COVER PAGE

To:	NOAA Office for Coastal Management
Purpose:	NOAA Climate Resilience Regional Challenge (2023)
Project Title:	Restoring Deschutes Estuary and Building Community Resilience in the South Puget Sound
Funding Track:	Track Two
Lead Applicant:	Pamela Braff, PhD Director of Climate Programs, City of Olympia 360-753-8249 PO Box 1967, Olympia, WA 98507-1967 pbraff@ci.olympia.wa.us
Project Director:	Pamela Braff, PhD Director of Climate Programs, City of Olympia 360-753-8249 PO Box 1967, Olympia, WA 98507-1967 pbraff@ci.olympia.wa.us
Federal Funding Request:	$74,764,392
Geographic Description:	The City of Olympia, WA is located on Budd Inlet at the southern terminus of Puget Sound, approximately 60 miles south of Seattle. The Deschutes River feeds Budd Inlet on the southwest side of the downtown peninsula and was dammed in 1951 to create Capitol Lake. The proposed resilience activities will take place along the shoreline of Budd Inlet and the Deschutes Estuary/Capitol Lake in Olympia, WA.
Participating Jurisdictions:	City of Olympia, LOTT Clean Water Alliance, Port of Olympia, Squaxin Island Tribe, Washington State Department of Enterprise Services
Collaborators:	City of Olympia, LOTT Clean Water Alliance, Port of Olympia, Squaxin Island Tribe, Washington State Department of Enterprise Services
Period of Performance:	October 1, 2024 – September 30, 2029

Resilience Vision

In the coming decades, sea level rise and increased precipitation intensity is expected to cause significant flooding in downtown Olympia, impacting businesses and critical public infrastructure and services. Olympia's vulnerability is also increased by a dam at the mouth of the Deschutes River, which the State constructed in 1951 to create an architectural feature for the Washington State Capitol Campus. This dam changed the landscape of Budd Inlet, an area of cultural and spiritual significance for the Squaxin Island Tribe and important Tribal fisheries for Chinook and Coho salmon. Today, the dam increases flooding across downtown Olympia. Seasonal flooding, combined with subsidence of the City from its location atop fill, make Olympia particularly susceptible to the impacts of sea level rise.

This initiative will align two multi-jurisdictional and collaborative efforts (Olympia Sea Level Rise Response Plan and Deschutes Estuary Restoration) to enhance and coordinate major coastal resilience activities in the City of Olympia and Puget Sound. These two efforts are dependent upon each other – progress on one is necessary to fully implement the other. Key collaborators include the City of Olympia (City), LOTT Clean Water Alliance (LOTT), Port of Olympia (Port), Squaxin Island Tribe (Squaxin or the Tribe), and Washington State Department of Enterprise Services (DES). Through this initiative, the Collaborators will work together to adapt to sea level rise and restore coastal habitats, and enhance long-term working relationships to create a climate resilient future for Olympia and the Puget Sound.

Regional Context

The City of Olympia is the capitol of Washington State. It is located at the base of the Puget Sound - one of the largest estuaries in the nation and a waterbody of national significance. Historically, freshwater from the Deschutes River would mix with the saltwater of Puget Sound along the shorelines of Olympia. The Steh-Chass Band of Indigenous people of the Squaxin Island Tribe have stewarded this land since time immemorial and the area is of continued cultural and spiritual significance. This area constitutes a portion of the Usual and Accustomed (U&A) fishing area of the Squaxin Island Tribe. U&A is a term from the Treaty of Medicine Creek that refers to the reserved rights the Tribes maintained in the treaties.

Downtown Olympia is the social, cultural, historic, and economic core of the City and wider region. The downtown area contains vital infrastructure that serves the entire region including Budd Inlet Wastewater Treatment Plant, the Port of Olympia, and emergency vehicle corridors between west and east Olympia. The Olympia Farmers Market, Heritage Park, and Percival Landing are also located downtown. These are important cultural and recreational spaces for the entire region, drawing people downtown and supporting economic activity, including many small businesses in Olympia.

Olympia Sea Level Rise Response Collaborative

Recognizing the growing risk of sea level rise and flooding in downtown Olympia, the City, Port, and LOTT initiated a significant joint planning effort in 2018 to develop the Olympia Sea Level Rise Response Plan. The Plan provides comprehensive strategies to minimize flooding, protect critical infrastructure and valued community assets, including coastal ecosystems, and proactively adapt to sea level rise in the near- and long-term.

In 2021, the partners formed the Olympia Sea Level Rise (SLR) Response Collaborative (Collaborative) to coordinate sea level rise adaptation as strategized in the Plan. The Tribe, DES, and Thurston County have also joined the Collaborative as non-voting, ex-officio members. The Collaborative is working together to jointly plan, fund, and implement physical adaptation projects; coordinate operational flood response strategies; and develop long-term governance and funding strategies to benefit the entire region.

Deschutes Estuary Restoration

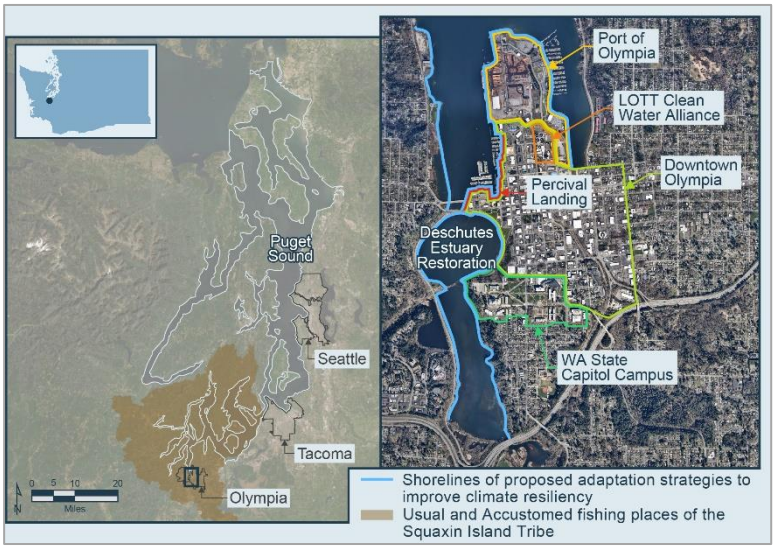
In October 2022, DES issued an Environmental Impact Statement (EIS), recommending restoration of the Deschutes Estuary. To do this, the state would remove the dam at the mouth of the Deschutes River and restore 260-acres of the historic estuary, improving water quality, increasing flood storage volume, and softening the shoreline. Restoration would also benefit Chinook and Coho salmon, which are important Tribal fisheries and critical prey for the Endangered Species Act-listed Southern Resident Killer Whale.

Numerical modeling of hydrodynamics and sediment transport shows that estuary restoration would reduce maximum water levels in the project area by up to 12-inches compared to future conditions with the dam in place. This would meaningfully reduce the extent of flooding across downtown Olympia.

Almost 2.5 million cubic yards of sediment have accumulated behind the dam, resulting in increasingly shallow conditions throughout Capitol Lake. Before dam removal, much of this sediment would be dredged to minimize deposition along Olympia's shoreline. The project proposes beneficial reuse of the sediment within the restored estuary to create up to 85 acres of marsh habitat. This natural infrastructure would further increase climate resiliency and ecological diversity within the project area.

Regional Coordination and Collaboration

The Collaborators have been working together for more than a decade to develop a shared vision for coastal resilience through the Sea Level Rise Response Collaborative and Deschutes Estuary Restoration (see Resilience Vision and Regional Context). Each Collaborator represents a unique perspective and responsibility to ensure coastal resilience for Olympia and the wider region.



City of Olympia has served as the project manager to develop and implement the Olympia Sea Level Rise Response Plan since 2018. Olympia owns portions of the shoreline and is responsible for protecting critical public infrastructure and essential public health and safety services.

LOTT Clean Water Alliance owns and operates the regional wastewater treatment system that serves approximately 120,000 people across the urban areas of Lacey, Olympia, and Tumwater. LOTT's main facility (the Budd Inlet Treatment Plant) is in downtown Olympia. The facility represents the single largest joint community investment and provides essential public health and environmental services.

Port of Olympia owns considerable shoreline property and maintains important commerce-related infrastructure funded by County-wide property tax levies. In operation since 1922, the Port serves the community in a variety of ways and supports many of the area's economic development efforts.

Squaxin Island Tribe is a federally recognized Indian tribe located in Southern Puget Sound with treaty rights to harvest fish and shellfish, "at their usual and accustomed fishing places in the shallow bays, estuaries, inlets and open Sound of Southern Puget Sound and in the freshwater streams and creeks

draining into those inlets."[1] The Tribe's cultural and economic well-being depend upon sufficient habitat to support abundant and sustainable fisheries. The Tribe has vital interests in ensuring that aquatic habitats are protected and restored so that it can continue to exercise its federal treaty rights.

Washington State Department of Enterprise Services has served in the lead role for evaluating the Deschutes Estuary Restoration. DES is responsible for stewardship, preservation, operation, and maintenance of the public and historic facilities of the Washington State Capitol Campus, which includes the current Capitol Lake and the area of the future estuary restoration.

Proposed Activities and Outcomes

Strategy 1: Support essential steps towards restoring Deschutes Estuary.

Vision: Restoring the natural function and marsh habitat of the Deschutes Estuary will help protect downtown Olympia from increased flooding and erosion due to sea level rise and coastal storms. Restoration will also restore critical salmon runs, improve water quality, establish beneficial habitats for Tribal fisheries, and create significant capacity for long-term carbon sequestration.

1.1 Complete Final Estuary Restoration Design and Permitting on Schedule. In 2023, the Washington State Legislature allocated $7 Million for design and permitting of the Deschutes Estuary Restoration Project. An additional $7M is needed to complete design and permitting on schedule by 2027.

1.2 Construct Habitat Containment Cells to Facilitate Shoreline Restoration. Construction is forecasted to begin in 2027 after all permits are obtained and funding is secured. The first construction activity is to dredge accumulated sediment and create new marsh habitat with the dredged sediment. Before dredging begins, marsh habitat containment cells would be installed along the shoreline for placement of dredged material. After dewatering and grading of the sediment, these areas would be planted. Then, the sheet pile cells would be cut to mudline or removed to expose the new shoreline marsh habitat**.** The habitat containment cell construction cost is expected to be complete in 2029.

Strategy 2: Implement mid-term adaptation strategies from the Olympia Sea Level Rise Response Plan to reduce flood risk and improve waterfront access in downtown Olympia.

Vision: Mid-term sea level rise protection (up to 24 inches) will be provided by a system of green infrastructure, flood gates, flood walls, and berms. The linked system will create a temporary shoreline during large coastal storm events to prevent flooding of inland areas, protect critical infrastructure and emergency vehicle corridors, and help prevent the introduction of upland pollutants to marine waters. Raised paths and landscaping will enhance public access to the shoreline during non-storm conditions.

2.1 Raise landscaping within Percival Landing Park and elevate existing paths to provide access to the shoreline. Complete design, permitting, and construction to build an elevated berm and raise landscaping by up to two feet at Percival Landing Park.

2.2 Install raised landscaping and planters along downtown streets that parallel the shoreline and install flood gates across key access points. Complete design, permitting, and construction to raise landscaping and install raised planter boxes with flood tolerant species. Install pop-up flood gates across waterfront access points to reduce downtown flooding during storm events but ensure continued access to the shoreline during non-storm conditions.

2.3 Elevate low-lying shoreline segments and critical facilities along East Bay and the Port Peninsula. Design and construct natural barriers and green infrastructure to elevate the shoreline.

1 See generally United States v. Washington, 384 F.Supp. 312, 378 (W.D. Wash. 1974); United States v. Washington, 459 F.Supp. 1020 (W.D. Wash. 1978).

2.4 Implement strategic acquisition of vulnerable waterfront properties. In 2023, the City launched a public process to redesign Percival Landing to adapt to sea level rise. This effort includes working with property owners to acquire and support relocation for several priority properties. Property acquisition would reduce flood risk and enable additional habitat restoration and public access projects. Property owner outreach is already underway; the proposed activity includes continued stakeholder outreach and the acquisition of up to three properties by 2029.

Strategy 3: Investigate feasibility of constructing stormwater peak flow management measures.

Vision: Approximately 330 acres of the City, mostly downtown and near the State Capitol, are served by combined sewer and stormwater conveyance pipes. Removing stormwater flow from the combined system would alleviate the risk of peak storm flows overwhelming the capacity of collection system pipes and the Budd Inlet Wastewater Treatment facility.

3.1 Analyze the costs, benefits, and approaches to separating portions of the combined sewer and stormwater systems. Identify opportunities to separate portions of the combined system and conduct preliminary engineering design work for future capital projects to reduce peak flow, including green infrastructure to manage and treat rerouted peak storm flows and enhance habitat.

Enduring Capacity

Strategy 4: Sustain and build enduring capacity for long-term coordination and ongoing adaptation.

Vision: Enhance long-term coordination and implementation of critical adaptation and habitat restoration strategies identified in the SLR Response Plan and Deschutes Estuary Restoration through dedicated staffing, workforce development, and implementation of governance and outreach strategies.

4.1 Establish a full-time (5 year) position with the City of Olympia serve as Olympia's Sea Level Rise Response Coordinator. This position would support coordination of the Deschutes Estuary restoration and sea level rise response strategies and build capacity for ongoing implementation of adaptation strategies. The Coordinator would also review and update Olympia's Sea Level Rise Flood Damage Reduction Ordinance and develop a community engagement strategy to engage underserved and frontline community members in future adaptation planning and projects.

4.2 Establish a full-time (5 year) position with the Squaxin Island Tribe to lead the Tribe's continued engagement in these projects. Members of the SLR Collaborative, along with the Tribe, DES and other regional entities executed a Memorandum of Understanding in 2022 to outline responsibilities for long-term management of the Deschutes Estuary. In this process, the Tribe expressed interest in overseeing adaptive management of the shoreline habitat after construction. This position would ensure continued collaboration of the Tribe in the estuary restoration and SLR Collaborative.

4.3 Establish a full-time (5 year) position with DES to serve as Project Manager for the Deschutes Estuary Restoration Project. The Project Manager would serve as the as the Liaison for the Estuary Restoration Project to lead the State's engagement, ensure project coordination for the long-term management of the estuary, and support community engagement. The Project Manager would also oversee the construction of the habitat containment cells to facilitate shoreline marsh restoration.

4.3 Establish annual internships to develop future workforce capacity for coastal resilience and estuary restoration. Interns and fellows will be hosted by project Collaborators.

Equity and Inclusion

The Squaxin Island Tribe has been engaged in early feasibility planning, the EIS and other efforts related to Deschutes Estuary restoration since the late 1990s. During the EIS, DES engaged the Tribe, as well as the SLR Collaborative and adjacent jurisdictions, as part of several key Work Groups. This engagement

ensured that the estuary restoration concept plan was consistent with other interagency efforts, that numerical modeling was consistent with the methodology of the SLR Plan, and that there was broad stakeholder support for a sweeping restoration project in the heart of downtown Olympia.

Meaningful engagement of these stakeholders and the community will continue through design and permitting in a similar format. For example, the salt marsh habitat will be co-designed with the Squaxin Island Tribe. The Tribe recognizes the importance of protecting the built environment and continues to guide sea level rise response efforts so that they also protect and restore the natural environment upon which the Tribe depends to support its culture and lifeways.

Outreach and Engagement

The Collaborators are committed to lifting up all voices, engaging with a wide range of agencies, and connecting with marginalized communities that have historically been under-represented. This commitment is evidenced by the multiple collaborators involved in this proposal, long-term working relationships with the Squaxin Island Tribe, and the collaborative nature of the proposed activities.

Recognizing that we must also develop new relationships and rebuild trust, the City is launching a "Fostering Connection and Belonging" process, to foster stronger, more trusting relationships with marginalized community members. The work to redesign Percival Landing (Strategy 2) exemplifies how Olympia's outreach is evolving. Historically, these processes have been dominated by public feedback from adjacent property owners and local marinas. While those voices should be considered as part of the process, the City is designing targeted outreach to also engage the broader community, especially the many low-income and renter households who live near and around downtown Olympia.

The Collaborators intend to connect with NOAA partners at Washington SeaGrant and the Northwest Climate Resilience Collaborative to guide further development and implementation of the proposed activities. The process, outcomes, and lessons learned from this work will be documented and shared with other communities, and presented at the National Adaption Forum, the Northwest Climate Conference, and other regional and community events and webinars.

Budget Summary – Estimated Personnel and Activity Costs

Personnel		
4.1	City of Olympia Staff Position	$815,010
4.2	Squaxin Island Tribe Staff Position (Subaward to Squaxin Island Tribe)	$815,010
4.3	DES Staff Position (Subaward to DES)	$815,010
4.4	Interns and Fellowships	$271,670
Activities		
1.1	Complete final estuary restoration design and permitting. (Subaward to DES)	$7,949,065
1.2	Construct habitat containment cells. (Subaward to DES)	$27,253,937
2.1	Raise landscaping within Percival Landing Park and elevate existing paths.	$1,324,176
2.2	Install raised planters and pop-up flood gates.	$13,241,759
2.3	Elevate low-lying segments along the Port Peninsula. (Subaward to Port)	$1,324,176
2.4	Strategic acquisition of vulnerable waterfront properties.	$19,862,638
3.1	Evaluate feasibility of additional stormwater management measures.	$1,059,341
Travel	Travel to NOAA meetings and other conferences.	$32,600
TOTAL	*Project costs have been escalated based on actual and projected inflation.*	**$74,764,392**