

Uncovering Shared Vulnerabilities: Participant Guide

The assets that are being analyzed in ART Bay Area are interconnected in many ways. For example, if a road leading to a community is flooded but the community stays dry, that community will still experience impacts of sea level rise because transportation in and out of the community will be limited. As another example, we often see that several different assets experience flooding when one section of shoreline overtops with sea level rise. Similarly, several assets may experience the same lack of information on potential hazards, or the same lack of governance or coordination needed to the land owners and managers who would need to come together to address their flood risks. The ART Bay Area project seeks to uncover these “shared vulnerabilities” so that adaptation solutions can be identified that solve multiple problems.

The goal of this exercise is for participants to gain a better understanding of how geographic proximity and interdependent connections among ART Bay Area assets result in shared vulnerabilities to sea level rise, and how viewing these relationships through focus areas may lead to multi-benefit adaptation opportunities.

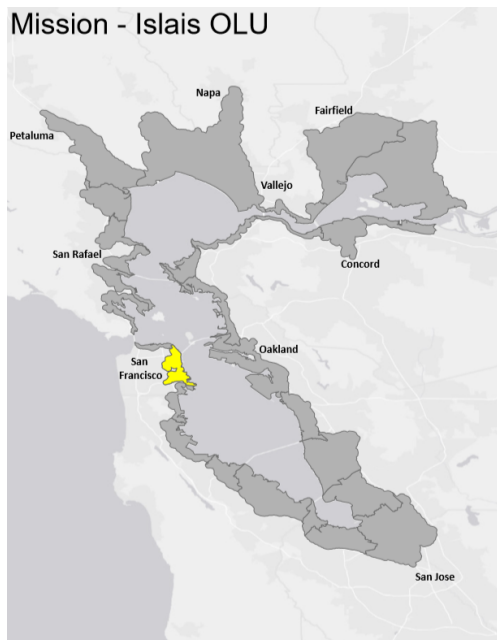
The following is an example of an operational landscape unit (OLU) containing all categories of ART Bay Area assets, followed by thought questions to foster discussion about shared stories of vulnerabilities across and between asset categories.

Example: Mission - Islais OLU

The Mission - Islais OLU is located in San Francisco County, stretching along the bay shoreline from the middle of Hunters Point Naval Shipyard in the south, to Pier 31 in the north. This area includes the city and county of San Francisco. The shoreline composition varies and includes shoreline protection structures, berms, natural shorelines, wetlands, and embankments. Uses within the area range from high density housing, businesses, a port, single family homes, recreational uses, transportation, rail, and others.

ART Bay Area assets within this OLU are listed below with the water level at which they are first exposed to flooding.

Mission - Islais OLU



Asset Name	Category	First Exposed (in)
Port of San Francisco	PDA	12
Port of San Francisco	TRANS	12
San Francisco Bay Trail	Bay Trail	12
San Francisco Bay Area Water Trail	PCA	12
Bayview/Hunters Point	VULN COMM	12
Bayview/Hunters Point Shipyard/Candlestick Point	PDA	12
Mission Bay	PDA	12
Eastern Neighborhoods	PDA	12
Downtown-Van Ness	PDA	48
Transit Center District	PDA	48
Embarcadero BART	TRANS	52
4 th and King Caltrain Station	TRANS	52
UCSF/Mission Bay Muni Platform	TRANS	66
I 80	TRANS	n/a
US 101	TRANS	n/a
I 280	TRANS	n/a

Exercise: Uncovering Shared Vulnerabilities

Using the large printed map on your table showing the Mission - Islais OLU, ART Bay Area assets, and two levels of flooding (24" and 66" of total water level), discuss how the assets shown on the map share vulnerabilities across asset categories throughout the geographic focus area by walking through the following questions:

1. Where do you see assets clustered together within this area? What types of assets are these?
2. What are interdependencies among these clustered assets?
 - a. Are some assets in front of others and protecting them from flooding?
 - b. Are assets dependent on one another for their continued functioning?
 - c. Could actions taken by one asset affect (positively or negatively) flooding impacts to another asset?
 - d. How else are these assets connected or dependent on one another? Are there other shared vulnerabilities to sea level rise?
3. Identify types of vulnerabilities:
 - a. Physical vulnerabilities are how the design and physical characteristics of an asset are vulnerable to flooding. Does it look like these clustered assets experience similar exposure to flooding? What's going on in this area that affects the assets' physical exposure to flooding?
 - b. Functional vulnerabilities are how the function of the assets and the relationships among assets would be impacted by flooding. Are there examples in this area where if one asset is impacted, it will impact the function of another (or multiple assets)?
 - c. Governance vulnerabilities refer to challenges with governance—regulations, management, community capacity, financing opportunities—to address and respond to flooding. What do you think the governance is like in this area? Are there things about the governance that make this area more or less vulnerable to sea level rise? Are there multiple owners or managers of assets that make this more of a challenge?
 - d. Informational vulnerabilities refer to challenges in obtaining information necessary to understanding if impacts will happen and how. Do you think some or all of these assets lack information about a particular hazard? What are some unanswered questions that may affect the vulnerability of all of these assets? Do any mechanisms exist in this area to facilitate coordination among asset owners/managers to discuss these shared vulnerabilities. If so, what are they? If not, what needs to happen next to create this opportunity?
4. How is this area expected to change in the future? Are there plans and/or projects under way that could change the vulnerability of the shoreline and these assets?

Wrap up discussion questions:

- Are there unique vulnerabilities revealed by identifying shared vulnerabilities among assets?
- How do you think identifying shared vulnerabilities will help with developing adaptation strategies?
- What are the benefits of assessing and communicating shared vulnerabilities of assets using focus areas and presented by OLU? What are the disadvantages?
- How might vulnerabilities or adaptation strategies in this OLU be related to or affect those in surrounding OLUs?




















- How might we continue to refine our method of assessing and communicating these shared vulnerabilities?

Notes:

This image shows a single sheet of white paper with horizontal blue ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

ART Bay Area: Mission - Islais OLU

Legend

-  Wastewater Treatment Facilities
-  Power Plants
-  DTSC Reported Activities
-  Water Trail
-  Fire Station
-  Hospital/Medical Center
-  Law Enforcement
-  Highways
-  Ferry Terminals
-  BART/Muni Stations
-  MUNI Rail Lines
-  Existing Bay Trail
-  Proposed Bay Trail
-  Caltrain
-  66" Total Water Level
-  Priority Conservation Areas
-  Vulnerable Communities
-  Priority Development Areas
-  Port of San Francisco

