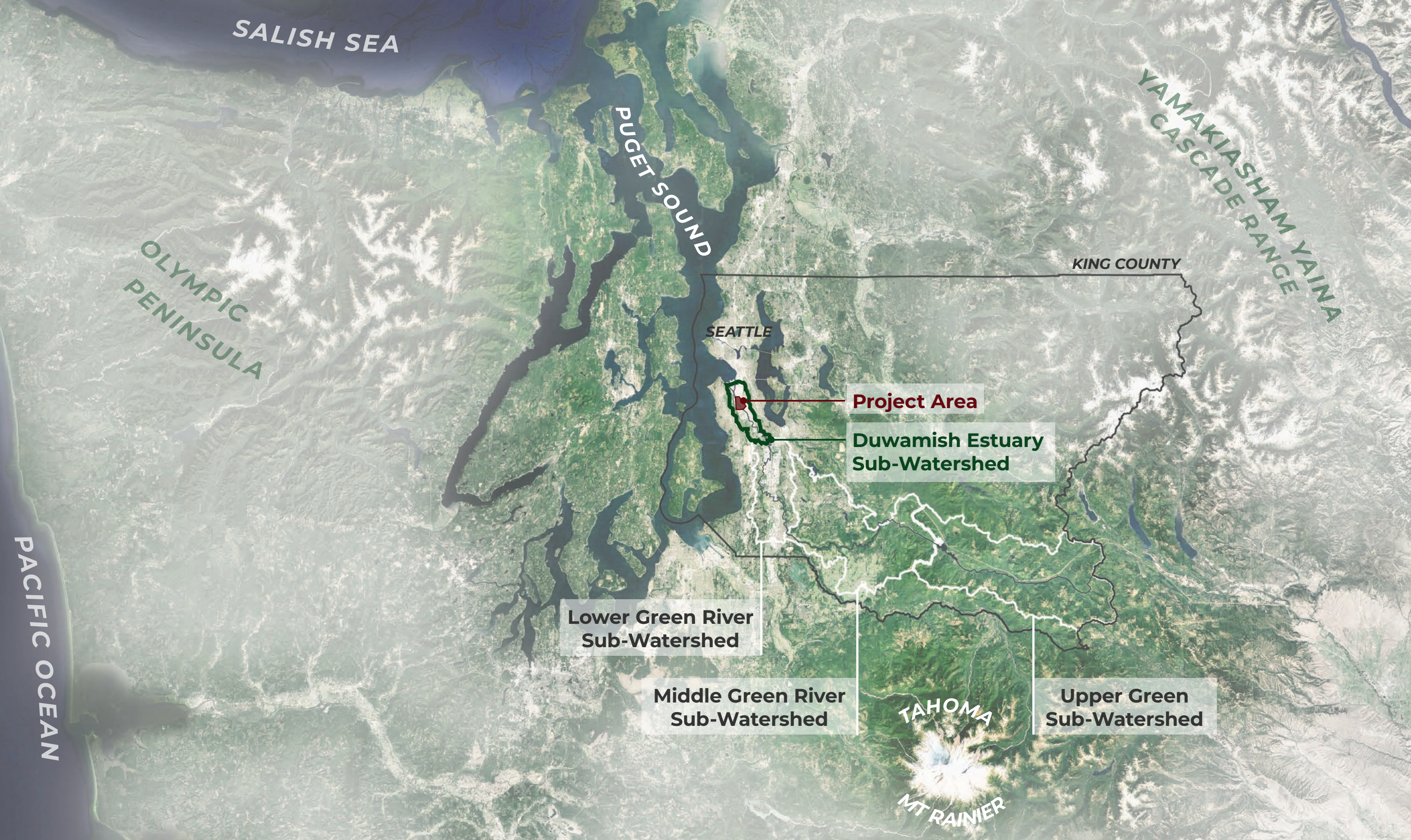


“South Park deserves nature, beauty, health. We live here. The river deserves to live too. The Duwamish Valley deserves something beautiful to be proud of”
-Duwamish Valley Resident



The Duwamish Valley Sea Level Rise (SLR) Adaptation Vision Plan sets a roadmap for the City of Seattle to advance holistic SLR adaptation in the Duwamish Valley, the area of Seattle most vulnerable to sea level rise-related coastal flooding.



The Duwamish Valley project area is within the lowest watershed of the Duwamish River. This is the most densely developed area around the river with the highest need for keystone salmon habitat restoration within the overall watershed.



8 years lower life expectancy

Than County average. Around 92% households in South Park and 100% in Georgetown live near a contaminated site, Superfund site, or freight corridor.



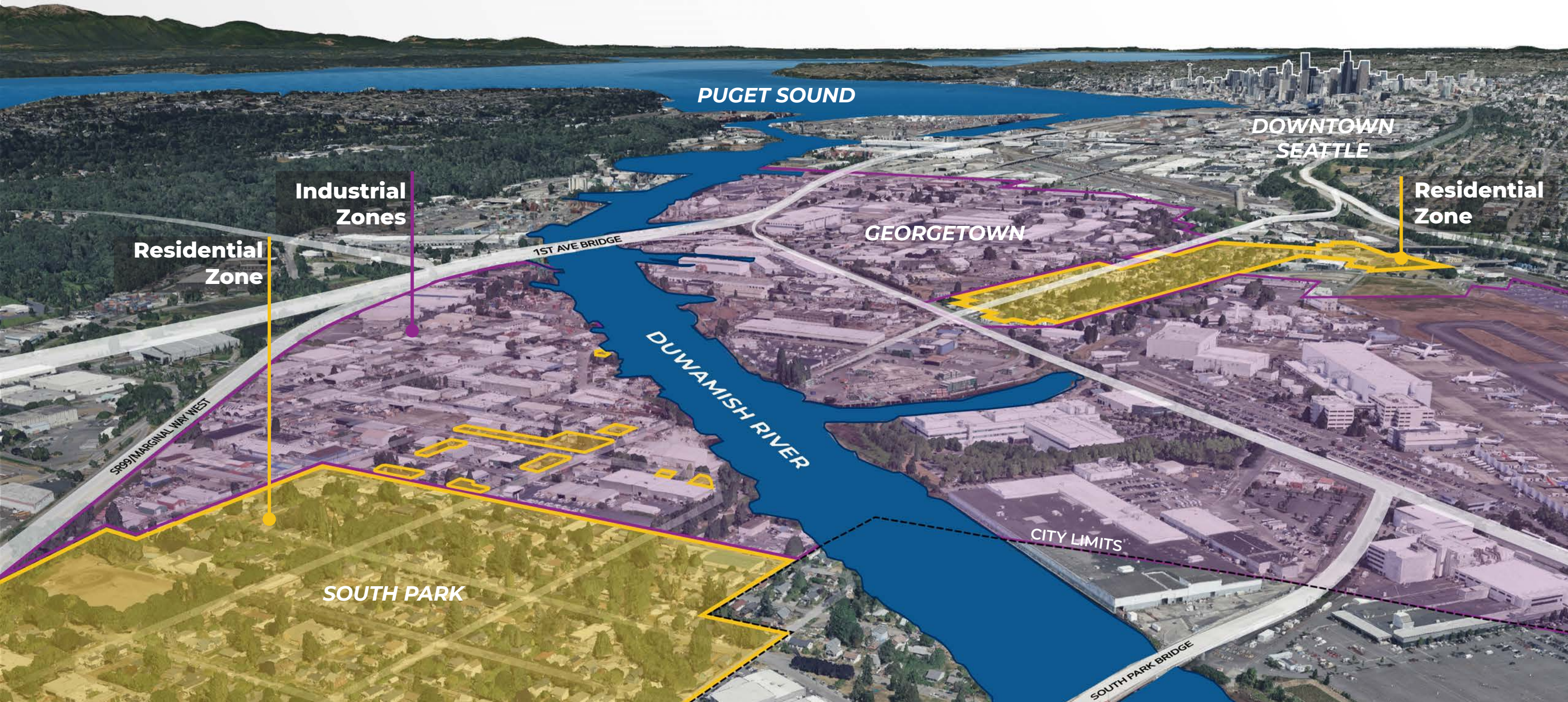
~3300 industrial jobs

Local maritime, manufacturing, and construction companies including Alaska Marine Lines, Boyer Towing, Pacific Pile & Marine, Machinists Inc.



Critical salmon habitat

The Lower Duwamish River supports critical and threatened juvenile Chinook Salmon as they transition to the salt waters of the Puget Sound.



The Duwamish Valley includes the neighborhoods of South Park and Georgetown; both are highly industrialized with a close-knit and diverse environmental justice community bound together by intimate social and cultural ties.

The River Remembers

**Historic
Duwamish River**
**Duwamish River
Today**

íalič

pupyaləp

Coast Salish
Village

Prairie

GEORGETOWN

*Floodplain
Forest*

Wetland

*Upland
Forest*

SOUTH PARK

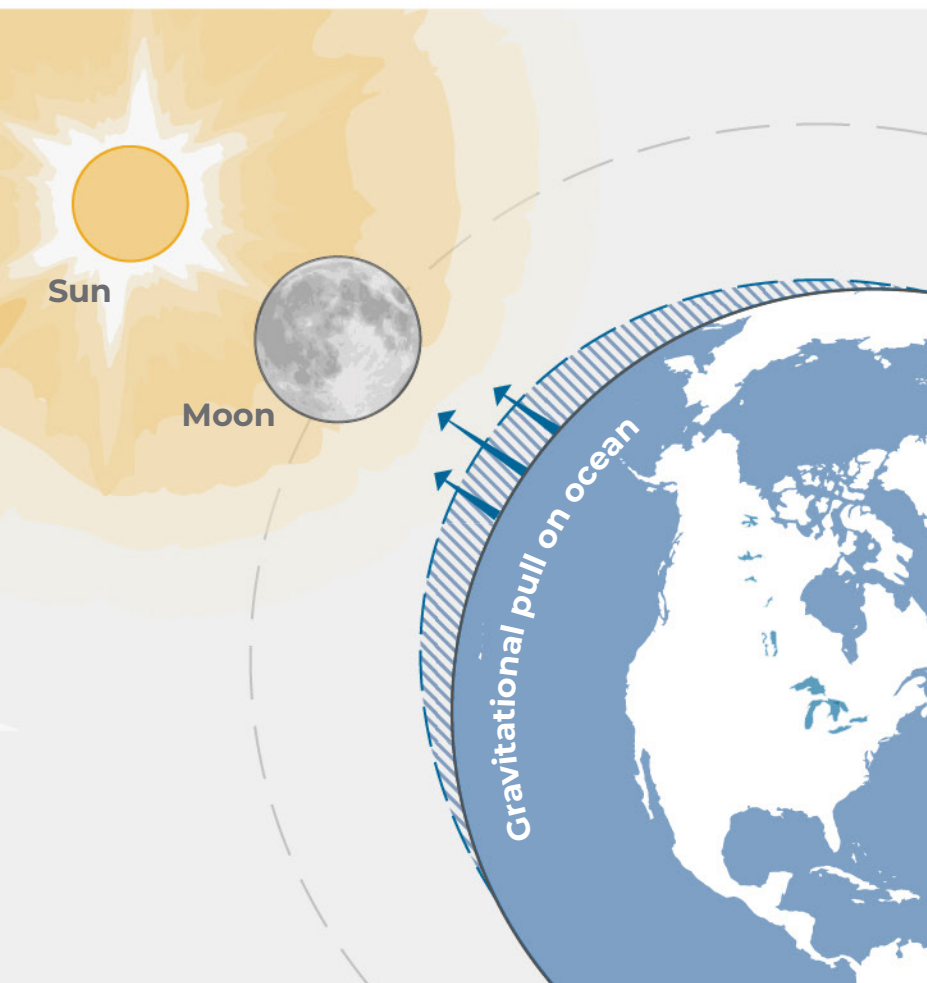
gʷəx̣ʷaltx̣ʷ

Channelization, 1922

Historically the homeland of the Coast Salish tribes, the Duwamish River once meandered through a floodplain with wetland mudflats and forest. These historical ecotones are the areas most susceptible to flooding today.

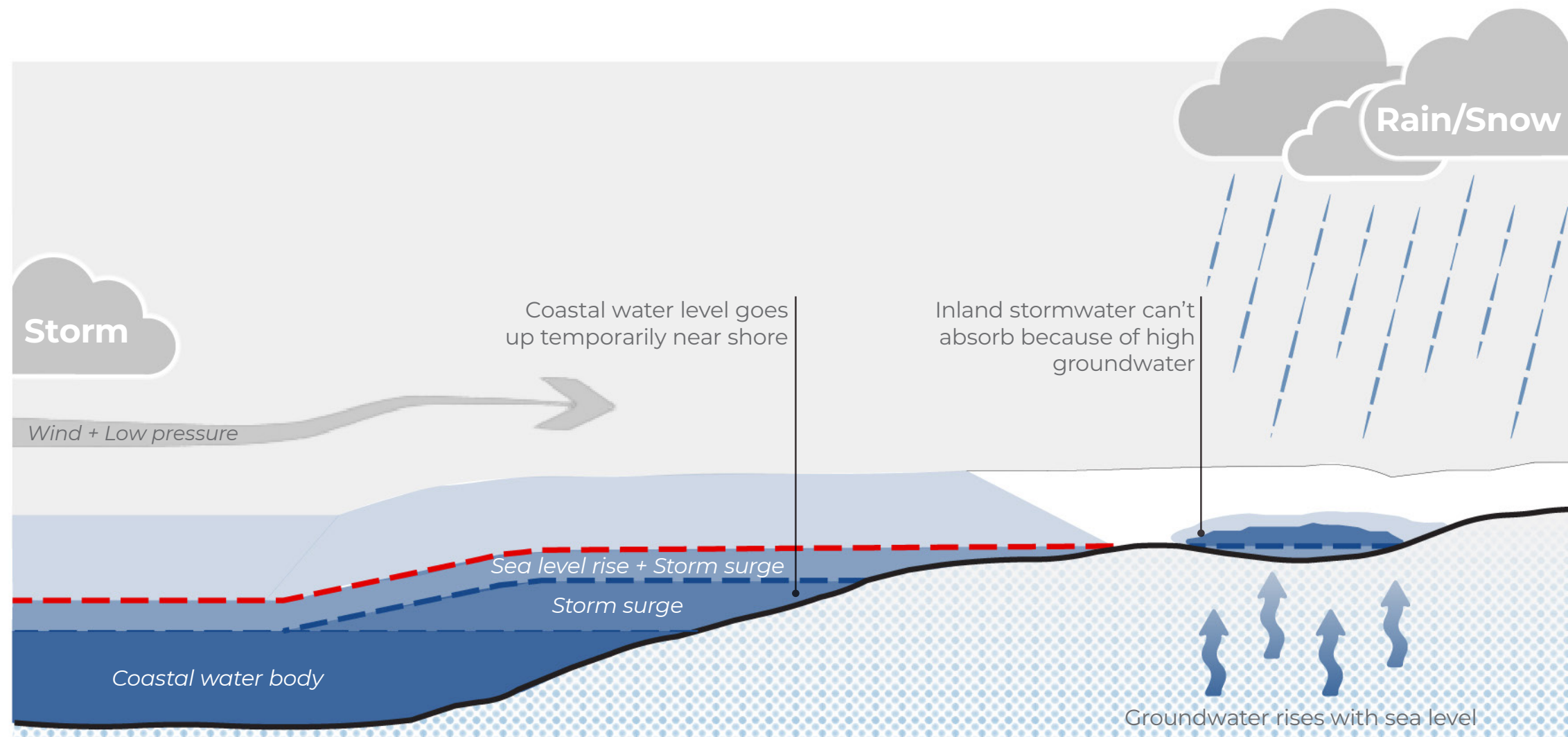


Flood Hazards



High Tides

or "astronomical tides," are caused by the gravitational pull on the ocean from the moon and sun.



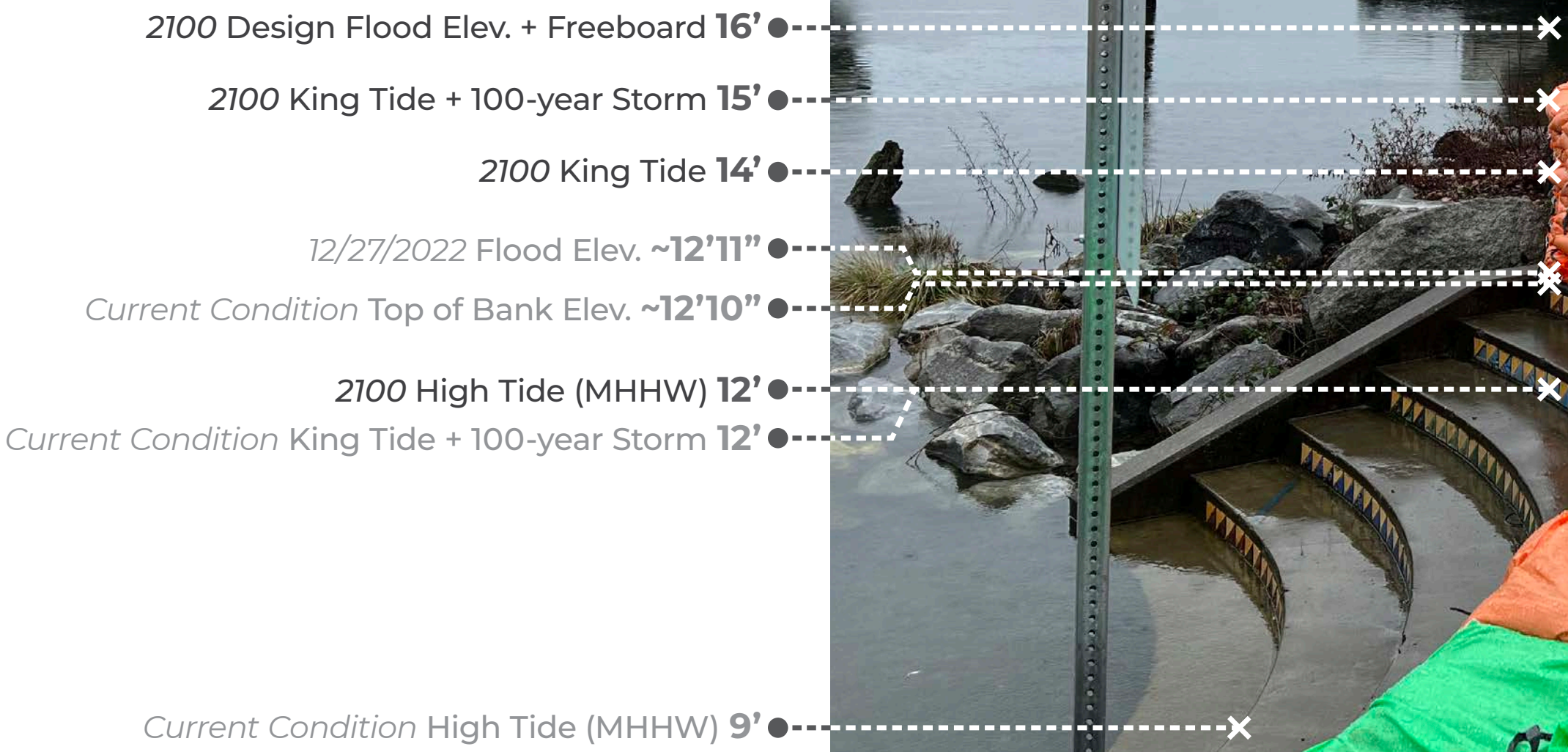
Storm Surge Flooding

is caused by low pressure and high winds. As sea levels rise, groundwater also rises, making it more difficult for the earth to absorb stormwater.

As sea levels rise, coastal flooding, storm surge, rainfall-driven stormwater flooding, and groundwater impacts are all likely to worsen. Therefore, the project's development of appropriate shoreline adaptation strategies considers how SLR may exacerbate all future flooding conditions.

Sea Level Rise Projections

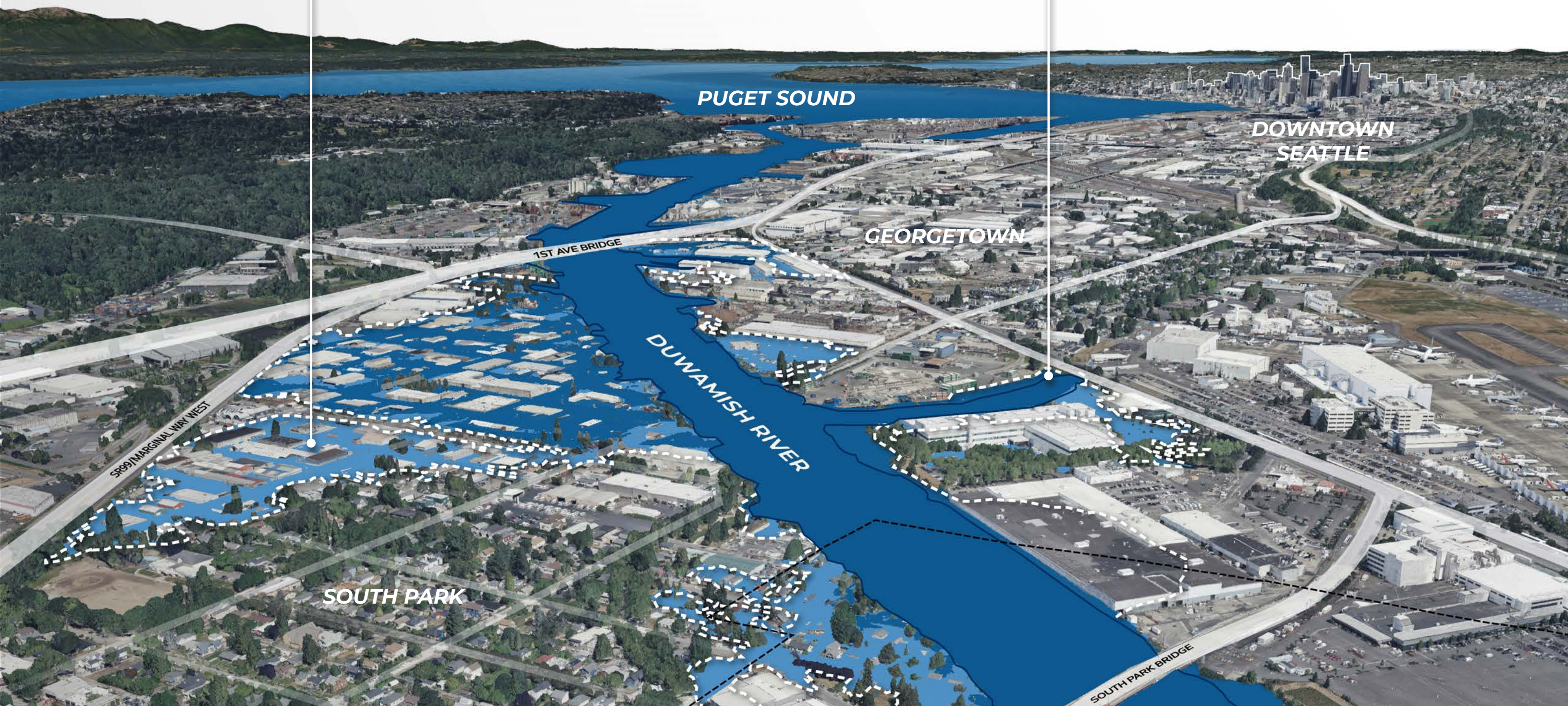
3 feet of Sea Level Rise is Projected by the Year 2100



On 12/27/2022, severe flooding over-topped low banks in South Park. Indicative of future floods we were actively planning for within the community, the City's ensuing temporary flood protection provided a visual example for the elevations needed to provide future protection.

 3 feet sea level rise
2100 King Tide and Storm Surge

 1 foot sea level rise
2050 King Tide and Storm Surge

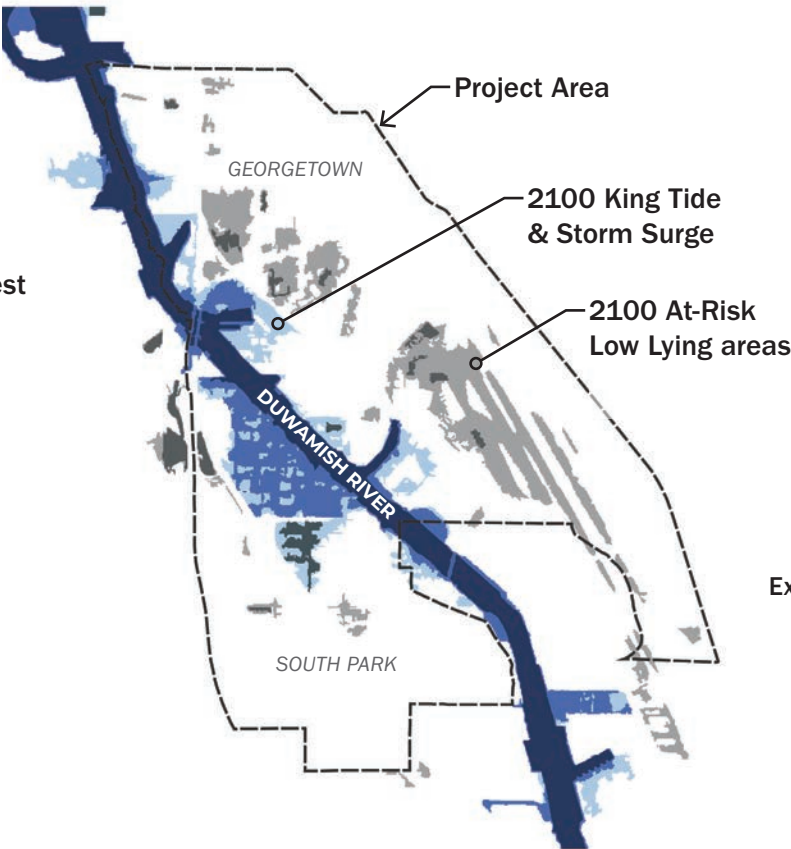


Early project mapping identified areas most vulnerable to future coastal flooding and helped determine where holistic SLR adaptation strategies could provide the greatest benefit. Flooding is extensive in South Park, while Georgetown impacts are largely limited to riverfront industrial sites.

Historic Floodplain Ecotones



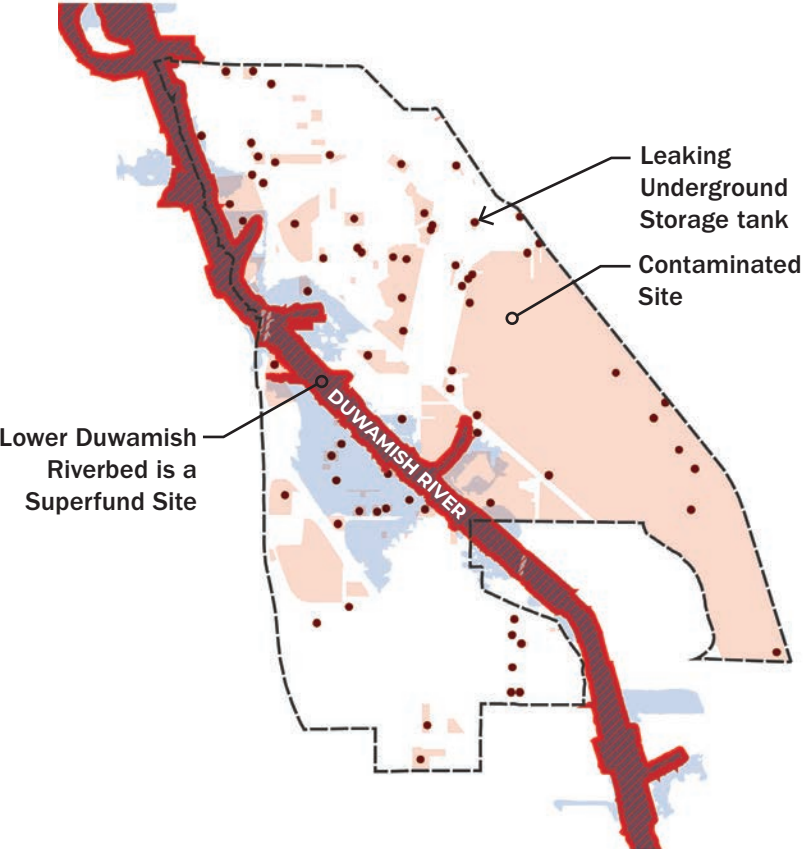
Projected Flood Levels



Industrial & Residential Zones

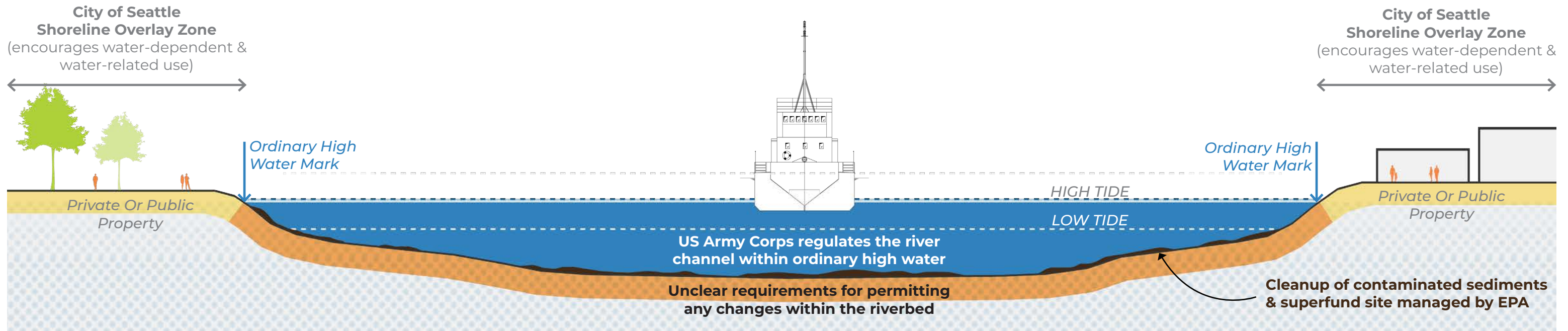


Known Contamination



Overlapping challenges underscored the need for coordination between public and private entities.

River & Shoreline Regulatory Layers



The project team met with multiple regulatory departments that govern the Duwamish River and its shorelines to coordinate a unified understanding of constraints and opportunities for SLR adaptation infrastructure.

Shared Vision for SLR Adaptation

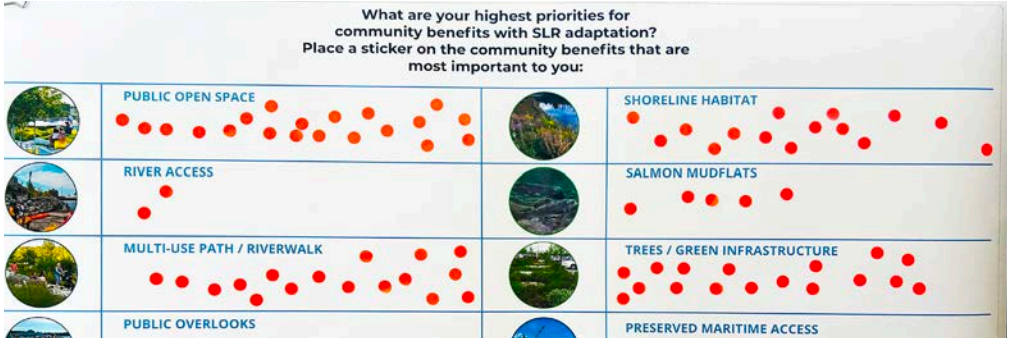
17 member advisory group
Multilingual Open Houses
Maritime Industrial Charrette
Public Storymap & Survey



110
Industrial
Stakeholders



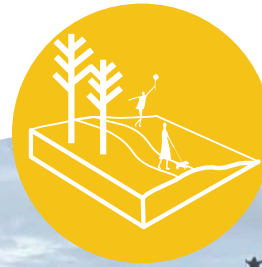
255
Residents & Youth
Open House attendees



A key goal of this project was to summarize input and guidance from the community --both residents and businesses-- toward a proposed approach for the development of SLR adaptation infrastructure.

Public Access & Co-Benefits

Provide access to the river and green spaces to improve health and well-being.



Equity & Prosperity in Place

Support anti-displacement and minimize harm to residents and businesses while providing local jobs.



Habitat & Ecology

Improve habitat quantity and quality and restore tree canopy that supports improved ecological and public health.



Design Principles

Economic Impact

Create direct and indirect economic benefits to local industrial and residential communities and ensure equitable distribution of costs.



Participation & Transparent Process

Continue meaningful community engagement and transparent processes.



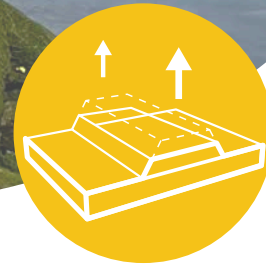
Feasibility

Plan for investments in infrastructure that are feasible to build and maintain over the long term.



Adaptability & Effectiveness

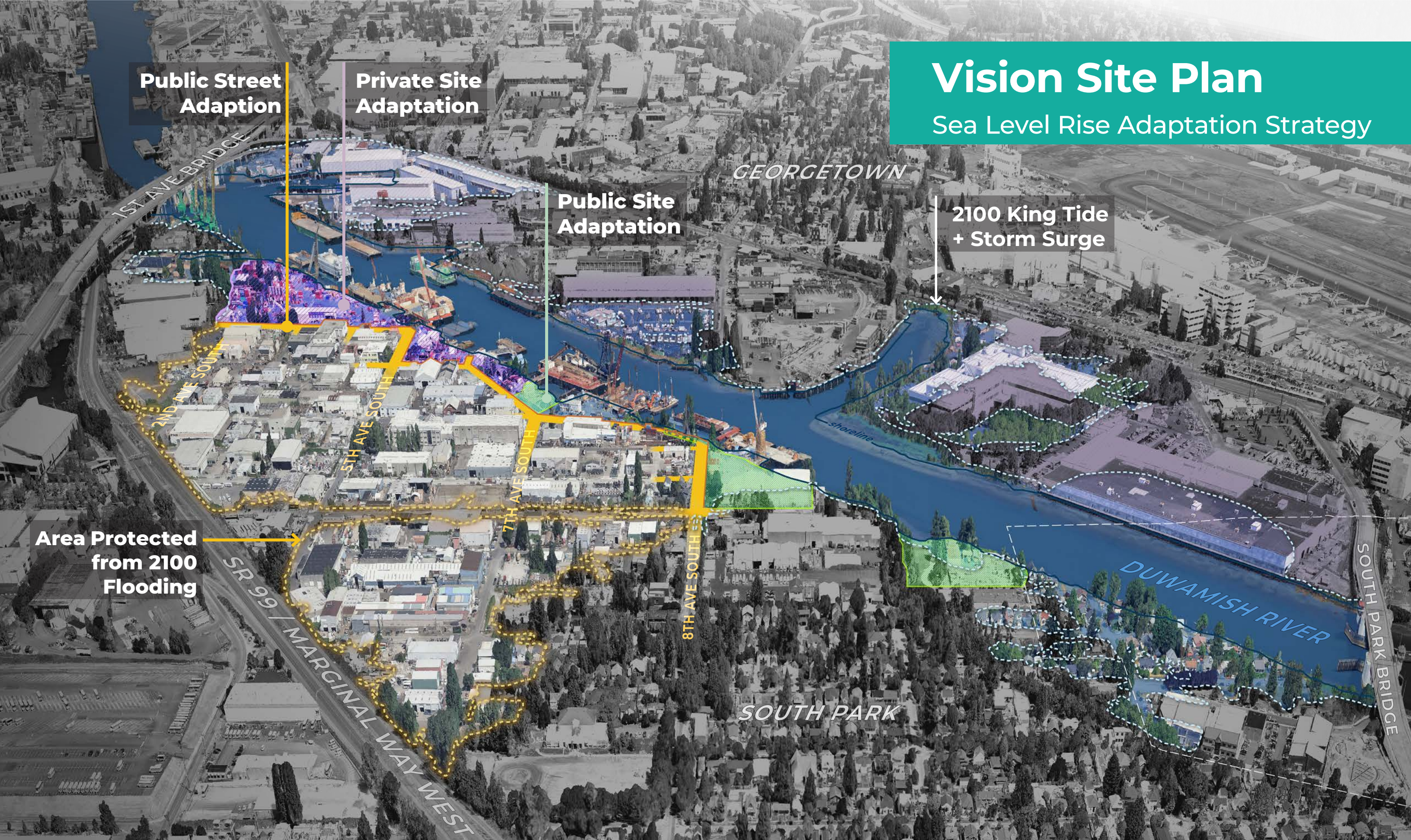
Prioritize critical near-term investments to protect communities while maximizing long-term adaptability and resilience to other climate threats.



The project Design Principles were developed in partnership with Duwamish Valley community members and provide direction for ongoing planning, design, and implementation of SLR adaptation infrastructure and associated multiple benefits.

Vision Site Plan

Sea Level Rise Adaptation Strategy



Publicly-owned land, including streets and rights-of-way, parks, and facilities, present the most immediate opportunity for comprehensive protection infrastructure. By anchoring adaptation infrastructure close to the shoreline, the City can establish a continuous line of protection that meets the design principles.

Public Street Adaptation



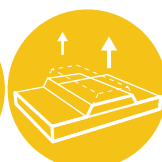
Transparent industrial partnerships

Coordinate closely and partner with industrial businesses to meet their needs; and ensure clear communication and robust engagement with community on public infrastructure elements



Access to private property

Work with landowners to address access needs



Raised road & street end

Ensure opportunity to increase protection elevation over time



Safe walking & biking route

Ensure the raised road provides multiple co-benefits, such as safe walking & biking routes, trees and street end overlooks



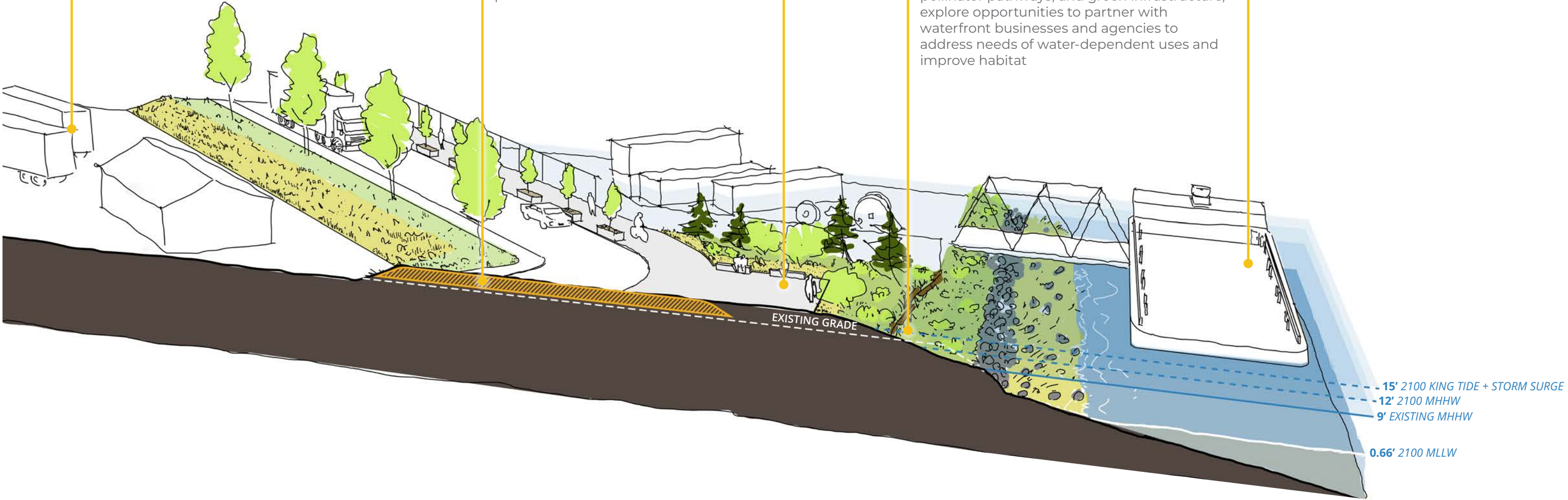
Riparian habitat

Create riparian habitat at street-ends, pollinator pathways, and green infrastructure; explore opportunities to partner with waterfront businesses and agencies to address needs of water-dependent uses and improve habitat



Preserve maritime access

Preserve land for jobs and businesses; protect residential areas and mitigate displacement



We developed example illustrations to demonstrate how various SLR adaptation strategies can be incorporated across different prototypical shoreline sites, including public streets, private sites and public sites, showing how each could be redesigned to respond to rising tides.

Private Site Adaptation



Industrial partnerships

Partner with industrial businesses to meet their needs; conduct clear communication with community on public infrastructure elements



Safe walking & biking route

Design safe walking & biking routes and street end overlooks



Raised road & private site

Consider strategies like floodwalls to increase protection as needed over time



Local jobs

Prioritize local hiring for habitat restoration & maintenance



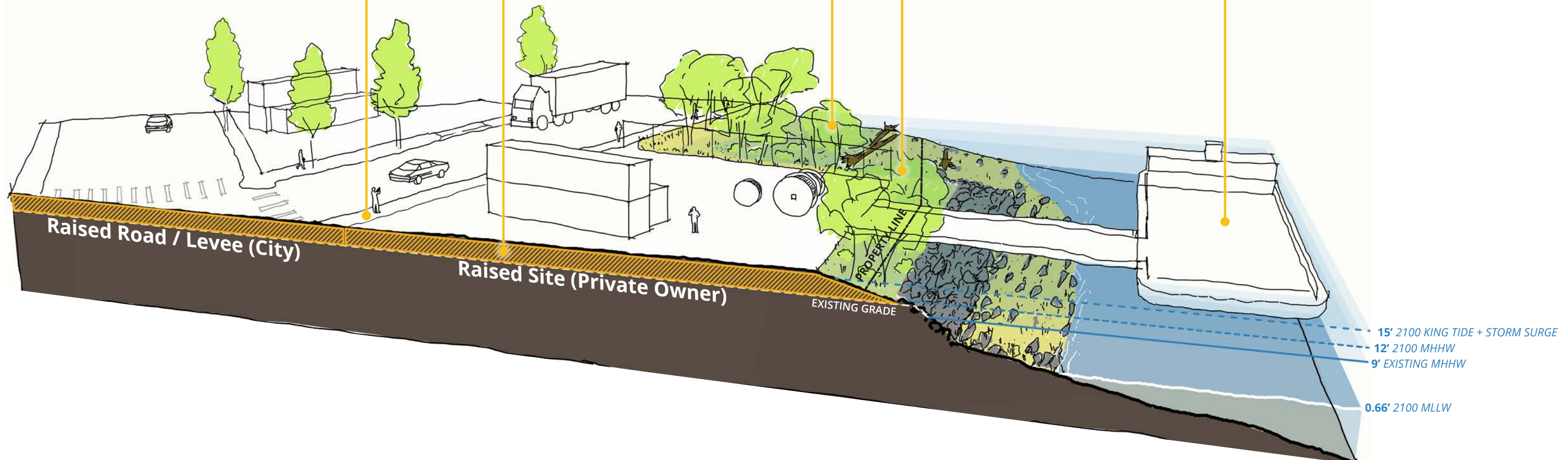
Habitat partnerships

Pursue partnerships to maximize riparian habitat restoration



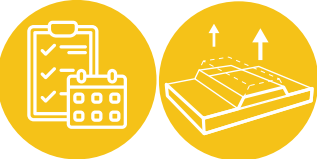
Preserve maritime access

Support continued maritime industry



The illustrations supported conversations with community members about priorities for how SLR protection can also provide multiple community co-benefits to meet the design principles and Vision Plan.

Public Site Adaptation



Levee or Raised road

Maximize resilience by setting protection infrastructure back from the water



Public riverwalk

Provide access to nature and open space for local residents and workers



Local jobs

Prioritize local hiring for significant habitat restoration, maintenance and monitoring



Salmon mudflats

Create mudflats and side channels for juvenile salmon; restore riparian habitat



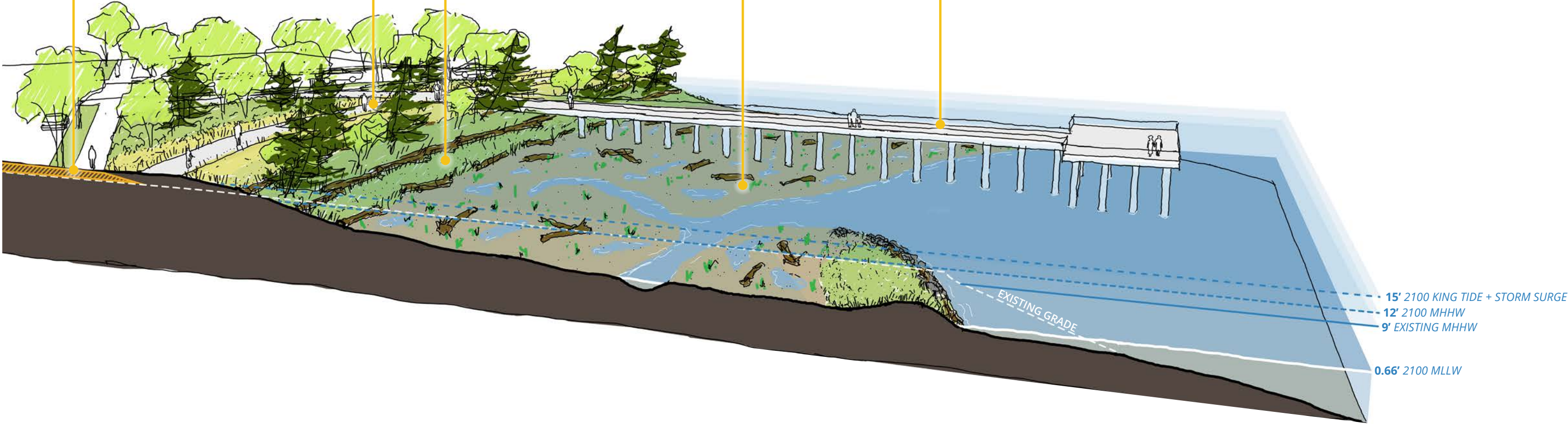
Public overlooks

Include riverwalk, overlooks, and green space along the restored riverbank



Co-create site design

Conduct clear communication & robust engagement to co-create community-supported site design; and integrate environmental education opportunities



These concepts will be used by the City to help carry community priorities forward into grant and other funding requests, and to inform more detailed, site-by-site planning and design consistent with the project's comprehensive Vision Plan.