

Table 11: Olympia Potential Sea Level Rise Adaptation Strategies

Strategy Type / ID	Strategy	Lead Agency	Resources	Time-frame
Physical Strategies				
Capitol Lake / Lower Deschutes Watershed				
Near-Term Strategies (up to 6 inches of sea level rise)				
CL-1	Install backflow prevention on stormwater outfalls and other key pipes	City of Olympia Public Works	Existing Staff \$50K	2019-2024
CL-2	Minor landscaping at key locations to raise ground elevations	DES	\$250K	2019-2024
Mid-Term Strategies (up to 24 inches of sea level rise)				
CL-3a	Construct new wall: Construct a new flood-wall at elevation 17 feet and elevate Capitol Lake path along the shoreline	DES	\$4M - \$6M	2025-2050
CL-3b	Construct new berm: Construct a berm at elevation 17 feet within Heritage Park and relocate Capitol Lake path inland to a higher elevation	DES	\$3M - \$5M	2025-2050
CL-4	Install flood gate across railroad and Powerhouse Road (required with wall and berm options)	City of Olympia Public Works	\$200K - \$300K	2025-2050
Long-Term Strategies (up to 68 inches of sea level rise)				
CL-5a	Raise floodwall: Raise floodwall and path along shoreline to 21 feet	DES	\$2M - \$2.5M	2050-2075
CL-5b	Raise berm: Raise berm and path in Heritage Park to 21 feet	DES	\$8M - \$10M	2050-2075
CL-5c	Raise floodwall and berm: Hybrid strategy that would raise floodwall and landscaping within Heritage Park	DES	\$14M - \$17M	2050-2075
CL-6	Replace flood gate across railroad and Powerhouse Road	City of Olympia Public Works	\$300K - \$400K	2050-2075
CL-7	Raise 5th Ave and Columbia Street (optional)	City of Olympia Public Works	\$80M - \$100M	2050-2075
CL-8	Consolidate stormwater outfalls	City of Olympia Public Works	TBD	2050-2075
CL-9	Construct stormwater discharge pump station	City of Olympia Public Works	\$300K - \$400K	2050-2075
CL-10	Protect Percival Drinking Water Pump Station	City of Olympia Public Works	\$0.5M - \$1M	2050-2075
Percival Landing and Isthmus				
Near-Term Strategies (up to 6 inches of sea level rise)				
PL-1	Install backflow prevention (gates and valves) on stormwater outfalls and other key pipes	City of Olympia Public Works	Existing Staff \$50K	2019-2024
Mid-Term Strategies (up to 24 inches of sea level rise)				
PL-2	Install raised planters within the City right-of-way along Columbia Street and 4th Avenue	City of Olympia Public Works	\$3M - \$4M	2030-2035

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PL-3	Raise landscaping within Percival Landing Park	City of Olympia Parks	\$0.1M - \$0.2M	2030-2035
PL-4	Elevate existing paths to provide access to the shoreline	City of Olympia Parks	\$0.6M - \$0.8M	2030-2035
PL-5	Install flood gates across Simmons Street, Sylvester Street, A Avenue, B Avenue, and Corky Avenue	City of Olympia Public Works	\$5M - \$6M	2030-2035
PL-6	Acquire waterfront leases if and when they become available	City of Olympia Parks	TBD	2025-2050
Long-Term Strategies (up to 68 inches of sea level rise)				
PL-7	Elevate paths north and south of Percival Landing Park	City of Olympia Parks	\$1.5M - \$2M	2050-2075
PL-8	Raise or retrofit wall along Percival Landing Park	City of Olympia Parks	\$0.5M - \$0.6M	2050-2075
PL-9	Raise landscaping within Percival Landing Park	City of Olympia Parks	\$1.2M - \$1.4M	2050-2075
PL-10	Raise Columbia Street, Water Street, and 4th Avenue	City of Olympia Public Works	\$80M - \$100M	2050-2075
PL-11	Consolidate stormwater outfalls	City of Olympia Public Works	\$8M - \$10M	2050-2075
PL-12	Construct stormwater discharge pumping station(s)	City of Olympia Public Works	\$14M - \$17M	2050-2075
Budd Inlet Treatment Plant				
Mid-Term Strategies (up to 24 inches of sea level rise)				
BITP-1	Increase equalization basin and influent and effluent pump capacity	LOTT	TBD	2025-2050
BITP-2	Raise vulnerable BITP components above projected flood levels for redundancy	LOTT	TBD	2040-2060
BITP-3	Upsize north outfall pipe	LOTT	TBD	2025-2035
BITP-4	Evaluate feasibility and benefits of constructing perimeter flood protection and/or floodproofing of sensitive facilities at BITP	LOTT	TBD	2035-2050
Long-Term Strategies (up to 68 inches of sea level rise)				
BITP-5	Implement onsite perimeter flood protection at BITP	LOTT	\$12-\$15M	2040-2060
BITP-6	Retrofit or raise perimeter flood protection at BITP	LOTT	TBD	2075-2100
East Bay and Port Peninsula				
Near-Term Strategies (up to 6 inches of sea level rise)				
PORT-1	Install backflow prevention on stormwater outfalls "A" and "J"	Port of Olympia	\$15k - \$20k	2019-2024
Mid-Term Strategies (up to 24 inches of sea level rise)				
PORT-2	Elevate low-lying shoreline segments along North Point, the marine terminal, and Port Plaza	Port of Olympia	\$0.5M - \$0.7M	2025-2050

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PORT-3	Install backflow prevention on stormwater outfalls “E”, “F”, and “K”	Port of Olympia	\$30k - \$50k	2025-2050
PORT-4	Evaluate feasibility and phased raising of shipping berths, cargo yard, and rail incrementally	Port of Olympia	TBD	2025-2050
Long-Term Strategies (up to 68 inches of sea level rise)				
PORT-5	Elevate low-lying shoreline segments along North Point and Port Plaza	Port of Olympia	\$4.5M - \$5.5M	2050-2075
PORT-6	Raise Billy Frank Jr. Trail along East Bay and North Point	Port of Olympia	\$3M - \$4M	2050-2075
PORT-7	Incrementally rebuild and raise shipping berths, marine terminal cargo yard, and rail to higher elevations as part of lifecycle replacement	Port of Olympia	TBD	2050-2075
PORT-8	Retrofit and rebuild marina docks and gangways to higher elevations over time as needed	Port of Olympia	TBD	2050-2075
EB-1	Construct pumping station for Moxlie Creek	City of Olympia Public Works	\$60M - \$75M	2050-2075
Operational Strategies				
OP-1	Emergency response to flood events, including sandbags, portable pumps, sealing catch basins	City of Olympia	Existing staff	2019-2024
OP-2	Collaborate on winter preparedness and emergency response efforts. Expand efforts to include protection of the combined sewer.	City of Olympia	Existing staff	2019-2024
OP-3	Annual funding for ongoing sea level rise adaptation planning efforts	City of Olympia	\$150K/year	2019-2014
Governance Strategies				
Collaboration				
COL-1	Formalize sea level rise collaboration	Interjurisdictional	Existing staff	2019
COL-2	Develop governance structure and organization <ul style="list-style-type: none"> • Oversight Committee of elected/appointed officials • Technical Group • Finance Group • Citizen Advisory Group 	Interjurisdictional	Existing staff	2019
COL-3	Continue regional efforts to develop an overarching climate change policy	TRPC	Existing staff	2019-2024
COL-4	Coordinate winter preparedness and emergency response efforts	City of Olympia	Existing staff	2019-2024

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COL-5	Coordinate with energy utility vulnerability assessment	LOTT	Existing staff	2019-2024
Policy				
POL-1	Update Shoreline Master Program	City of Olympia CP&D	Existing staff	2019
POL-2	Update Sea Level Rise Flood Damage Reduction Ordinance <ul style="list-style-type: none"> Account for higher flood elevation associated with Capitol Lake floodplain Require lowest floor to be elevated rather than floodproofed Allow extra ceiling height to accommodate raised floors Define critical facilities and require constructing or floodproofing to 3 feet above the base flood elevation Require minimum finish floor elevation to be set considering project's projected lifespan 	City of Olympia CP&D	Existing staff	2019-2024
POL-3	Incorporate Sea level rise into other planning documents	City, LOTT, Port, DES	Existing staff	2019-2024
POL-4	Incorporate sea level rise considerations into capital planning	City, LOTT, Port, DES	Existing staff	2019-2024
POL-5	Design standards / guidelines updates	City, LOTT, Port, DES	Existing staff	2019-2024
POL-6	Require backflow valves on new construction and substantial improvements	City of Olympia CP&D	Existing staff	2019-2024
POL-7	Refine high flow standard operating procedures at the Budd Inlet Treatment Plant	LOTT	Existing staff with consultants	2019-2024
POL-8	Update Development Codes <ul style="list-style-type: none"> Create a zones adjacent to and compatible with elevated street sections 	City of Olympia CP&D	Existing staff	Beyond 2025
POL-9	Reduce or prohibit development in the most exposed areas while ensuring equity and beneficial use of these areas - applicable to properties water ward of proposed barriers	City of Olympia CP&D	Existing staff	Beyond 2025
POL-10	Establish a Transfer of Development Rights program to redirect development from highly exposed areas to less exposed areas	City of Olympia CP&D	Existing staff	Beyond 2025

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Finance				
FIN-1	Investigate and implement long-term public financing mechanism	Project Partners	Proposed Financial Group with Consultant	2019-2024 and beyond
FIN-2	Create special district to finance resilience improvements	City of Olympia; Thurston County	Proposed Financial Group	2019-2024 and beyond
FIN-3	Pursue State and federal funding / lobby legislature	Project Partners	Proposed Financial Group with Consultant	2019-2024 and beyond
Education and Outreach				
ED-1	Maintain an up-to-date sea level rise planning website	City of Olympia	Existing Staff	2019-2024
ED-2	Develop and implement a sea level rise-specific Community Education and Engagement Strategy	Project Partners	Existing Staff	2019-2024
ED-3	Incorporate sea level rise in the discussions for planning purposes	City of Olympia	Existing Staff	2019-2024
ED-4	Continue education work with schools	Project Partners	Existing Staff	2019-2024
ED-5	Play a role as regional sea level rise advisor	City of Olympia	Existing Staff	2019-2024
ED-6	Conduct community workshops to brainstorm focus area strategies	City of Olympia	Existing Staff	2019-2024
ED-7	Outreach to downtown business owners and Port tenants	City of Olympia & Port of Olympia	Existing Staff	2019-2024
Informational Strategies				
IN-1	Refine sea level rise and flood monitoring strategy	City of Olympia Public Works	Existing staff with consultants	2019
IN-2	Monitor land subsidence	City of Olympia Public Works	Existing staff with consultants	2019-2024
IN-3	Initiate groundwater study	City of Olympia Public Works & LOTT	Existing staff with consultants	2019-2024
IN-4	Understand future precipitation projections	City of Olympia Public Works	Existing staff	2019
IN-5	Understand liquefaction	City of Olympia Public Works	Existing staff with consultants	2019-2024
IN-6	Understand the implications of FEMA accreditation	City of Olympia Public Works	Existing staff with consultants	2019-2024
IN-7	Model flow rates for individual stormwater outfalls and combined sewer system	City of Olympia Public Works	Existing staff with consultants	2019-2024
IN-8	Survey finished floor elevations on Port properties	Port of Olympia	Consultant	2019-2024
IN-9	Monitor ongoing shoreline erosion along East Bay	Port of Olympia	Existing staff	2019-2024