TACOMA TIDEFLATS

SUBAREA PLAN

Steering Committee

March 14, 2024 | Hybrid

TACOMA TIDEFLATS

Agenda

A. Approval of Agenda
B. Communications Items
   None
C. Discussion Items
   1. Sea Level Rise (SLR) Issue Paper
D. Upcoming Agendas
   1. April: Environment, Health, Tribal Assets
E. Other Items of Interest

Purpose of the Meeting

Project Management Team requests Steering Committee direction to incorporate **Sea level Rise Policies and Actions** into the Draft Subarea Plan.

Reminders:

- **Not all topics** in the Subarea Plan cover the same geographic boundary.
- The Subarea Plan's actions and recommendations are **not limited to the boundary** of the Manufacturing and Industrial Center.
- The Subarea Plan can **recommend amendments** to the City's Comprehensive Plan and Land Use Regulatory Code.

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Discussion Items

- Sea Level Rise (SLR) Issue Paper
  - Background – SLR Projections & EIS Alternatives
  - Proposed Policies & Actions

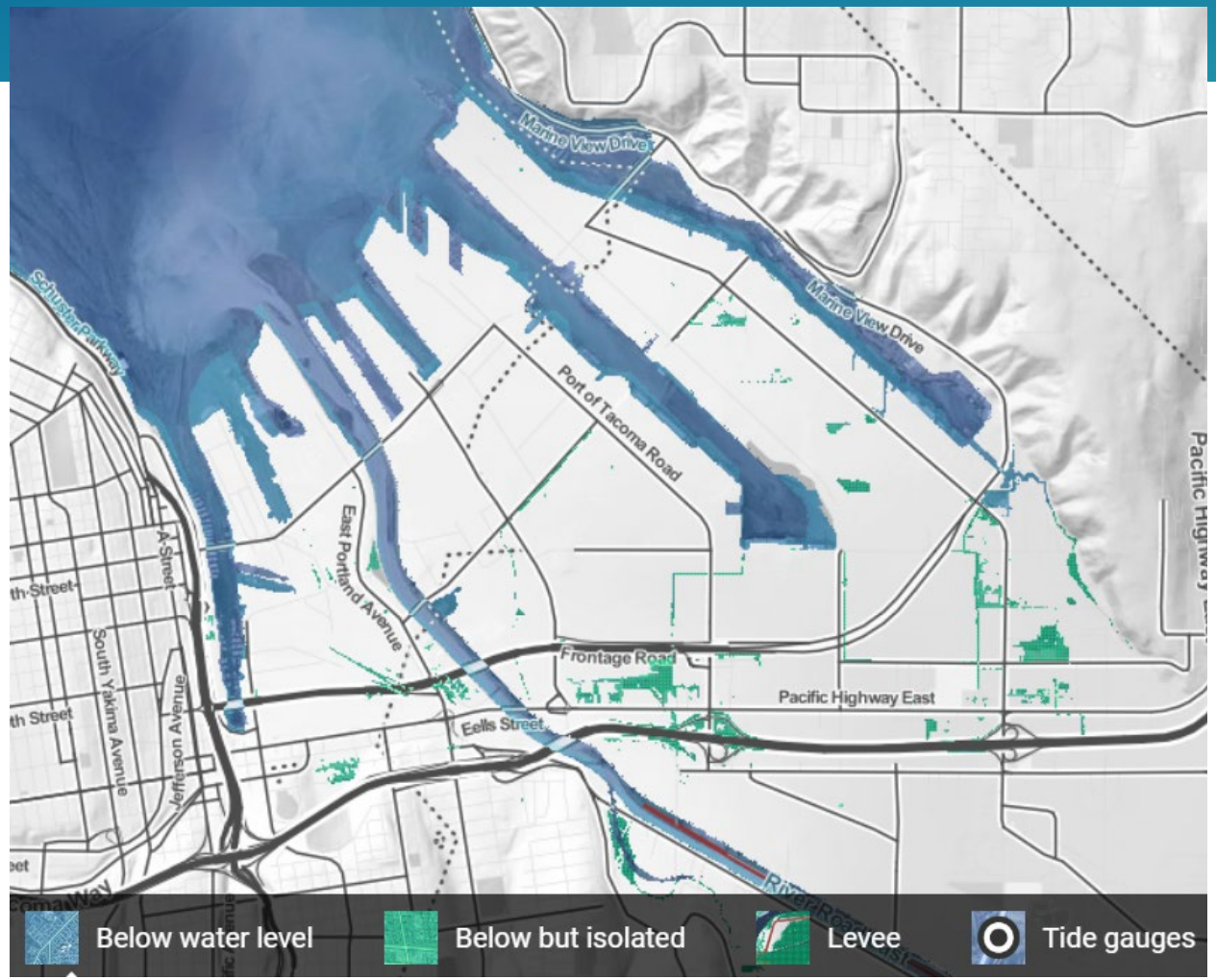
Sea Level Rise Projections

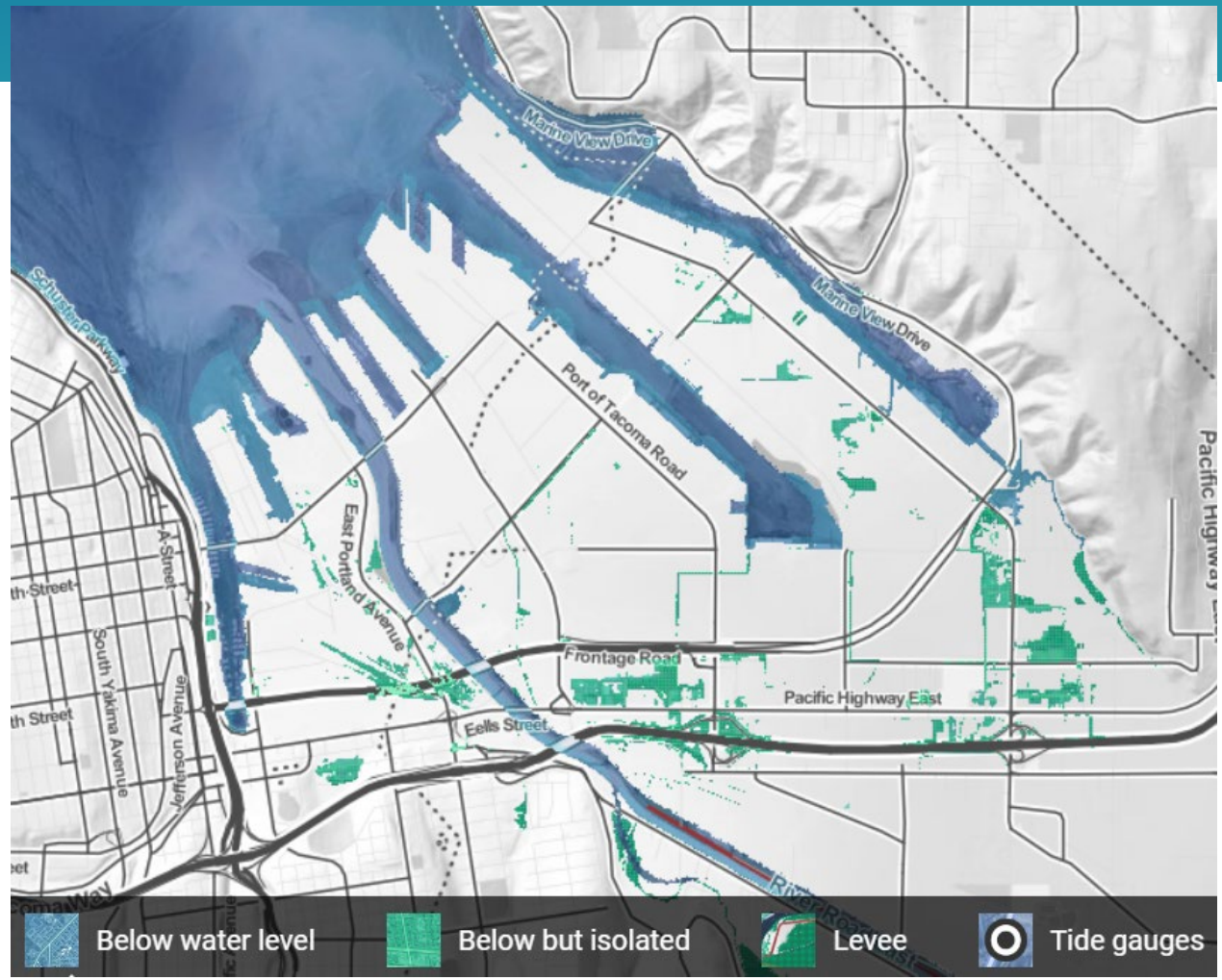
Time Period	Greenhouse Gas Scenario	Tacoma Harbor Likely Range of Sea Level Rise
2050	Low	0.6 – 1.1 ft
	High	0.7 – 1.2 ft
2100	Low	1.5 – 2.7 ft
	High	1.9 – 3.3 ft
2150	Low	2.1 – 4.6 ft
	High	3.0 – 5.7 ft

Source: Washington Coastal Resilience Project

1 ft Sea Level Rise (SLR)

2 ft SLR

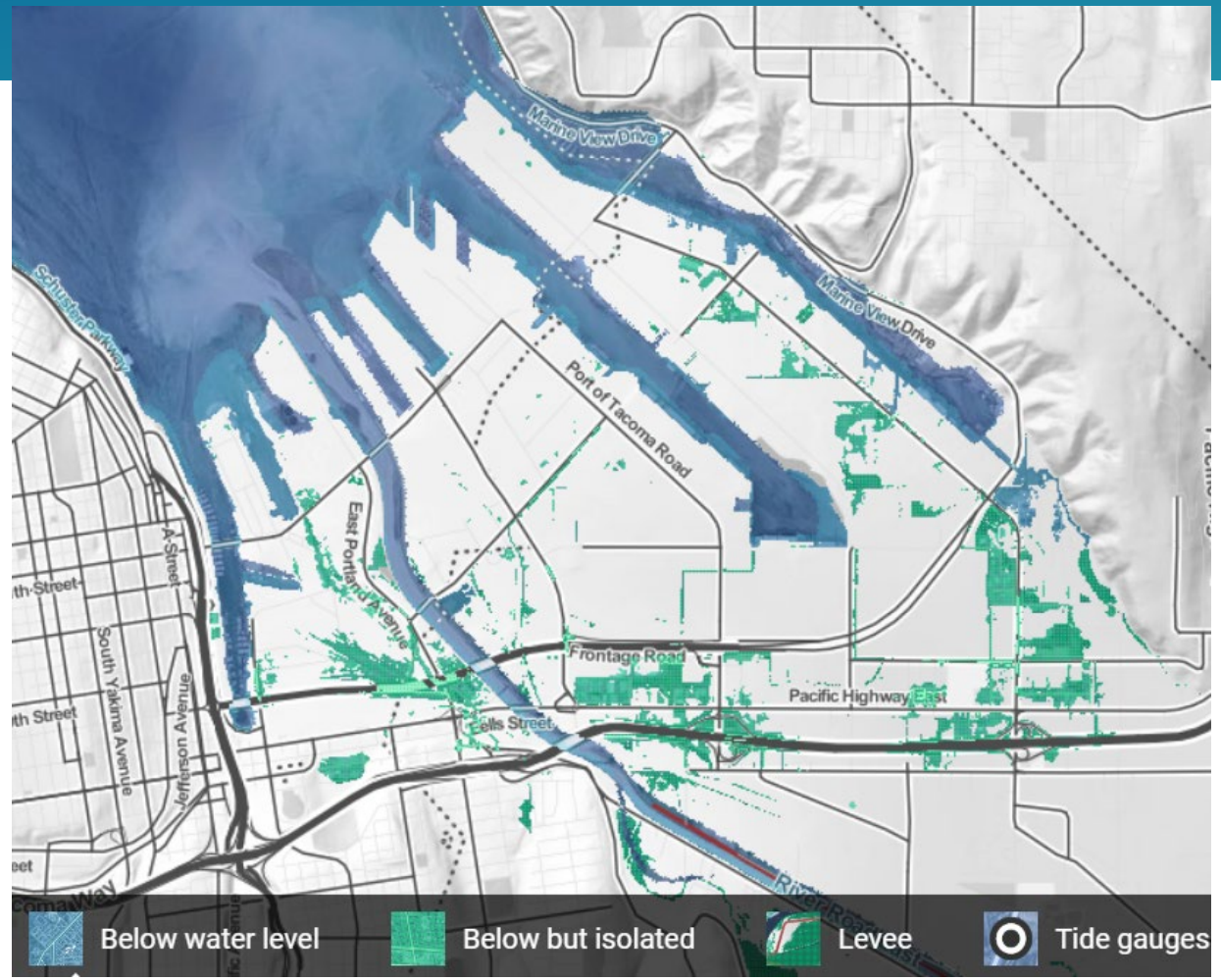




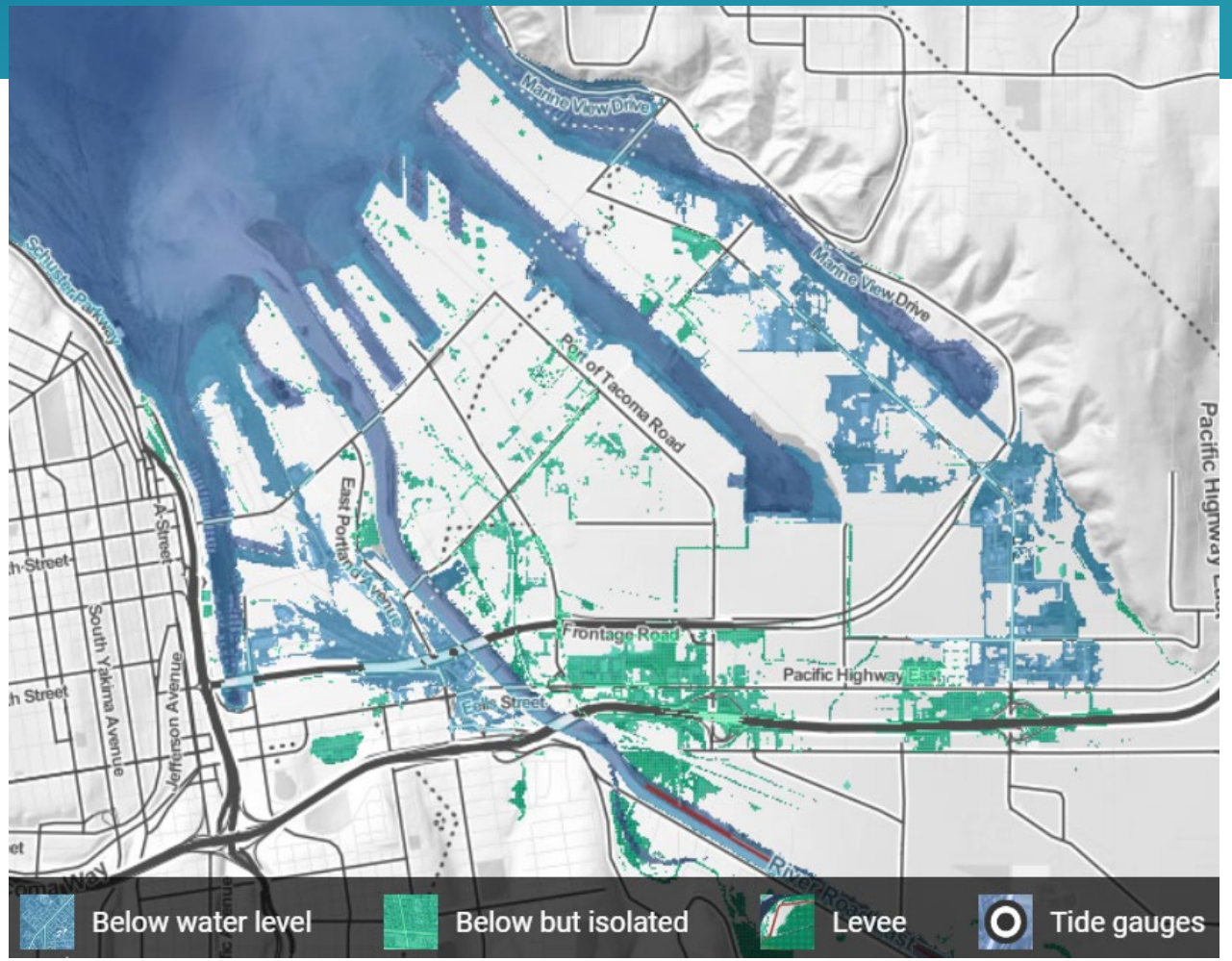
Source: Climate Central Surging Seas Risk Zone Map, additional elevation data courtesy of NOAA

Note: These base maps have not been updated to reflect the latest changes, including to the waterways.

3 ft SLR

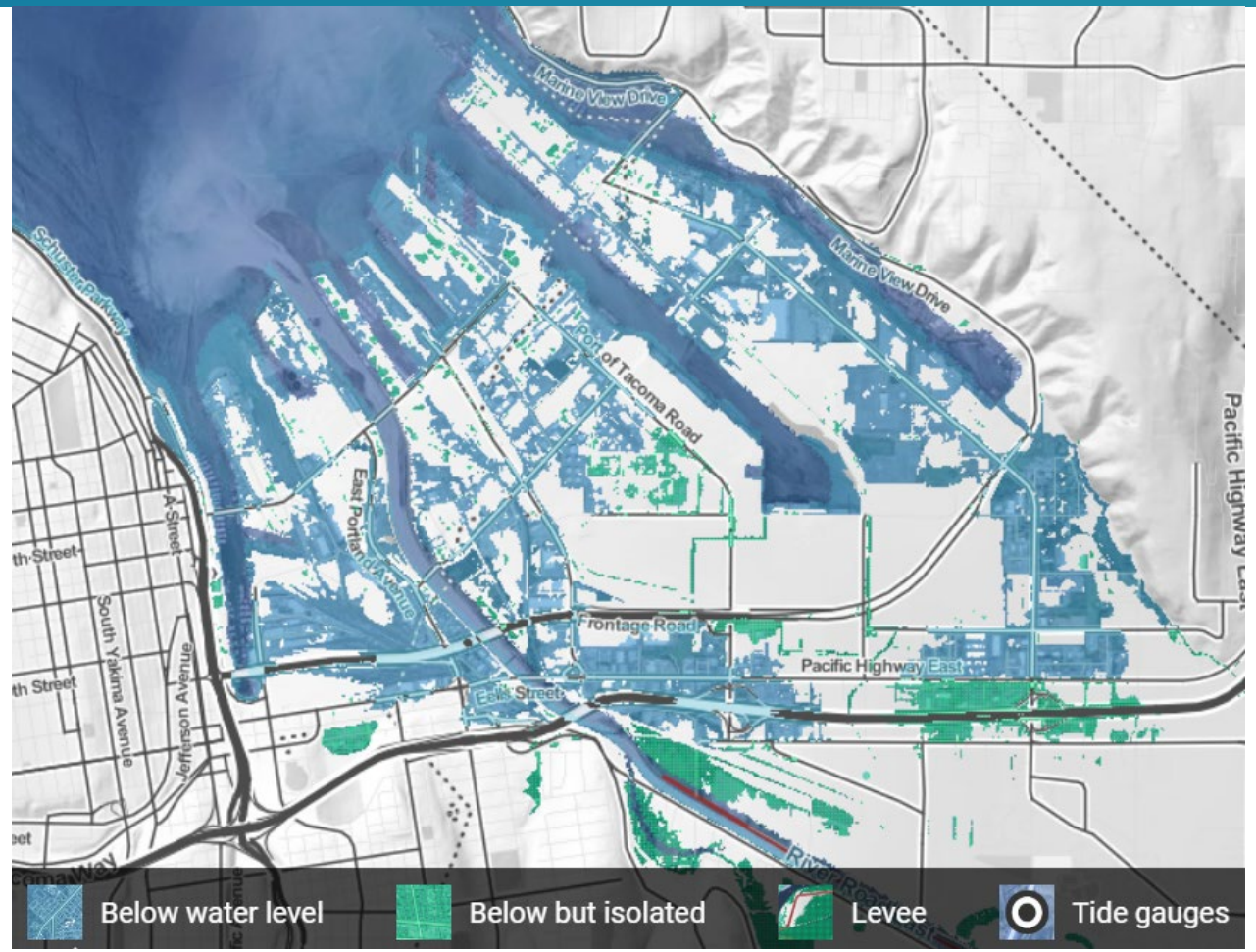


4 ft SLR



Source: Climate Central Surging Seas Risk Zone Map, additional elevation data courtesy of NOAA
Note: These base maps have not been updated to reflect the latest changes, including to the waterways.

5 ft SLR



Source: Climate Central Surging Seas Risk Zone Map, additional elevation data courtesy of NOAA

Key Takeaways

- Within the Subarea Plan's 20-year planning horizon, sea levels could increase to 1 to 2 ft.
  - Short-term planning should account for 1-2 ft SLR.
  - Long-term planning should account for 5 ft SLR.
- Areas impacted by SLR of 1-2 ft will be limited to low-lying areas.
- Flooding vulnerabilities within the Tideflats increase due to SLR.
  - Coastal flooding due to storm surges are expected to become more severe over time.

Key Takeaways from 2021 Community Visioning

Greatest **opportunities** for the Tideflats:

- Addressing climate change
- Improving natural environment

Preferred **mitigation options**:

- Restoration of natural environment
- Infrastructure improvements and redevelopment incorporates climate change scenarios

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SLR Mitigation & Adaptation Comparison

Alternative 1 No Action	Alternative 2	Alternative 3	Alternative 4
▪ Limited redevelopment opportunities to implement comprehensive habitat restoration and adaptation measures for sea level rise (SLR) over time. ▪ SLR would be addressed on a site- or project-specific basis. ▪ Mitigation efforts would be completed within existing regulatory requirements and implemented permit by permit.	▪ More redevelopment opportunities that would allow for more comprehensive habitat restoration and adaptation measure. ▪ Areas along the Puyallup River and Hylebos Waterway are identified for potential habitat restoration. ▪ SLR adaptation measures are focused on preserving industrial lands and protecting essential public facilities.	▪ Offers the most coordinated approach to mitigation and habitat restoration. ▪ Mitigation sites would be identified in advance of permitting. ▪ More industrial lands would be repurposed for habitat restoration. ▪ Areas along the Puyallup River, Hylebos Waterway, and Hylebos and Wapato creeks are identified for potential habitat restoration.	▪ Limited redevelopment opportunities to implement comprehensive habitat restoration and adaptation measures for SLR over time. ▪ There would be some accelerated habitat restoration and efforts to preserve industrial lands and protect essential public facilities. ▪ Policies or implementation strategies might be amended.

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SLR Mitigation & Adaptation Comparison

Alternative 1 No Action	Alternative 2	Alternative 3	Alternative 4

__All alternatives__ involve shoreline and habitat restoration but differ on the extent of restoration and shoreline enhancement.

Alternatives 2, 3, and 4 offer opportunities to **further implement policies and goals** that support climate change adaptation in the Comprehensive Plan and Shoreline Master Program.

Alternatives 2 & 3 offer **additional opportunities** for implementing SLR adaptation.

Alternative 3 offers the **most proactive** response to SLR as it plans for the largest amount of total area of habitat restoration along the Puyallup River, Hylebos Creek, Wapato Creek, & Hylebos Waterway. More areas zoned for industrial use are converted for restoration.

Alternative 4 is like Alternative 1 but with

- More coordinated & accelerated **habitat restoration**
- SLR measures to **protect industrial lands & essential public facilities**

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Proposed Policies & Actions

Incorporate SLR Projections

- Regularly monitor & reevaluate SLR hazards to maintain flexible SLR adaptation
- Use lower "relative sea level rise" (RSLR) scenarios (1-3ft) to guide short-term mitigation and adaptation
- Account for 5 ft RSLR in long-term planning

Design Standards

Adopt responsive design standards & thresholds to response to climate change impact, including

- SLR
- coastal flooding
- riverine flooding
- extreme rainfall storm surges

Nature-based Solutions

- Prioritize habitat preservation & restoration to maximize potential hazard mitigation co-benefits
- Use nature-based solutions to reduce vulnerability to hazards

Collaboration

Coordinate RSLR adaptation across jurisdictions & with regional initiatives

Workforce

Support safety & a resilient workforce in the Tideflats

Emissions Reduction

Align emissions reductions targets with City & Regional goals & targets

Proposed Policy: Regularly monitor and reevaluate RSLR hazards to maintain flexibility in RSLR adaptation strategies.

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RSLR = Relative Sea Level Rise

PROPOSED ACTIONS

Incorporate SLR Projections

1. **Implement monitoring program** to track sea level and shoreline changes at key locations to determine needed adaptations and reduce chances of over or underestimating hazard mitigation needs. A shoreline inventory and characterization report will help determine SLR monitoring locations.
2. **Map, monitor, and analyze** coastal flood events.
3. **Conduct a Sea Level Rise Risk Assessment** or add SLR into other assessments (e.g., wave runup, storm surge, and tsunami hazard).
4. **Conduct a review of current science** focusing on flooding impacts to critical roads, infrastructure, and steep slopes due to increasing intense rainfall events, SLR, flooding, and landslides. Integrate findings into City development codes, emergency management, and capital planning.
5. **Explore smart technologies** to monitor changing conditions and identify potential threats. Smart technology applications may be especially useful in monitoring sites and areas that are hard to reach. For example, installing water-detection sensors in underground utility vaults may help identify water intrusion from events like groundwater flooding that may otherwise go unnoticed.
6. **Maintain up-to-date floodplain maps.** Work with FEMA to update outdated areas and develop a systematic way to regularly update the maps as projects are completed that affect the floodplain.
7. **Develop a local floodplain definition** to help revise mitigation and adaptation strategies.

Proposed Policy: Utilize lower RSLR scenarios (1-3 ft) to guide short-term mitigation and adaptation response.

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RSLR = Relative Sea Level Rise

Incorporate SLR Projections

PROPOSED ACTIONS

1. **Implement flood mitigation measures in low-lying areas** such as in surrounding drainage canals within the MIC, the southern portion of the Thea Foss Waterway at the Route 509 bridge, and Near I-5 south of the Blair Waterway.
2. **Implement flood mitigation efforts** at the Central Wastewater Treatment Plant.

Proposed Policy:
Account for 5 ft RSLR in long-term planning.

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RSLR = Relative Sea Level Rise

PROPOSED ACTIONS

Incorporate SLR Projections

1. **Require planning for SLR in shoreline areas** found within the Shoreline District S-8 (Thea Foss Waterway, Downtown Waterfront), S-9 (Puyallup River), and S-10 (Port Industrial).
2. **Restrict hazardous uses** in the 500-year floodplain.
3. **Develop a retrofit plan** for public infrastructure in coastal flood hazard areas.
4. **Assess conditions** of seawalls, piers, revetments, shoreline infrastructure, open spaces, parks, and habitat to identify length of service, repair, and maintenance.
5. **Identify the most at-risk facilities** to help prioritize resiliency improvements.
6. **Evaluate flooding impacts** on existing habitat areas such as areas at the mouth of the Puyallup River, Blair Waterway, and Hylebos Waterway. Implement additional modifications to mitigate flooding impacts on surrounding areas.

Proposed Policy: Adopt responsive design standards and thresholds to response to climate change impacts including SLR, coastal flooding, riverine flooding, extreme rainfall, and storm surges.

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Design Standards

PROPOSED ACTIONS

1. **Identify places where infrastructure can be set back** as part of capital improvement project implementation.
2. **Conduct a shoreline inventory** and characterization to establish a baseline and repository of data that can be used to inform:
   - Appropriate changes to existing setback and buffer distances around marine shoreline that are responsive to SLR and flooding impacts
   - Sea level monitoring locations
   - Area widths for transitional zones around the nearshore
3. **Ensure that stormwater infrastructure protects against flooding hazards** such as coastal flooding, riverine flooding, urban flooding, and groundwater flooding. With rising sea levels and increasing extreme precipitation events, it is especially important to maintain stormwater infrastructure in good condition and adapt stormwater systems to changing conditions.

Proposed Policy: Prioritize habitat preservation and restoration to maximize potential hazard mitigation co-benefits.

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Nature-based Solutions

PROPOSED ACTIONS

1. **Remove bulkheads and shore defense works** to restore shoreline, preserve natural processes, and help adapt to SLR.
2. **Develop additional habitat sites** along the Puyallup River, the Hylebos Creek, and Wapato Creek that support the ecosystem and increase flood storage capacity.
3. **Prioritize protecting existing habitat sites** to avoid decrease in ecological function due to coastal flooding impacts.

Proposed Policy: Use nature-based solutions to reduce vulnerability to hazards.

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Nature-based Solutions

PROPOSED ACTIONS

1. **Use green infrastructure to capture stormwater** and reduce urban flooding issues.
2. **Increase tree and vegetative cover** where appropriate to reduce urban heat island effect.
3. **Protect shorelines from coastal flooding** and erosion using natural hardening methods that help reduce wave action, decrease water velocity, or prevent waters from overtopping the shoreline and getting on terminals.
4. **Employ vegetative planting techniques** to avoid coastal erosion while avoiding outright armoring of coastal areas.

Proposed Policy: Coordinate RSLR adaptation efforts across jurisdictions and with regional initiatives.

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PROPOSED ACTIONS

Collaboration

1. **Establish a coastal hazard working group** to continue solving coastal flooding issues as they relate to zoning and land use. Representatives should include Port/NWSA, Pierce County, City of Tacoma, Puyallup Tribe, and City of Fife.
2. **Coordinate with climate change planners** to anticipate infrastructure improvements or adaptation techniques to minimize damage to infrastructure or disruption to services related to future SLR (or other climate-related effects to the community).
3. **Implement the programmatic and project recommendations** as outlined in the Pierce County 2023 Comprehensive Flood Hazard Management Plan in collaboration with the City of Tacoma, City of Fife, Port, Puyallup Tribe, and Pierce County.
4. **Develop a SLR Flood Damage Ordinance or Flood Damage Protection Ordinance** with the City of Tacoma. The ordinance would reduce losses due to flooding by restricting or prohibiting uses that are dangerous to health, safety, and property due to water related hazards. It would require uses vulnerable to floods to be protected, controlling the alteration of natural habitat, and/or regulating development that may increase flooding.
5. **Develop and implement a Commencement Bay Restoration and Resiliency Plan** with the City of Tacoma, Port, Puyallup Tribe, and County.
6. **Develop uniform flood control standards**—with the City of Tacoma, Port, Puyallup Tribe, City of Fife, and County—to prevent riverine flooding due to coastal flooding and tidal influence of the Hylebos, Wapato, and Puyallup.
7. **Maintain functionality and legal compliance of stormwater systems** that rely on discharge into Commencement Bay, namely the Erdahl Ditch and Fife Ditch in collaboration with the City of Fife.

Proposed Policy: Support safety and a resilient workforce in the Tideflats.

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Workforce

PROPOSED ACTIONS

1. **Develop and maintain emergency response plans** for various hazards and hazardous working conditions. Allow for coordination and collaboration with stakeholders.
2. **Encourage the use of emergency response plans** to include worker safety plans in the event of hazards or evacuation.
3. **Support development of and collaboration on Continuity of Operations Plans in the Tideflats** for continuation or quick recovery after an event.
4. **Maintain Port of Tacoma's status and capabilities** as a Strategic Seaport. The Port of Tacoma is a Strategic Seaport and part of the National Port Readiness Network and must be ready to make the port and its facilities available to support the deployment of military forces.

Proposed Policy: Align emissions reductions targets with City and Regional goals and targets.

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Emissions Reduction

PROPOSED ACTIONS

1. **Implement the Northwest Ports Clean Air Strategy** and other efforts to reduce emissions and the impacts of climate change.
2. **Establish a net-zero by 2050 emissions reductions target.**
   - The **Northwest Seaport Alliance** has adopted to "phase out emissions from seaport-related activities by 2050".
   - The **City of Tacoma** has a net-zero by 2050 goal outlined in the 2030 Climate Action Plan.
   - The **Puyallup Tribe** established "a goal to transition existing fossil fuel facilities to non-fossil fuel sources by 2035" and a commitment to a "carbon neutral economy by 2050".
   - **Pierce County** plans to reduce emissions 45% below 2015 levels by 2030.

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Upcoming Agendas

Date	Topic(s)
Apr	**Environment, Health, Tribal Assets**
May	**Land Use, Economic Development**
Jun	**Transportation**
Jul	**EIS Public Comment Debrief**
Aug	**Draft Plan Recommendation**

Reference

Existing Policy Framework

City of Tacoma, One Tacoma Comprehensive Plan

- ✓ **Goal EN-1:** Ensure that Tacoma's built and natural environments function in complementary ways and are resilient to climate change and natural hazards.
- ✓ **Policy EN-1.30:** Promote community resilience through the development of climate change adaptation strategies. Strategies should be used by both the public and private sectors to help minimize the potential impacts of climate change on new and existing development and operations, include programs that encourage retrofitting of existing development and infrastructure to adapt to the effects of climate change.
- ✓ **Policy EN-3.5:** Discourage development on lands where such development would pose hazards to life, property or infrastructure, or where important ecological functions or environmental quality would be adversely affected: a. Floodways and 100-year floodplains b. Geologic hazard areas, c. Wetlands d. Streams e. Fish and wildlife habitat conservation areas f. Aquifer recharge areas g. Shorelines

Existing Policy Framework

Tacoma Municipal Code Title 19 Shoreline Master Program

- ✓ **Chapter 19.06.010 Shoreline Use:** Evaluate SLR data and consider SLR risk and implications in the development of regulations, plans and programs.
- ✓ **Chapter 19.06.020 Site Planning:**
  - ✓ Development should be located, designed, and managed both to minimize potential impacts from SLR and to promote resilience in the face of those impacts, by such actions as protecting wetland and shoreline natural functions, incorporating green infrastructure, retaining mature vegetation, and considering soft-shore armoring wherever possible.
  - ✓ Assess the risks and potential impacts on both City government operations and on the community due to climate change and SLR, with special regard for social equity.
- ✓ **Chapter 19.06.040 Critical Areas and Marine Shoreline Protections:** Protect natural processes and functions of Tacoma's environmental assets (wetlands, streams, lakes, and marine shorelines) in anticipation of climate change impacts, including SLR.

Existing Policy Framework

Puyallup Tribes of Indians Comprehensive Land Use Plan

- ✓ **Policy 7.6:** Create and restore off-channel habitat (including wetlands and marshes) in place to prepare for the inundation of saline conditions as SLR pushes the salt wedge further inland.
- ✓ **Policy 11.3:** Encourage local jurisdictions to remove bulkheads and shore defense works to restore shoreline, preserve natural processes, and help adapt to SLR.
- ✓ **Policy 16.1:** Identify Tribal facilities & land that will be inundated by SLR and explore options for federal compensation.
- ✓ **Policy 16.2:** Inventory Tribal property, structures, and cultural sites at risk from natural hazards and SLR. Create criteria for assessing an approach for adaptation or relocation of identified land and facilities.
- ✓ **Policy 16.4:** Study economic development impacts associated with SLR in the Tideflats.

Existing Policy Framework

Puget Sound Regional Council Vision 2050

- ✓ **MPP-CC-10:** Address rising sea water by siting and planning for relocation of hazardous industries and essential public services away from the 500-year floodplain.
- ✓ **CC-Action-4:** Cities and counties will update land use plans for climate adaptation and resilience. Critical areas will be updated based on climate impacts from SLR, flooding, wildfire hazards, urban heat, and other hazards.

Existing Policy Framework

Northwest Ports Clean Air Strategy 2021 Joint Resolution

- ✓ [The Port of Seattle, Port of Tacoma, The Northwest Seaport Alliance, and The Vancouver-Fraser Port Authority] embrace the aspirational vision articulated in the 2020 NWPCAS: "Phase out emissions from seaport-related activities by 2050, supporting cleaner air for our local communities and fulfilling our shared responsibility to help limit global temperature rise to 1.5°C."