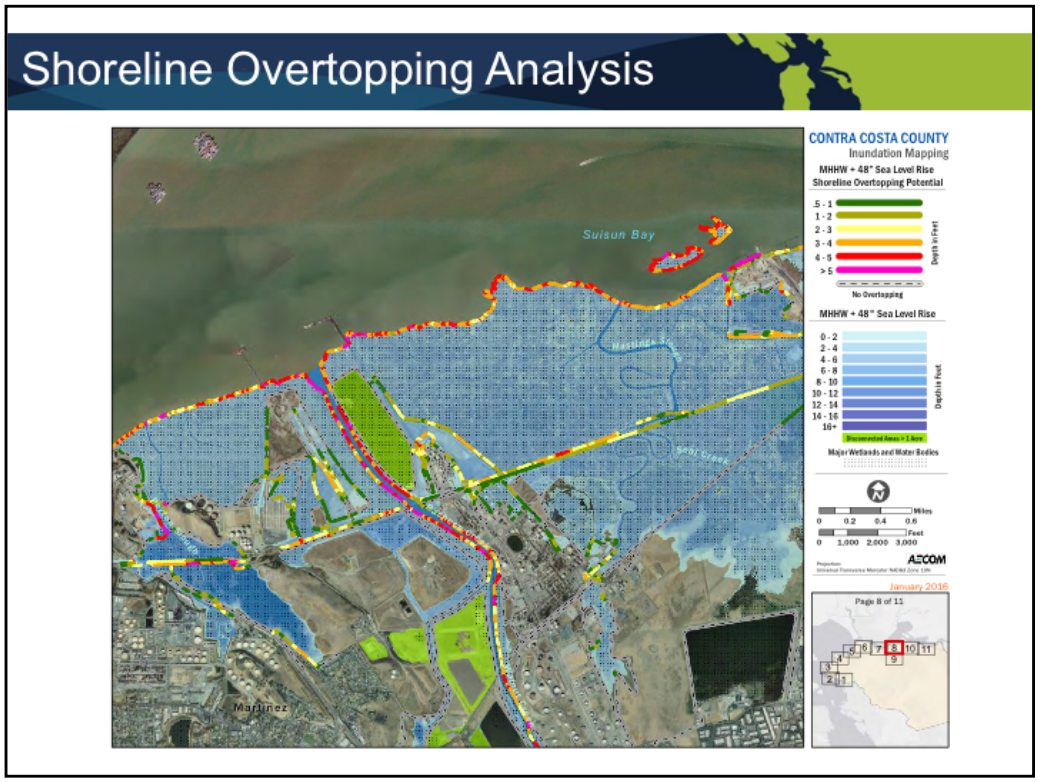
ART Bay Area

Location and elevation of **seven shoreline defense types** that can prevent inland flooding:

- Engineered Flood Protection
- Engineered Shoreline Protection
- Embankments
- Transportation Structures
- Non Engineered Berms
- Wetlands
- Natural Shoreline/Beach



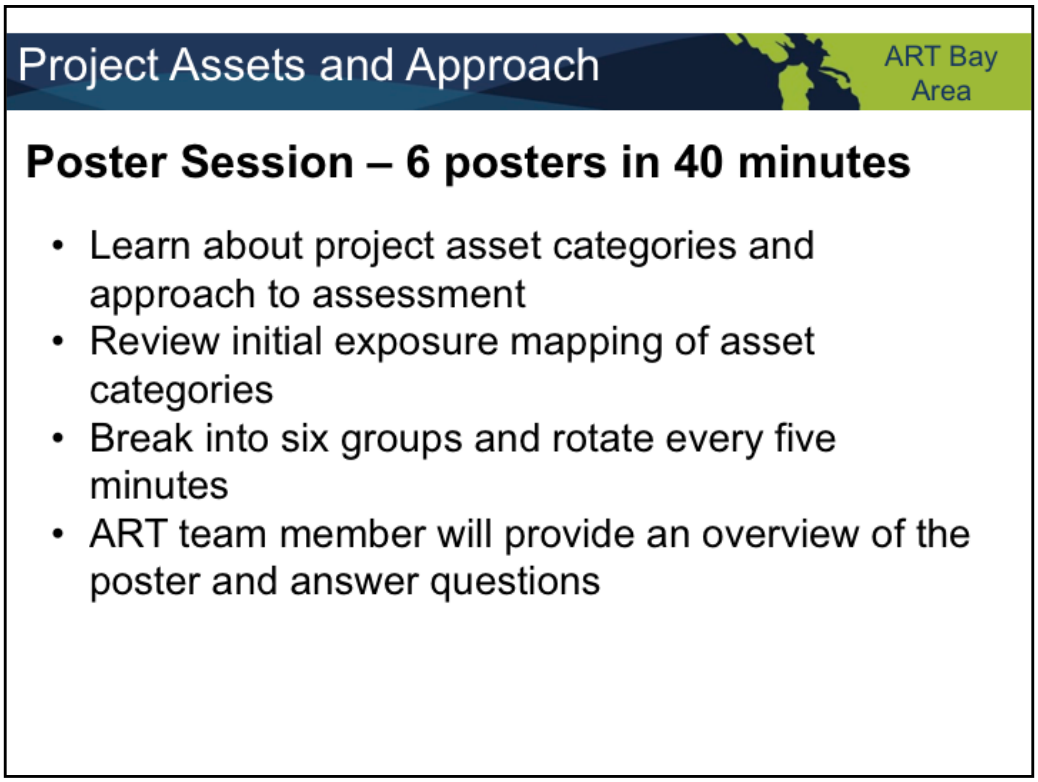
Another feature of the ART maps is the depiction of shoreline types, which can tell us something about the role that shoreline plays in providing protection to the inland areas behind it. For example, there is likely a difference in the protection provided by engineered flood protection, which is designed to protect areas from flooding, and a transportation structure, which provides ad hoc flood protection simply due to its location and elevation, not due to its design. The maps of the shoreline can also help us to determine the types of adaptation strategies that might work in particular locations. The types of shoreline that are included on the maps are (see slide). Here is the same area of Contra Costa County shown in this map with the shoreline types data depicted.



Another powerful feature of the maps is the shoreline overtopping analysis which combines the elevation of the land at a particular point along the shoreline and the tidal datum for that particular part of the shoreline and tells us the water level at which that part of the shoreline will be overtopped and flooding will occur in the inland areas. The shoreline is delineated into 100 foot segments and the colors depict shoreline overtopping potential. The overtopping potential can also point to the type of strategies that might work for particular parts of the shoreline. For example, this map, again of the area of Contra Costa County that is centered around the City of Martinez, shows where some of the lowest parts of the shoreline are and helps identify where there are large areas of shoreline that are uniformly low and will require a landscape scale solution and where there are low spots that can be addressed with a more site specific approach. You will have an opportunity to hear more about the maps and analysis during the poster session after this presentation and at Regional Working Group meeting two.

Questions and Comments

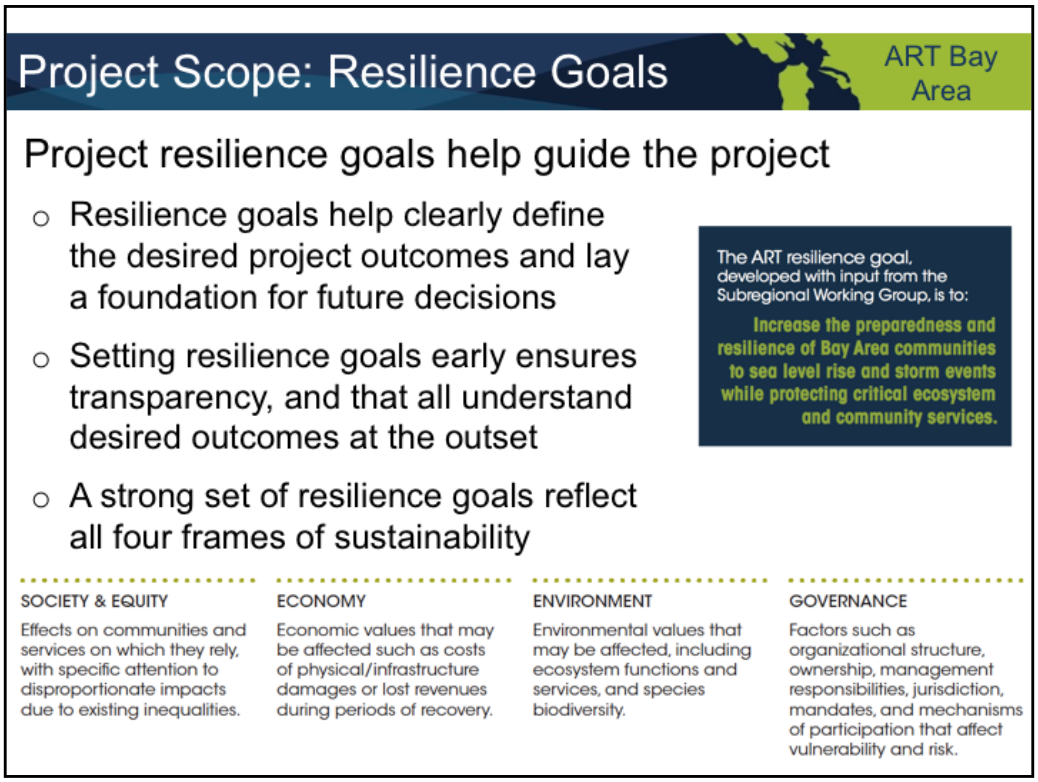
ART Bay Area



We will now break into groups and visit six posters to learn more about the project and provide an opportunity for you to ask questions and hear more detail about the asset categories, the assessment approach, the maps and the climate impacts and scenarios. See slide

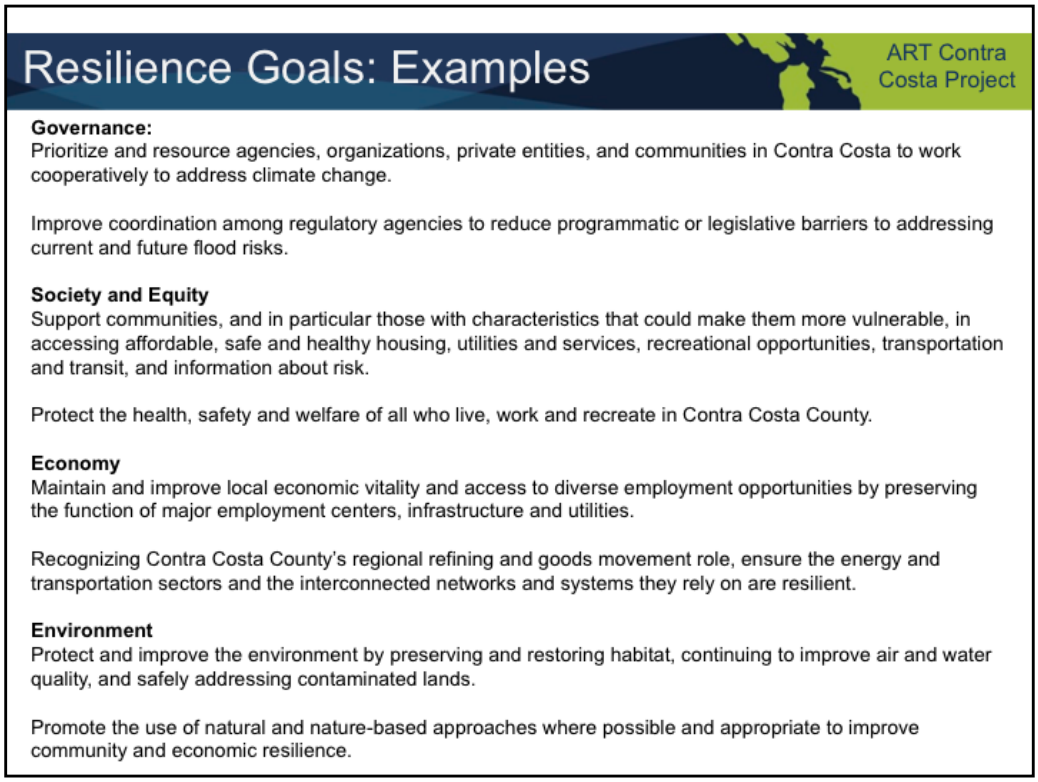
The issues and assets that will be covered in the poster session are climate impacts and scenarios, transportation, priority development areas, priority conservation areas, vulnerable community members and tidal creeks/channel and stormwater. To see the posters that were presented, see http://www.adaptingtorisingtides.org/art-bay-area-regional-working-group-meetings.

Poster Session: Questions or Comments?

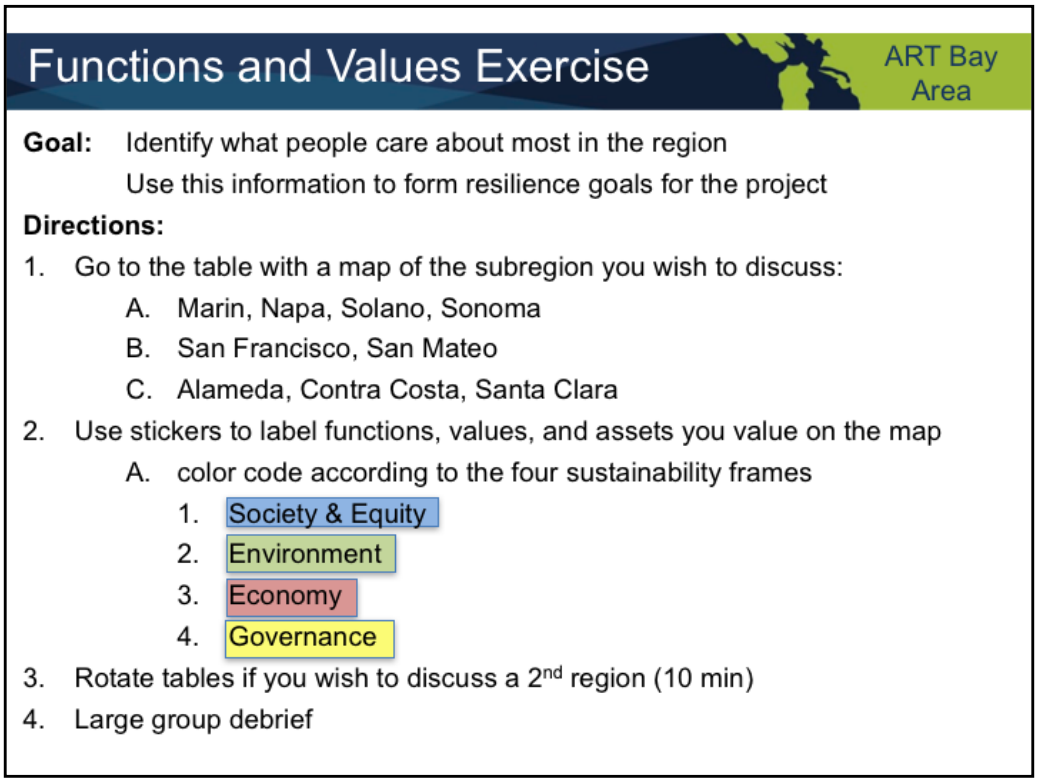


Thank you for your engaged participation in the poster session and we apologize that you did not have more time to spend at each poster. Please feel free to follow up with the appropriate ART team member if you have further comments or questions. We will now move on to the development of the resilience goals for the project. The purpose of resilience goals is to (see slide). The resilience goals should reflect all of the four sustainability frames (see bottom of the slide). For more detail on how to set resilience goals and the engagement exercise that the ART Program uses to identify the assets, services and values that are important to the project and the participants, see the Functions and Values engagement exercise here: http://www.adaptingtorisingtides.org/wp-content/uploads/2015/10/ART-EngageEx_FxnsValues_web-aligned_V1.pdf

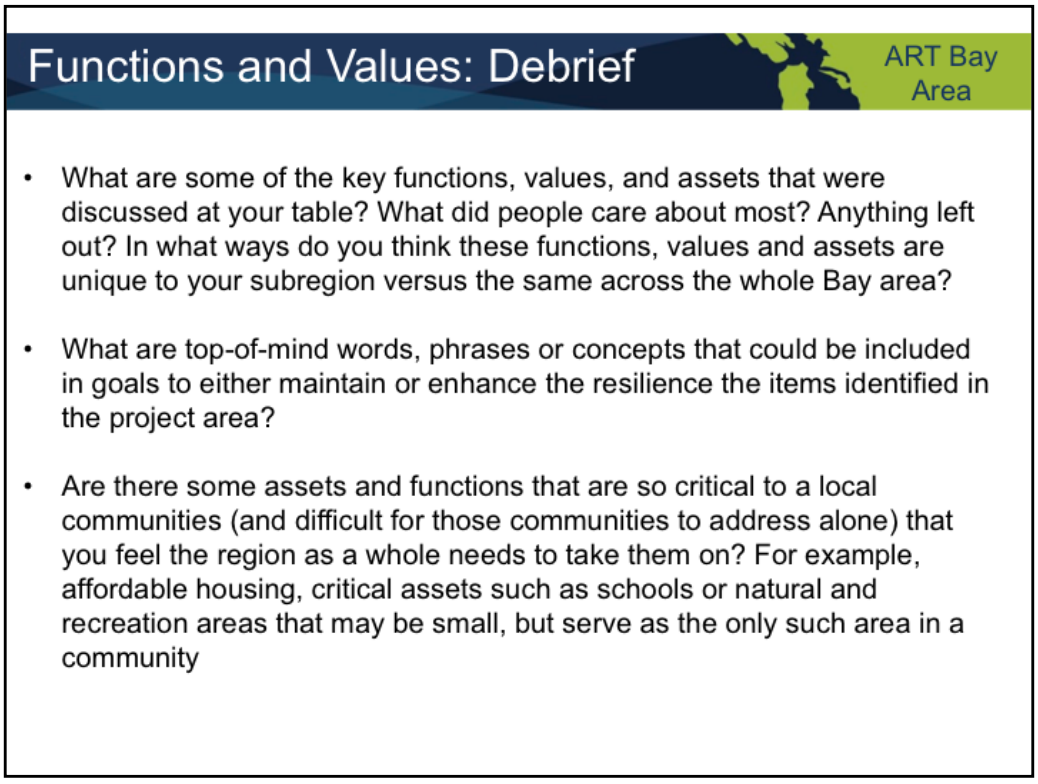
The goal of the engagement exercise that we will work together on today is to identify those issues, values, assets and services within the project area (which in this case is the region) that are important to consider during all steps of the project- from the assessment to the development of evaluation criteria to the prioritization of actions. The goals will be revisited and perhaps adjusted if necessary, several times during the project– at the point when the assessment is being finalized, during the development of evaluation criteria and then during the selection of actions to prioritize for implementation.



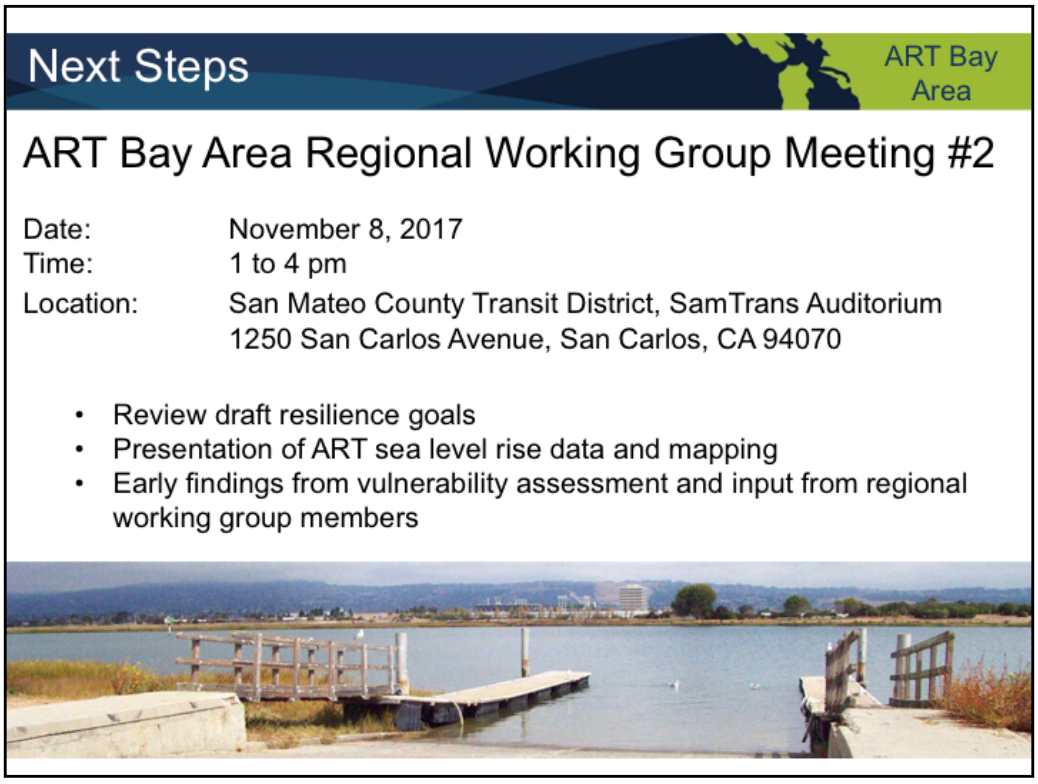
In order to help you better understand resilience goals, here is an example from Contra Costa County. The goals that were set were particular to Contra Costa County and were different than those set for the ART Oakland/Alameda Resilience Study (which had a focus on the airport and residential neighborhoods) or the ART Hayward Resilience Study (which focused on natural areas, recreation assets and regional infrastructure). In Contra Costa County, economic development and the diversity of employment opportunities was identified as important as was the unique role that the county plays in the region as home to the region's refineries and to many regional energy and transportation networks and systems. The challenge for us in finding resilience goals for the ART Bay Area project is to find those similarities that important to the entire region, while reflecting the unique roles that different parts of the region play.



See slide for instructions for the Functions and Values exercise. Each table will have an ART team member or an ART Bay Area PMT member to support and guide you through the exercise.



See slide for questions asked about the exercise after its conclusion.



The next ART Bay Area Regional Working group meeting will be held on November 8th from 1 to 4pm at the San Mateo County Transit District located at 1250 San Carlos Avenue, San Carlos, CA 94070. At this meeting we will review draft resilience goals, learn more about the ART sea level rise data and mapping and hear and be able to provide input on early findings from the vulnerability assessment. Thank you so much for your engaged participation today and we look forward to working with all of you on this project. If you have any questions or comments, please reach out and contact us. These meetings are only one way to participate and we want your input whether in these meetings or outside of them. Thank you again.