



CAPITOL LAKE — DESCHUTES ESTUARY

Long-Term Management Project Environmental Impact Statement

DRAFT ENVIRONMENTAL IMPACT STATEMENT

July 2021

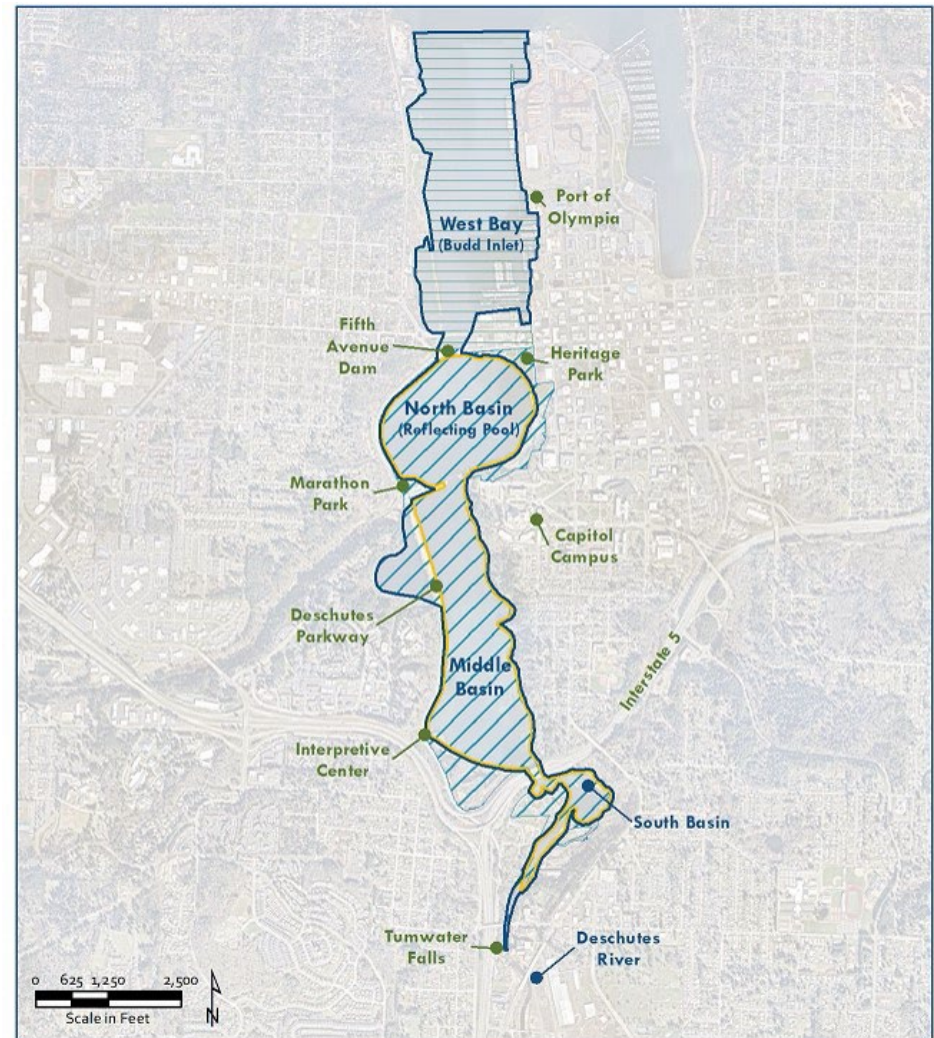
Agenda Topics

- ✦ Project Area
- ✦ Long-Term Management Alternatives
- ✦ Technical Evaluations and Key Findings
- ✦ Construction Impacts
- ✦ Planning-Level Costs
- ✦ Next Steps



Project Area

- ✦ Extends from Tumwater Falls to northern point of West Bay
- ✦ Deschutes Estuary used historically by local tribes, particularly Squaxin Island Tribe
- ✦ Includes Capitol Lake, the 260-acre waterbody leased to Enterprise Services from DNR



Legend

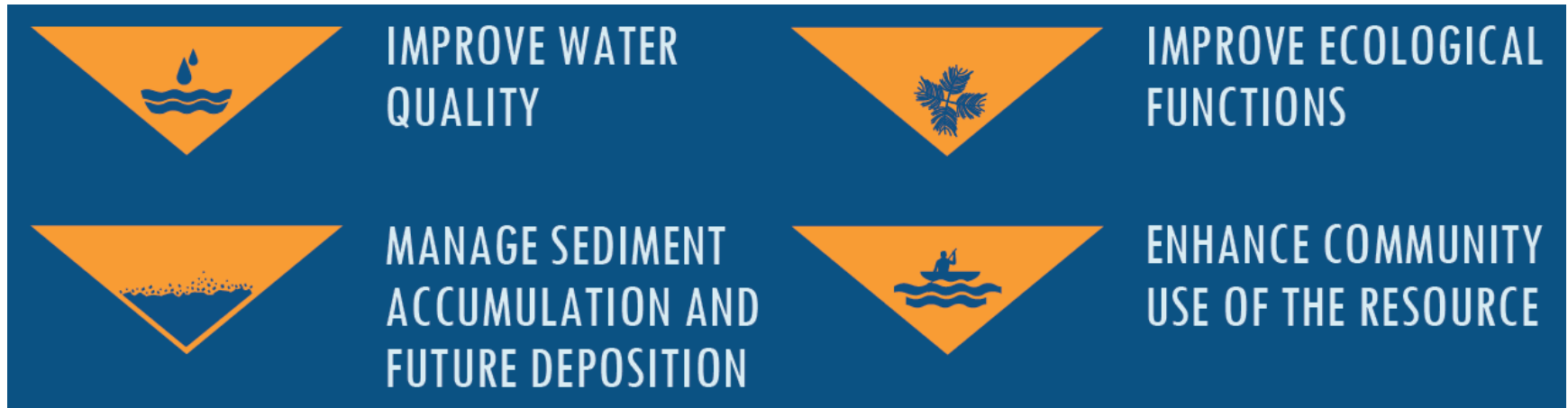
- Capitol Lake/ Capitol Lake Basin
- Capitol Lake – Deschutes Estuary
- Project Area (within Enterprise Services Jurisdiction)
- Project Area (outside Enterprise Services Jurisdiction)



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Long-Term Management Goals

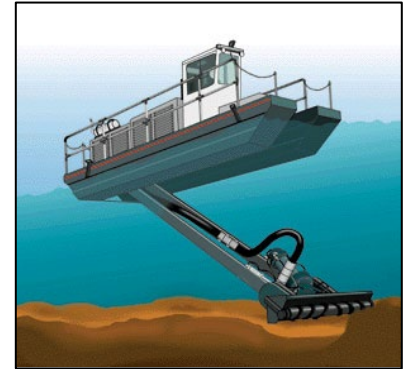


- ✦ In addition, the preferred alternative must demonstrate economic and environmental sustainability



Elements Common to All Action Alternatives

- ✦ Construction dredging and beneficial reuse of sediment
- ✦ Habitat areas and Habitat Enhancement Plan
- ✦ Boardwalks in Middle and South Basins
- ✦ Hand-carried boat launch at Marathon Park
- ✦ Rebuilt dock at Interpretive Center
- ✦ 5th Avenue Pedestrian Bridge
- ✦ Recurring maintenance dredging
- ✦ Decontamination stations



Hydraulic dredge

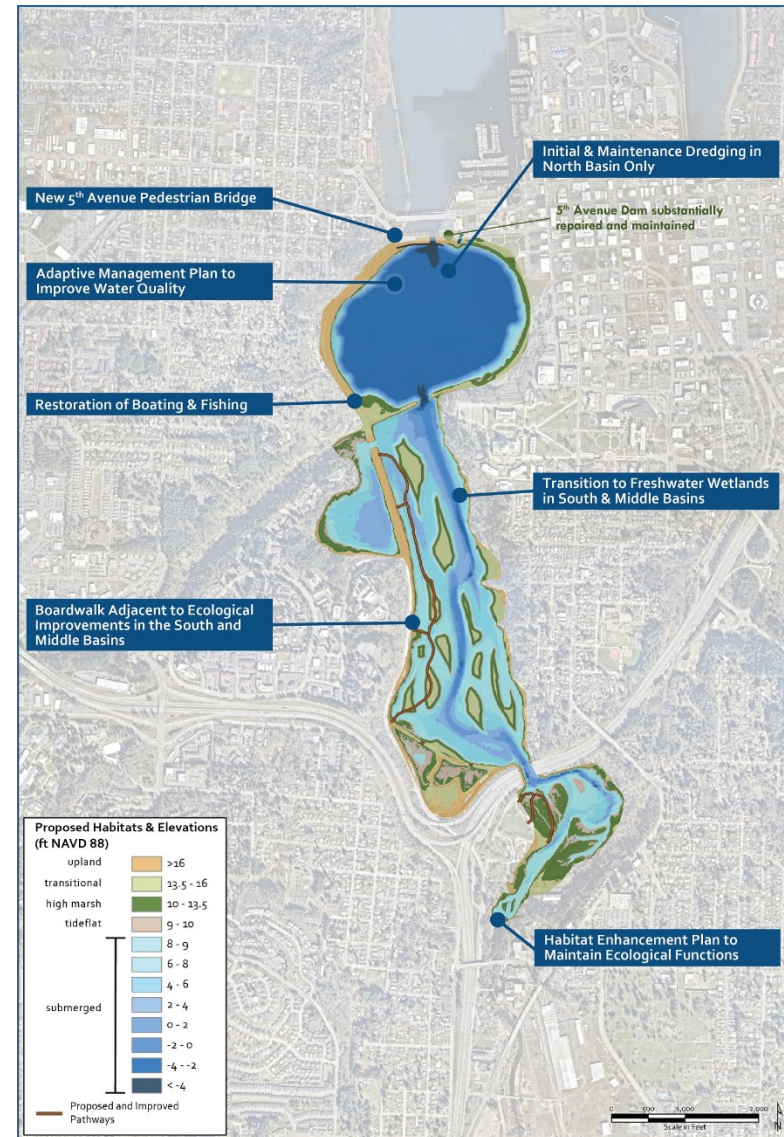


Bridge pile bent (Source: Federal Highway Administration)



Managed Lake Alternative

- ✦ Improve Water Quality
 - Adaptive Management Plan for water quality
- ✦ Manage Sediment
 - Initial and maintenance dredging in North Basin only
- ✦ Improve Ecological Functions
 - Establish shoreline habitat in Middle Basin
 - Transition Middle and South Basins to freshwater wetlands
 - Implement Habitat Enhancement Plan to maintain ecological functions
- ✦ Enhance Community Use
 - Restore boating and fishing
 - New 5th Avenue Pedestrian Bridge
 - Boardwalk in Middle and South Basins



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Long-Term Management Project Environmental Impact Statement

Estuary Alternative

- ✦ Improve Water Quality
 - Remove 5th Avenue Dam
- ✦ Manage Sediment
 - Initial dredging in Middle and North Basin channels
 - Recurring maintenance dredging in West Bay
- ✦ Improve Ecological Functions
 - Establish shoreline habitat in Middle and North Basins
 - Implement Habitat Enhancement Plan to maintain ecological functions
- ✦ Enhance Community Use
 - Restore boating and fishing
 - New 5th Avenue Pedestrian Bridge
 - Boardwalk adjacent in Middle and South Basins

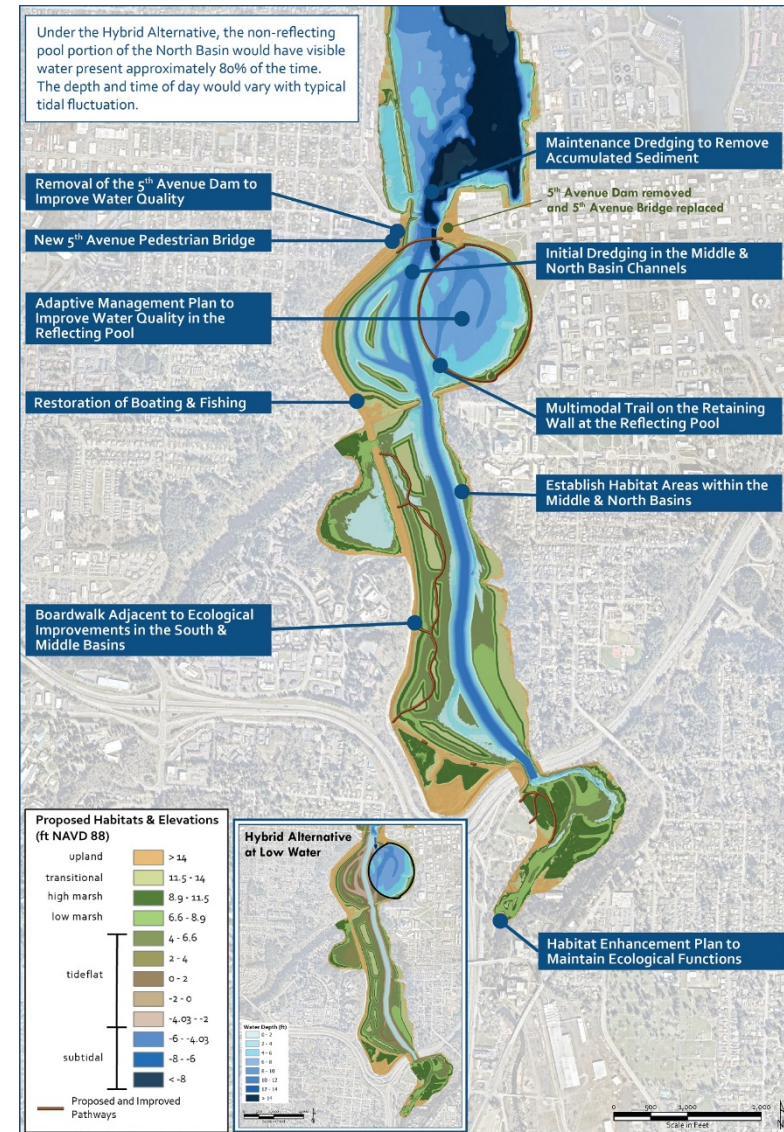


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Long-Term Management Project Environmental Impact Statement

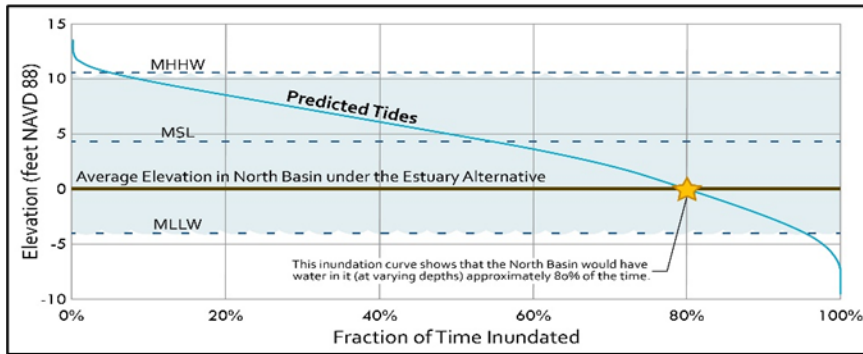
Hybrid Alternative

- ✦ Improve Water Quality
 - Remove 5th Avenue Dam
 - Adaptive Management Plan to improve water quality in Reflecting Pool
- ✦ Manage Sediment
 - Initial dredging in North and Middle Basin channels
 - Recurring maintenance dredging in West Bay
- ✦ Improve Ecological Functions
 - Establish shoreline habitat in North and Middle Basins
 - Implement Habitat Enhancement Plan to maintain ecological functions
- ✦ Enhance Community Use
 - Restore boating and fishing
 - New 5th Avenue Pedestrian Bridge
 - Boardwalks in Middle and South Basins
 - New reflecting pool and multi-modal trail in North Basin

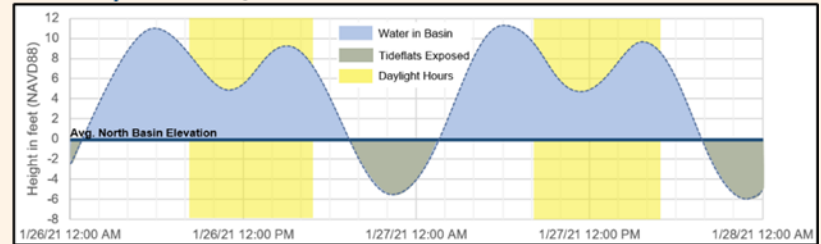


Tidal Variation (Estuary/Hybrid)

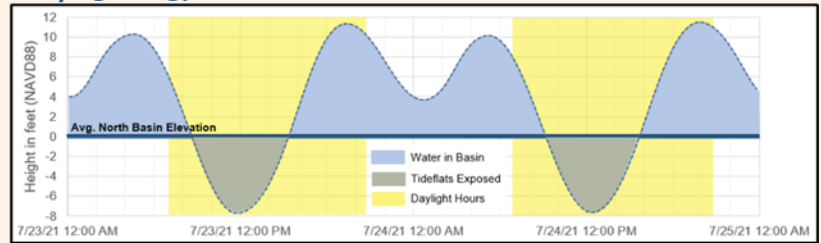
- Tide variation on representative winter, summer, and fall days
- Largest period of daylight hours with low tide (and exposed tideflat) is during summer



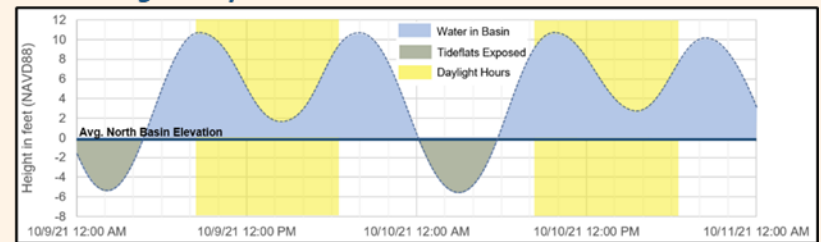
January 26 to 28, 2021



July 23 to 25, 2021

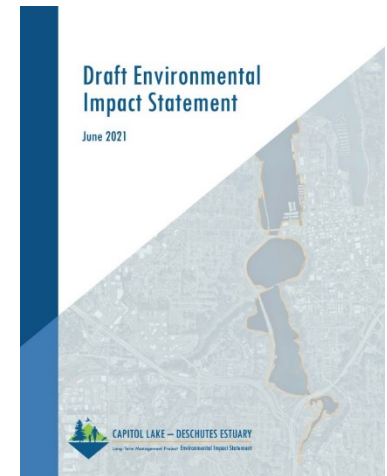


October 9 to 11, 2021

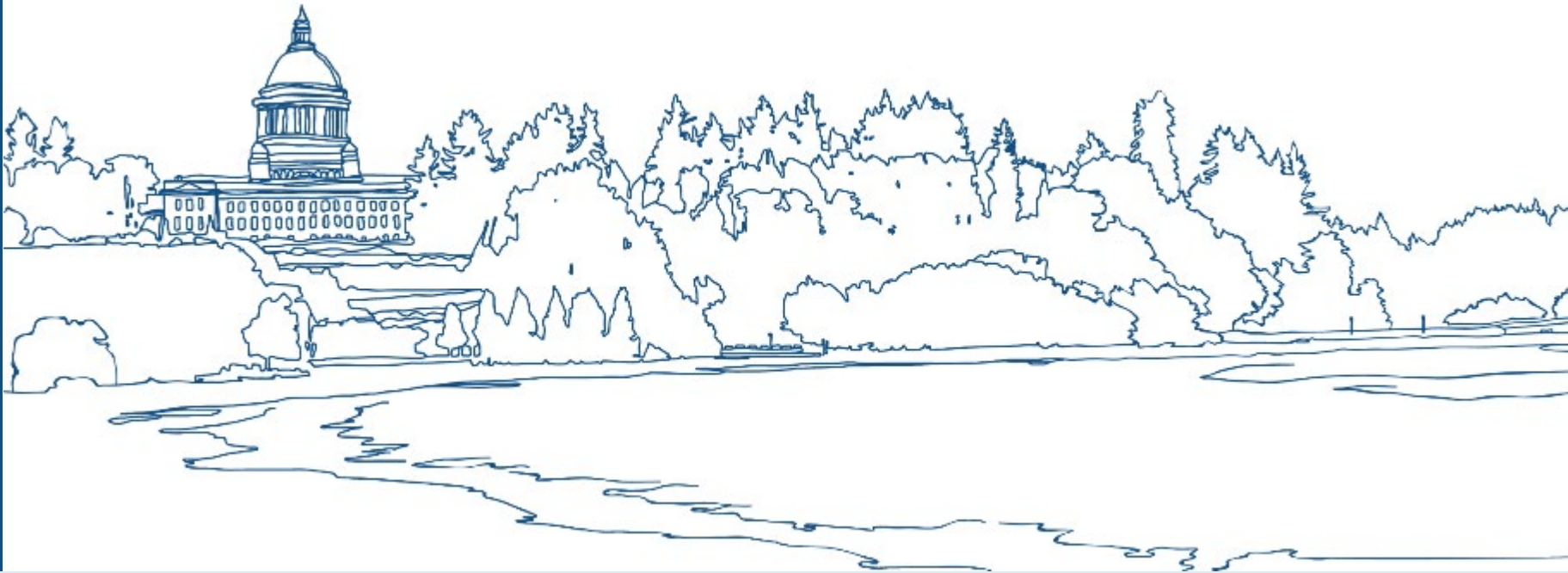


Draft EIS Contents

- ✦ **1.0:** Project Background and History
- ✦ **2.0:** Project Alternatives and Construction Approach
- ✦ **3.0:** Existing Conditions and Affected Environment
- ✦ **4.0:** Long-Term Impacts, Benefits, and Mitigation
- ✦ **5.0:** Short-Term Impacts and Mitigation
- ✦ **6.0:** Cumulative Effects
- ✦ **7.0:** Planning-Level Costs, Funding Recommendations, and Other Considerations
- ✦ **8.0:** Engagement with Work Groups, Community Sounding Board, and State Government
- ✦ **9.0:** Permits and Approvals for Implementation of a Preferred Alternative















Questions?



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Long-Term Management Project Environmental Impact Statement

Analysis & Key Findings

| | | | | |
|---|--|---|--|--|
| ELEMENTS EVALUATED | HYDRODYNAMICS & SEDIMENT TRANSPORT  | NAVIGATION  | WATER QUALITY  | AQUATIC INVASIVE SPECIES  |
| FISH & WILDLIFE  | WETLANDS  | AIR QUALITY & ODOR  | LAND USE, SHORELINES, & RECREATION  | CULTURAL RESOURCES  |
| VISUAL RESOURCES  | ENVIRONMENTAL HEALTH  | TRANSPORTATION  | PUBLIC SERVICES & UTILITIES  | ECONOMICS  |





Hydrodynamics and Sediment Transport – Analysis

- ✦ Delft3D – process-based three-dimensional computer model
- ✦ Model inputs include:
 - 2020 bathymetry (collected by EIS Project Team)
 - Streamflow and tide records
 - Current speed measurements
 - Upstream water levels
 - Dam opening records and operational rules
 - Meteorological data
 - Flood mapping
 - Climate change predictions
- ✦ Two hydrodynamic conditions simulated with and without relative sea level rise
 - 100-year river flood event
 - 100-year tidal flood event
- ✦ Methodology and findings reviewed by independent 3rd party experts



*Hydrodynamics and Sediment Transport
study area*





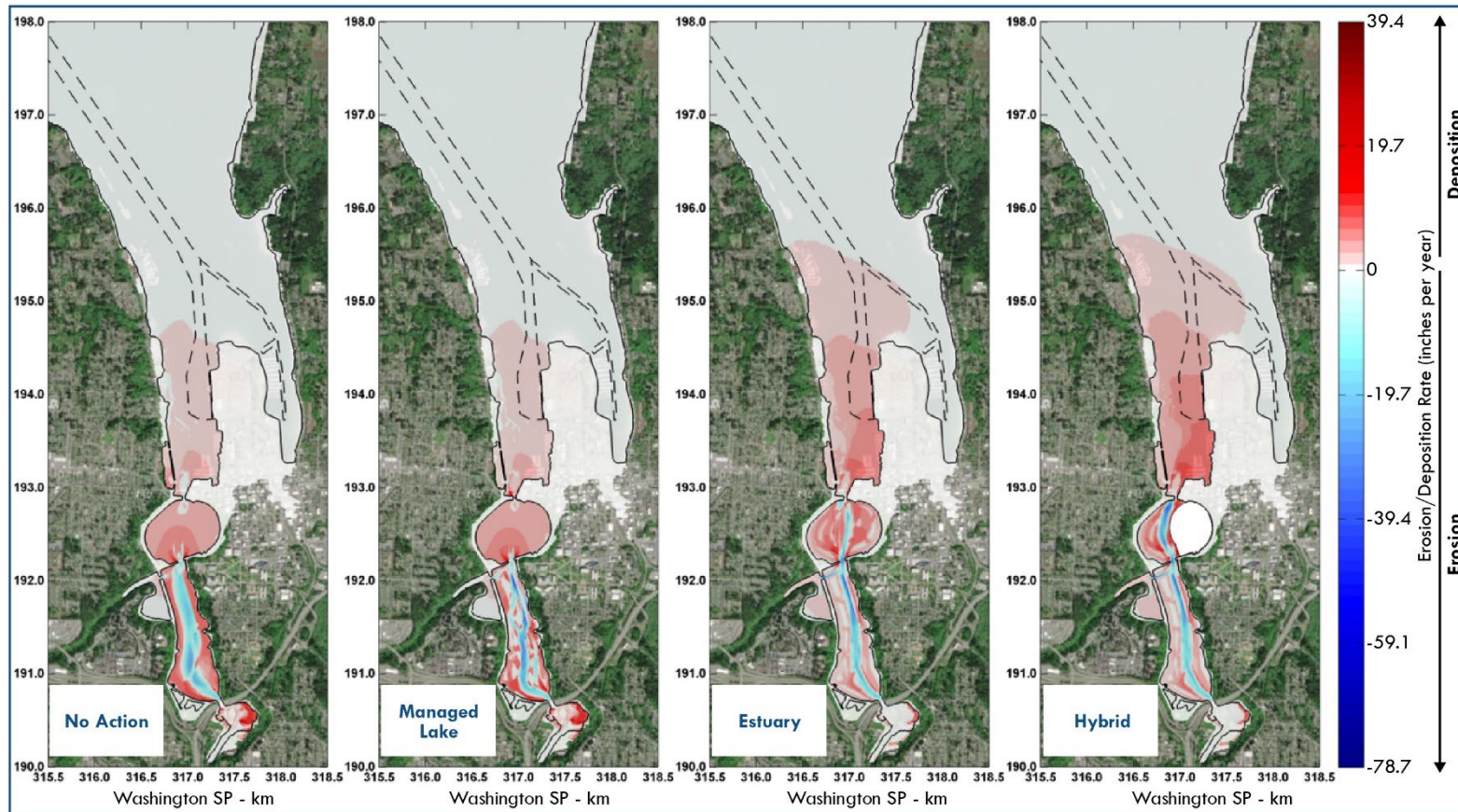
Key Findings

- ✦ No Action and Managed Lake Alternatives
 - Highest maximum water levels across all alternatives
 - Greatest extent of flooding during extreme river floods
- ✦ Estuary and Hybrid Alternatives
 - Higher water levels than the No Action and Managed Lake Alternatives during major tidal floods
- ✦ Sediment deposition in West Bay approximately 3x greater (Estuary) and 4x greater (Hybrid) compared to Managed Lake and No Action Alternatives



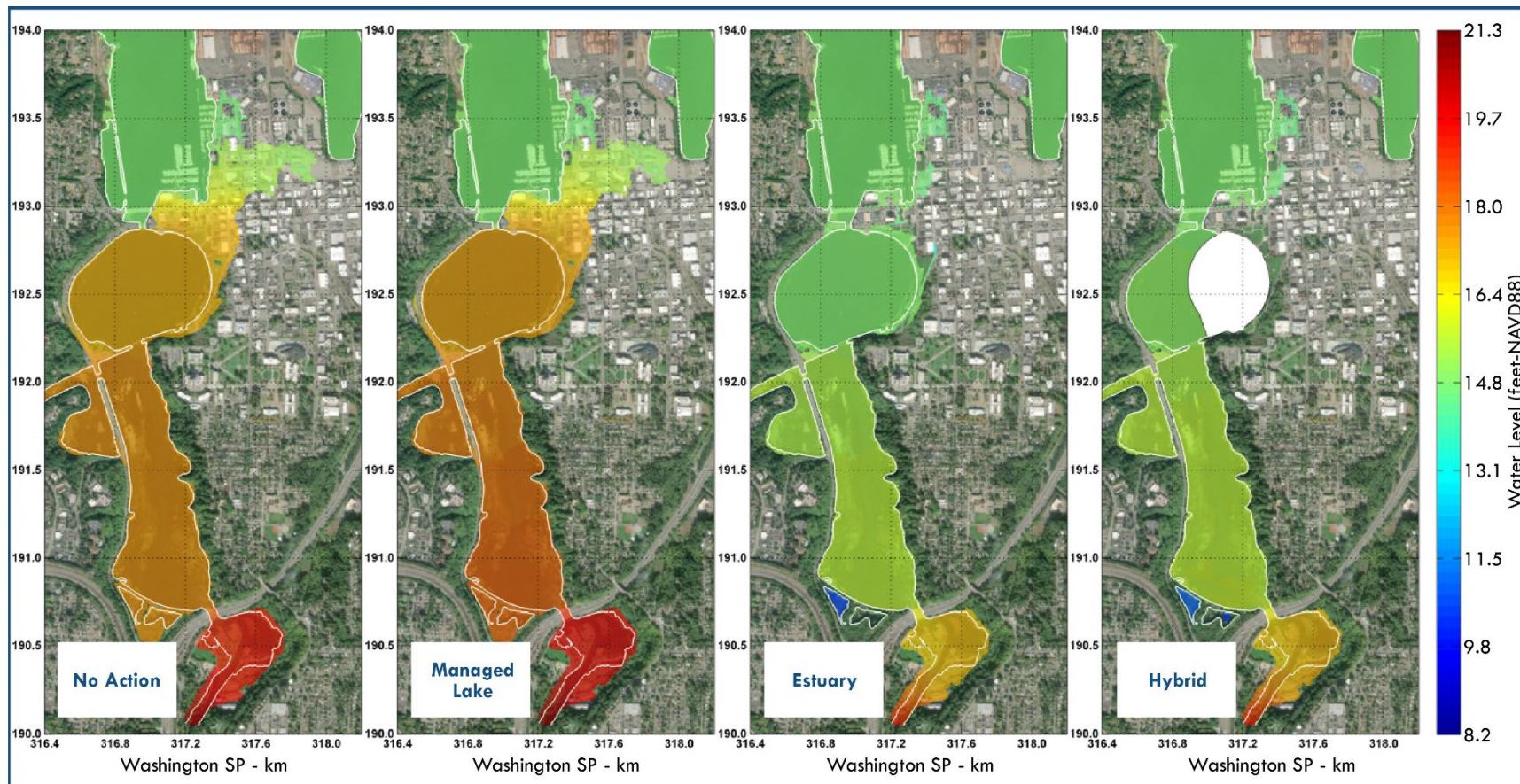


Annual Deposition/Erosion Patterns



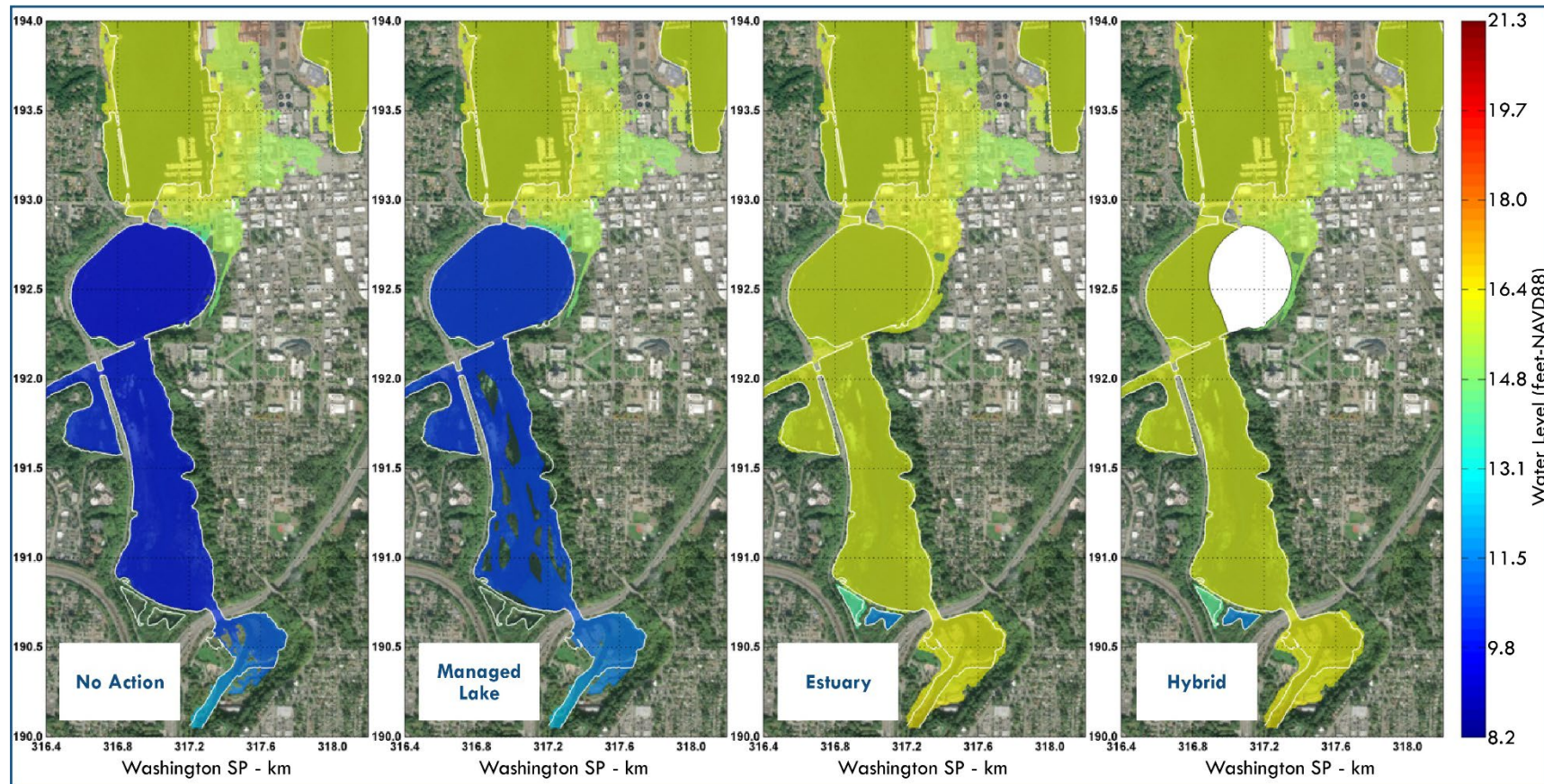


Comparison of Maximum Water Levels for an Extreme River Flood Event





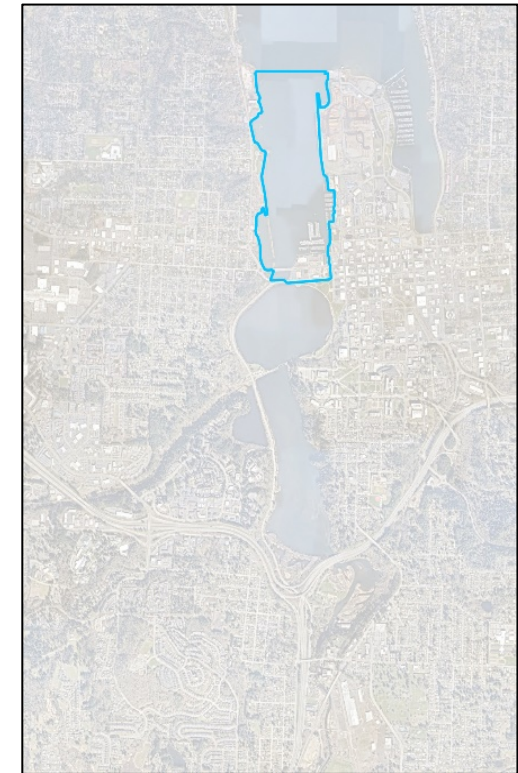
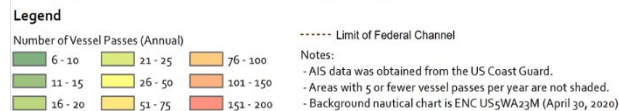
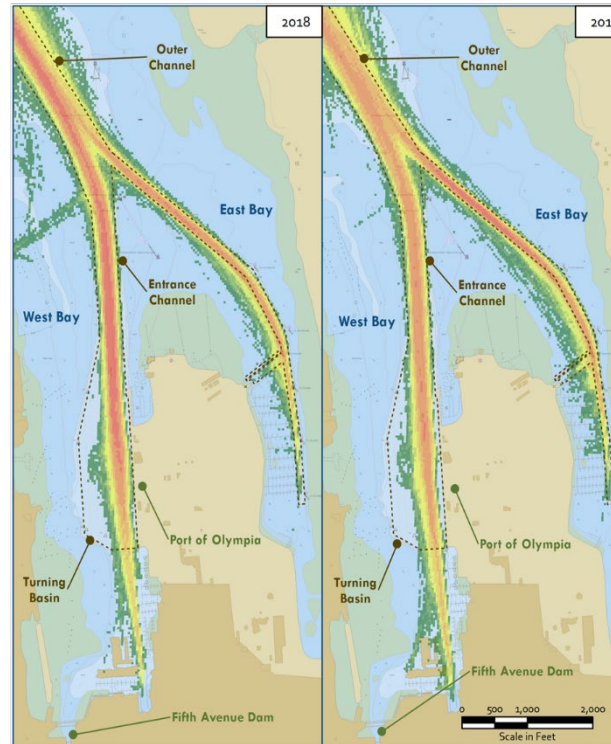
Comparison of Maximum Water Levels for an Extreme Tidal Flood Event





Navigation – Analysis

- ✦ Navigation patterns
- ✦ Vessel use
- ✦ Existing and target depths
- ✦ Hydrodynamics
- ✦ Sediment erosion and deposition rates
- ✦ Existing maintenance dredging frequency



Navigation study area

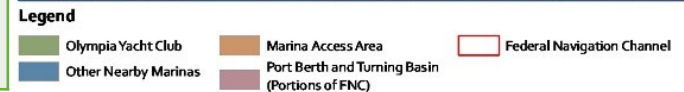
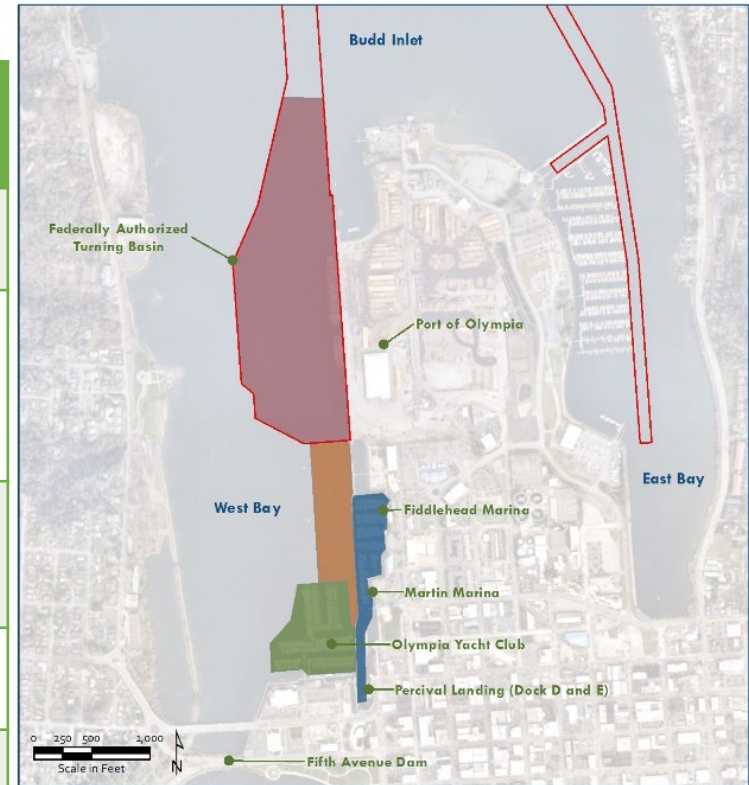




Key Findings

Average Annual Sediment Deposition in West Bay (in/year)

| Location | No Action Alternative | Managed Lake Alternative | Estuary Alternative | Hybrid Alternative |
|--|-----------------------|--------------------------|---------------------|--------------------|
| Olympia Yacht Club | 1.7 | 1.7 | 6.18 | 7.64 |
| Other West Bay Private Marinas and Marina Access | 0.83 | 0.83 | 3.2 | 3.9 |
| Port of Olympia/ Turning Basin | 0.87 | 0.83 | 3.1 | 3.6 |
| FNC (excluding Turning Basin) | 0.04 | 0.04 | 0.1 | 0.1 |
| Project Dredge Frequency in West Bay | Non-project dredging | Non-project dredging | ~6 years | ~5 years |





Impact Determinations

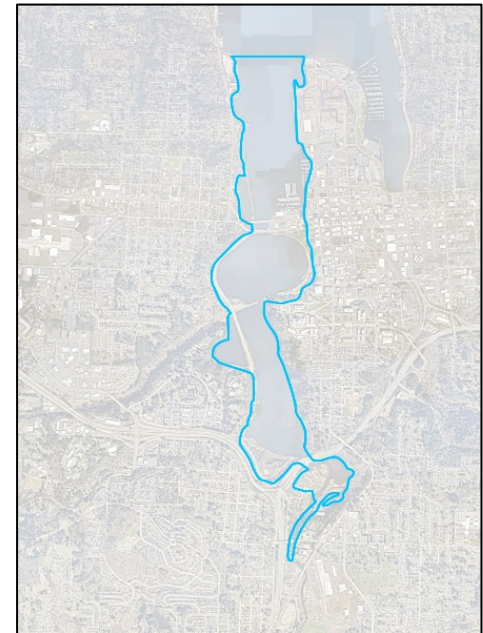
- ✦ Estuary and Hybrid Alternatives
 - Potential significant impacts to navigation in West Bay from sediment deposition at Olympia Yacht Club, private marinas, Port of Olympia, and federal navigation channel
 - Maintenance dredging estimated every 5 or 6 years to minimize impacts and maintain navigability
- ✦ Annual sediment monitoring program would avoid or minimize significant impacts
- ✦ Long-term maintenance dredging program
 - Coordinated across entities to minimize disruption from dredging
 - Could provide a minor beneficial effect by avoiding chronically shallowed areas





Water Quality – Analysis

- ✦ Analysis of existing conditions in both Capitol Lake and Budd Inlet from:
 - Historical monitoring data (2004 – 2014)
 - Recent data collected by EIS Project Team (2019)
- ✦ Comparison to water quality standards and conditions in nearby lakes (for Capitol Lake)
- ✦ Comparison to applicable state criteria and conditions in other South Puget Sound inlets (for Budd Inlet)
- ✦ Methodology and findings reviewed by independent 3rd party expert



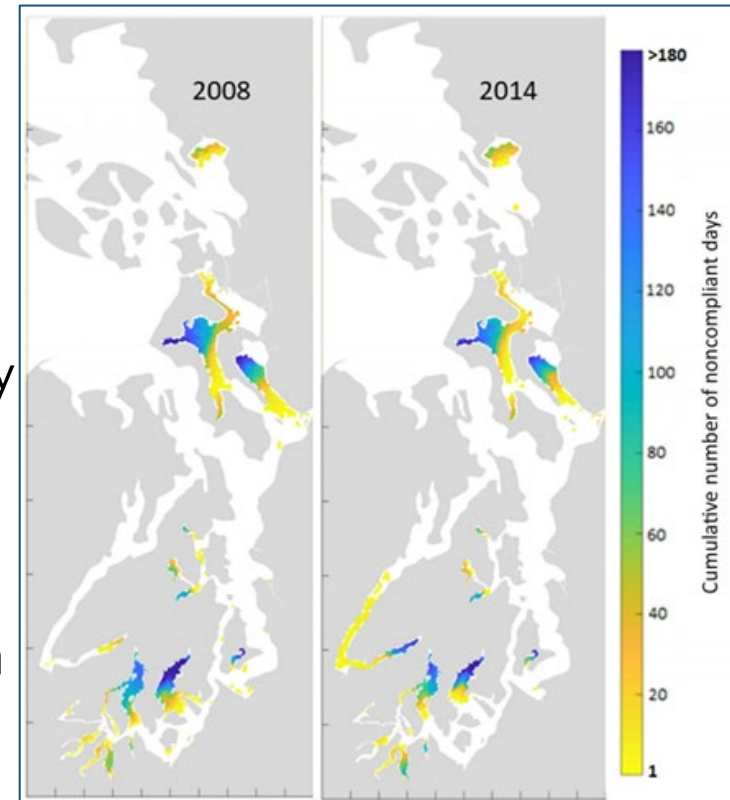
Water Quality study area





Key Findings

- ✦ Water quality in Capitol Lake is relatively good compared to Puget Sound lowland lakes
 - Water quality standards are occasionally exceeded, primarily for temperature and dissolved oxygen
 - Perceptions of poor water quality are likely due to aquatic plant growth and use restrictions
- ✦ Similar to other Puget Sound inlets, Budd Inlet frequently violates water quality standards for dissolved oxygen
 - Dissolved oxygen conditions are likely better than other inlets due to the influence of the Deschutes River



Excerpt from Ecology's Salish Sea model





Impact Determinations

- ✦ Seasonal and occasional violations of water quality standards would occur under all long-term management alternatives
- ✦ Managed Lake Alternative
 - Includes adaptive management, primarily focusing on aquatic plant removal, and other actions to meet lake management objectives
 - No change in impact to Budd Inlet dissolved oxygen
 - Modifications to pulsed discharge through 5th Avenue Dam could minimize impact on dissolved oxygen in Budd Inlet





Impact Determinations

- ✦ Seasonal and occasional violations of water quality standards would occur under all long-term management alternatives
- ✦ Estuary and Hybrid Alternatives
 - In Budd Inlet, minor to moderate improvement in dissolved oxygen relative to existing conditions
 - Deschutes Estuary:
 - Water quality similar to shallow estuaries in South Puget Sound with seasonally low dissolved oxygen (significant impact when compared to existing conditions)
 - Reduction in aquatic vegetation would be a substantial benefit
 - Hybrid reflecting pool:
 - Saltwater: higher dissolved oxygen and less algae than in estuary, no active management
 - Freshwater: active management to avoid public health and visual quality impacts





Aquatic Invasive Species – Analysis

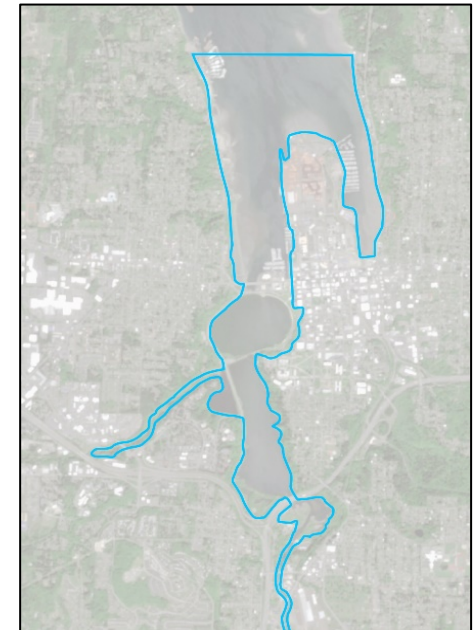
✦ Extensive literature review including:

- Existing management plans
- Presence and distribution surveys
- Databases on invasive species
- Research papers and studies

✦ 15 documented aquatic invasive species

| Plants | Invertebrates | Fish | Animals |
|------------------------|-----------------------|-----------------|--------------|
| Purple loosestrife* | New Zealand mudsnail* | Common carp | Nutria* |
| Eurasian watermilfoil* | Asiatic clam | Brown bullhead | Canada Goose |
| Yellow flag iris | European ear snail | Largemouth bass | |
| Reed canary grass | | Yellow perch | |
| Fragrant waterlily | | | |
| Curlyleaf pondweed | | | |

*Denotes high-priority species of concern



Aquatic Invasive Species study area





Key Findings

- ✦ New Zealand mudsnail would not be eradicated under any alternative
- ✦ Decontamination stations and educational signage installed to reduce invasive species spread and restore recreation
- ✦ Adaptive management plan and agency-prescribed BMPs implemented to avoid and minimize impacts



Vessel decontamination at Bloedel Donovan Park at Lake Whatcom, in Bellingham, Washington





Impact Determinations

✦ Managed Lake Alternative

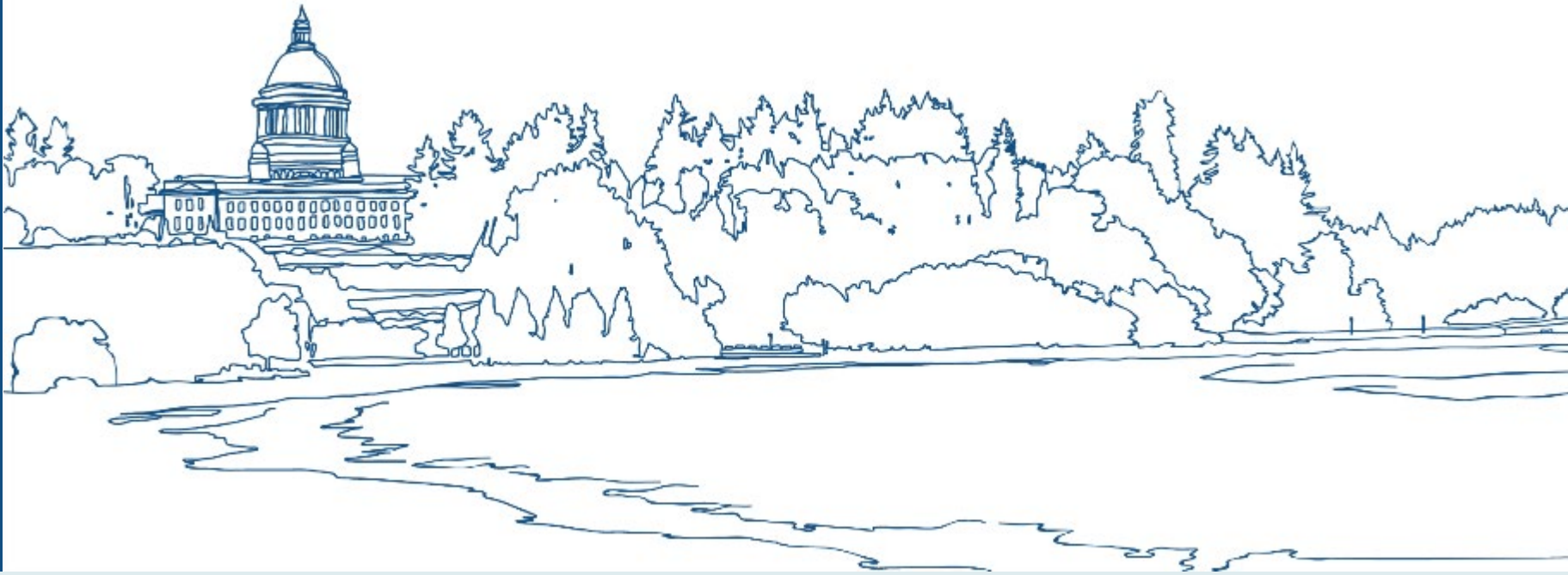
- No significant change to the abundance and distribution
- Greater population (density) than under Estuary and Hybrid Alternatives

✦ Estuary and Hybrid

- Saltwater would have a substantial beneficial impact by reducing or eliminating freshwater aquatic invasive species
- New Zealand mudsnail may establish in Budd Inlet but impacts from changes in population and distribution would be less than significant
- Wider distribution than under the Managed Lake Alternative



Questions?



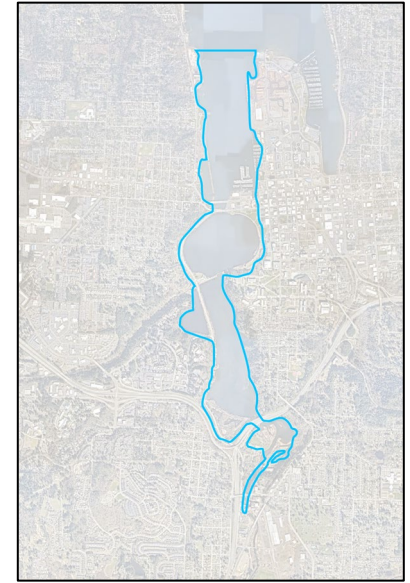
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Fish & Wildlife – Analysis

- ✦ Data include:
 - Scientific literature
 - Technical reports
 - Data from federal, tribal, state, and local agencies
- ✦ Species
 - Groups of fish (anadromous, freshwater, marine)
 - Indicator wildlife species (birds, bats, mammals)
- ✦ Threatened, endangered, or sensitive wildlife species and habitats
- ✦ Tribal resources



Fish and Wildlife study area





Key Findings

- ✦ No naturally reproducing native populations of Chinook salmon or steelhead trout upstream of Project Area in the Deschutes River Basin or Percival Creek
- ✦ Capitol Lake is an important feeding area for little brown bat and Yuma myotis, from large breeding colonies in Woodard Bay
- ✦ No Action and Managed Lake Alternatives
 - 5th Avenue Dam results in a lack of a brackish water transition zone – the abrupt freshwater to saltwater can alter the fitness of outmigrating salmon
 - Capitol Lake would not substantially benefit species of importance to area tribes
- ✦ Estuary and Hybrid Alternatives
 - Estuary habitat is a scarce and valued habitat in the region as compared to freshwater ponds and lakes
 - Reintroducing tidal flow would benefit many species of importance to area tribes
- ✦ All action alternatives include impacts related to recurring maintenance dredging and new overwater and in-water structures





Impact Determinations

- ✦ Managed Lake Alternative
 - Active management of Capitol Lake would result in minor benefit to habitat conditions for fish and other aquatic species
- ✦ Estuary and Hybrid Alternatives
 - Removal of the 5th Avenue Dam would substantially improve migration and habitat for anadromous fish and wildlife, including shorebird and wading birds
 - Transition to estuarine conditions would significantly impact freshwater fish and Woodard Bay bat colony
- ✦ Hybrid Alternative
 - Saltwater reflecting pool would provide fair to moderate rearing habitat for salmon, and resting deepwater habitat for ducks
 - A freshwater pool would stress anadromous fish that enter the pool and reenter the estuary water but would provide some habitat for bats
- ✦ All action alternatives would implement a Habitat Enhancement Plan to avoid or minimize impacts





Wetlands – Analysis

- ✦ Existing conditions using:
 - GIS data
 - Aerial imagery
 - Critical area and shoreline maps
 - Bathymetric survey
 - Available wetland studies
- ✦ Estimated presence, extent, and type of:
 - Vegetated wetlands
 - Deep water habitats
 - Tideflats
- ✦ Supplemented with site reconnaissance by the EIS Project Team (2019)





Key Findings

- Wetland habitat conditions under Managed Lake Alternative would improve with transition from deepwater to vegetated freshwater wetlands - a minor beneficial effect
- Estuary and Hybrid Alternatives would reestablish estuarine wetland and tideflat habitats that are some of the most productive and valuable habitat on earth – a substantial beneficial effect
- All action alternatives would implement Habitat Enhancement Plan to avoid or minimize impacts

| Habitat Design ^(1, 2) | Existing Conditions | Managed Lake Alternative | Estuary Alternative | Hybrid Alternative |
|---|---------------------|--------------------------|---------------------|--------------------|
| Deepwater Habitat – Freshwater | 240 acres | 107 acres | - | - |
| Deepwater Habitat – Estuarine ⁽¹⁾ | - | - | 37 acres | 75 acres |
| River Channel – Freshwater | 25 acres | 5 acres | 5 acres | 5 acres |
| Vegetated Freshwater Wetlands | 51 acres | 210 acres | 7 acres | 7 acres |
| Tideflat | - | - | 151 acres | 118 acres |
| Low Marsh – Estuarine | - | - | 39 acres | 37 acres |
| High Marsh – Estuarine | - | - | 46 acres | 45 acres |
| Vegetated Wetland Transitional ⁽³⁾ | - | - | 31 acres | 29 acres |
| Upland | 19 acres | 14 acres | 21 acres | 22 acres |
| Total | 336 acres | 336 acres | 338 acres | 338 acres |

This table does not reflect habitat in West Bay, because that habitat would not change as a result of the project.





Air Quality & Odor – Analysis

- ✦ Odor
 - Intensity
 - Duration
 - Frequency
 - Offensiveness (or Hedonic Tone)
- ✦ Air quality emissions compared against thresholds for criteria air pollutants
- ✦ Greenhouse gas (GHG) emissions compared against statewide and international GHG emissions
- ✦ Qualitative evaluation of potential carbon sequestration





Impact Determinations

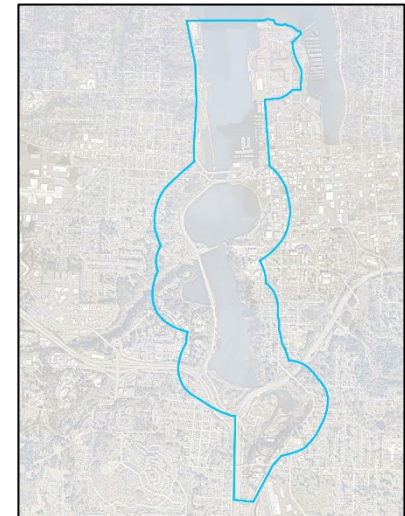
- ✦ Managed Lake Alternative
 - Little change from existing conditions related to odor from algal growth and decay resulting in less than significant odor impacts
- ✦ Estuary and Hybrid Alternatives
 - Odor expected to be more like a natural estuary; historic contributions to odor have changed
 - Variability in personal perception of naturally occurring odors from tideflats makes an impact determination subjective but impacts are expected to be less than significant
 - Most opportunity for carbon sequestration and least methane emissions
- ✦ Emissions from long-term management activities under all action alternatives would be lower than state thresholds – air quality impacts would be less than significant; all action alternatives would comply with air quality rules and BMPs for reducing fugitive dust and emissions





Land Use, Shorelines, and Recreation – Analysis

- ✦ Relevant zoning and parcel information
- ✦ Policy and planning documents
- ✦ Land and shoreline use regulations
- ✦ Recreation feedback
 - Work Groups and Community Sounding Board
- ✦ Recreational user survey in parks adjacent to Capitol Lake (2019)



Land Use, Shorelines, and Recreation study area





Key Findings

- ✦ Non-motorized boating restored and fishing dock rebuilt under all action alternatives
 - Decontamination stations to minimize spread of aquatic invasive species
- ✦ Non-motorized boating possible at all times under the Managed Lake Alternative and Hybrid Alternative reflecting pool; tidal water level variations would influence when boating could occur under Estuary and Hybrid Alternatives
- ✦ No formal swimming facilities
 - Project does not preclude local entity from operating swimming facility





Impact Determinations

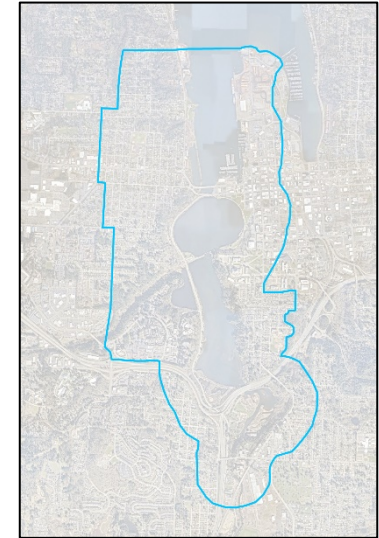
- ✦ All action alternatives would have a substantial beneficial effect on recreation by meeting project goals
 - Restrictions implemented on type of boating and speeds to avoid conflict with other uses in the Project Area
 - The Hybrid Alternative barrier wall and reflecting pool would provide additional recreational opportunities compared to other alternatives
- ✦ Increased flooding under all action alternatives as a result of climate change could impact downtown land uses and low-lying parks
 - Managed Lake - Flooding in the Heritage Park area would be from extreme river flood events and is not addressed by the Olympia Sea Level Rise Response Plan; additional mitigation measures should be considered
 - Estuary - Flooding in the Heritage Park area would be addressed by the Olympia Sea Level Rise Response Plan
- ✦ Enterprise Services would work with property owners impacted by Deschutes Parkway relocation under the Estuary and Hybrid Alternatives





Cultural Resources – Analysis

- ✦ Review of archaeological and historic resources
- ✦ Coordination with local area tribes and the Olympia Chinese-American community
- ✦ Field inventory and completion of historic property inventory forms for potentially impacted historic resources
- ✦ Des Chutes Basin Historic District (appears eligible)



Cultural resources study area

| Individual Resource | Eligibility Recommendation |
|---|--|
| 5 th Avenue Bridge, 5 th Avenue Dam | Appears individually eligible and as contributing resource to Des Chutes Basin Project |
| Capitol Lake – Deschutes Estuary, Deschutes Parkway SW, Olympic Street W Bridge | Appears eligible as contributing resource to Des Chutes Basin Project Historic District ; does not appear to be individually eligible |





Key Findings

- ✦ No documented Traditional Cultural Properties within the Project Area, though the area has cultural significance to tribes
- ✦ Project Area considered Very High to High Risk for archaeological sites, with 2 dozen known sites
- ✦ Over 100 historic built environment resources and 5 historic districts
- ✦ Mitigation for potential impacts to resources would be identified through the Section 106 process under the National Historic Preservation Act of 1966



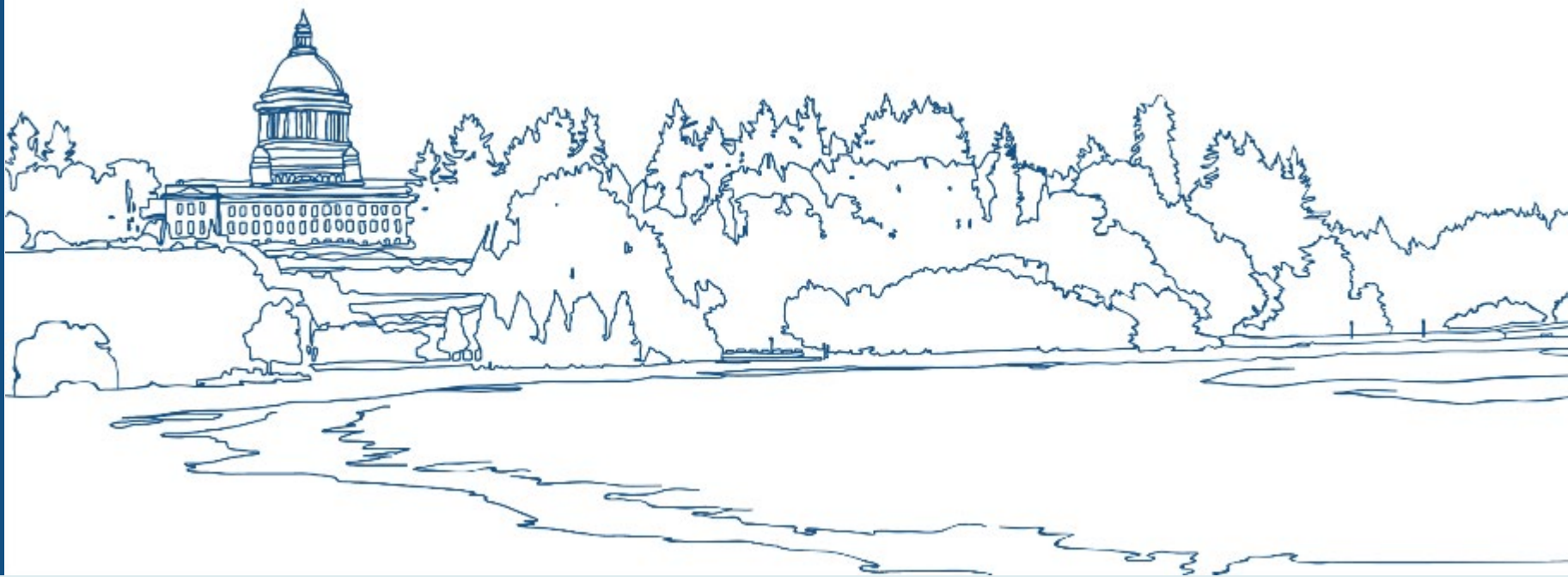


Impact Determinations

- ✦ All alternatives – continued flooding could impact cultural resources; impacts would be potentially significant
- ✦ All action alternatives, maintenance dredging could intersect, remove, or compact unrecorded resources, and impacts would be potentially significant
- ✦ Estuary and Hybrid Alternatives
 - Removal of 5th Avenue Dam would eliminate reflecting pool that is essential to the historical significance of the Capitol Lake – Deschutes Estuary and permanently diminish the integrity of the Des Chutes Basin Project Historic District (if determined eligible).
 - Return of the estuary would reestablish tidelands associated with historic use patterns.
 - Smaller reflecting pool (Hybrid Alternative) could reduce loss of existing reflecting pool to less than significant levels.

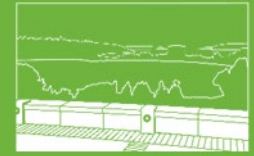


Questions?



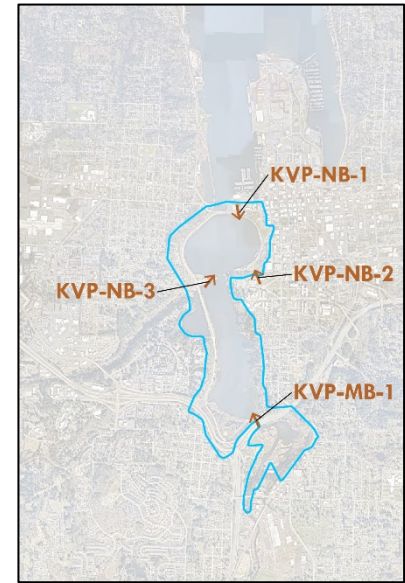
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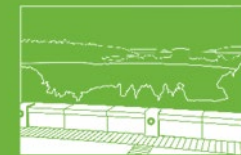
Visual Resources – Analysis

- ✦ Review of the study area landscape and its uniqueness within the regional landscape
- ✦ Data sources used for the analysis include:
 - Photography
 - GIS data
 - Applicable policies and regulations
- ✦ Visual simulations at key viewpoints
 - Points recommended by Community Sounding Board



Visual Resources study area with key viewpoints





Visual Simulation North Overlook – KVP-NB-2

ESTUARY ALTERNATIVE



Simulation of the Estuary Alternative at High Tide



Simulation of the Estuary Alternative at Mean Tide



Simulation of the Estuary Alternative at Low Tide

MANAGED LAKE ALTERNATIVE



Simulation of the Managed Lake Alternative

HYBRID ALTERNATIVE

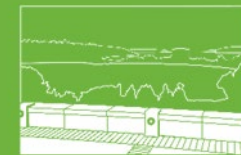


Simulation of the Hybrid Alternative at High Tide



Simulation of the Hybrid Alternative at Low Tide





Visual Simulation Eastern Washington Butte – KVP-NB-1

MANAGED LAKE ALTERNATIVE



Simulation of the Managed Lake Alternative

HYBRID ALTERNATIVE



Simulation of the Hybrid Alternative at Low Tide

ESTUARY ALTERNATIVE

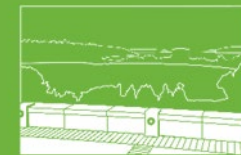


Simulation of the Estuary Alternative at High Tide



Simulation of the Estuary Alternative at Low Tide





Visual Simulation Marathon Park – KVP-NB-3

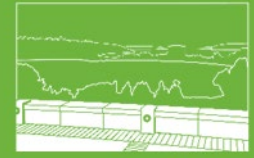


Simulation of the Hybrid Alternative at High Tide



Simulation of the Hybrid Alternative at Low Tide

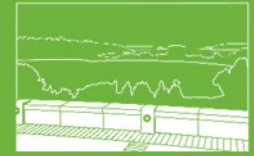




Key Findings (Mitigation)

- ✦ All Action Alternatives
 - Future design of habitat areas and recreational amenities would consider view corridors and consistency with natural surroundings to avoid impacts
- ✦ Managed Lake Alternative
 - Consider scheduling maintenance dredging outside of summer peak recreational season
- ✦ Estuary Alternative
 - Establish view corridor from realigned section of Deschutes Parkway
- ✦ Hybrid Alternative
 - Barrier wall could be improved with textured concrete panels and integration with Eastern Washington Butte design



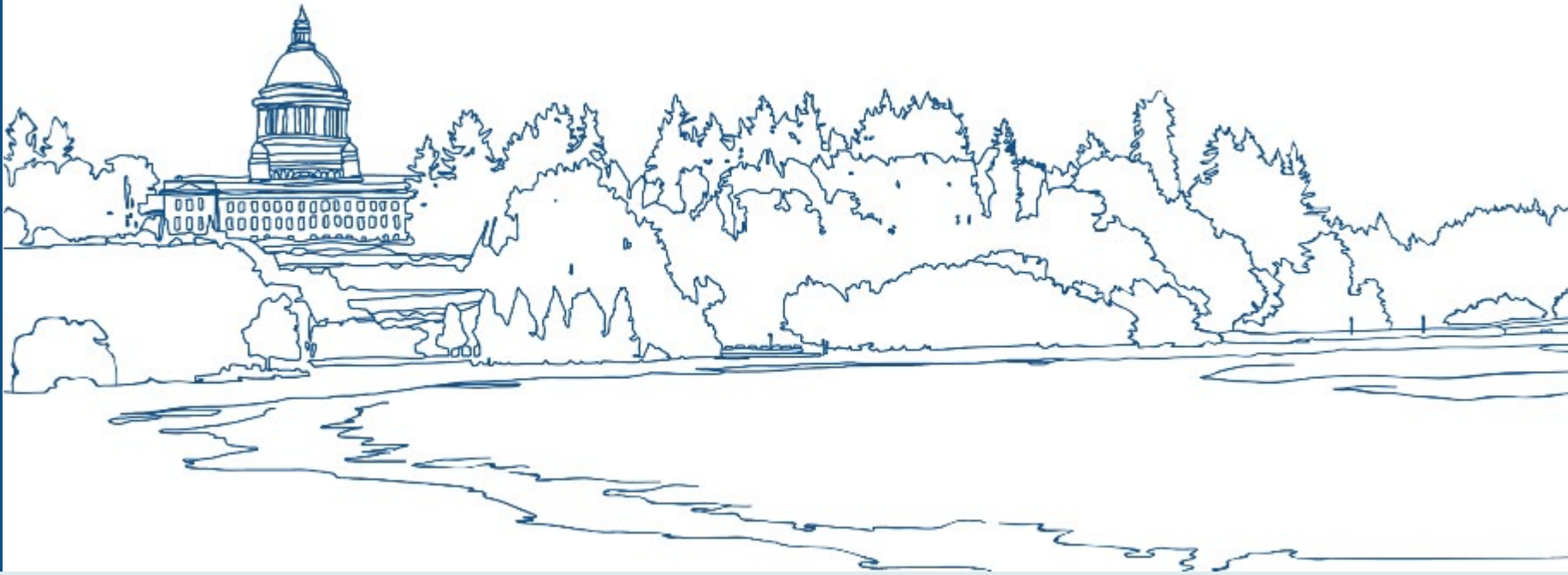


Impact Determinations

- ✦ All Action Alternatives
 - ✦ Additional view access from the boardwalks would have substantial beneficial effects
- ✦ Managed Lake
 - Minor beneficial effects from aquatic plant removal
 - Less than significant impacts associated with loss of open water views in Middle Basin from new habitat areas
- ✦ Estuary
 - Tidal fluctuations would change the appearance substantially, but the landscape would remain unified with the natural setting so visual impacts would be less than significant
- ✦ Hybrid Alternatives
 - Visual impacts of the Hybrid barrier wall would result in a significant unavoidable impact



Questions?



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Long-Term Management Project Environmental Impact Statement

Environmental Health – Analysis

✦ Capitol Lake

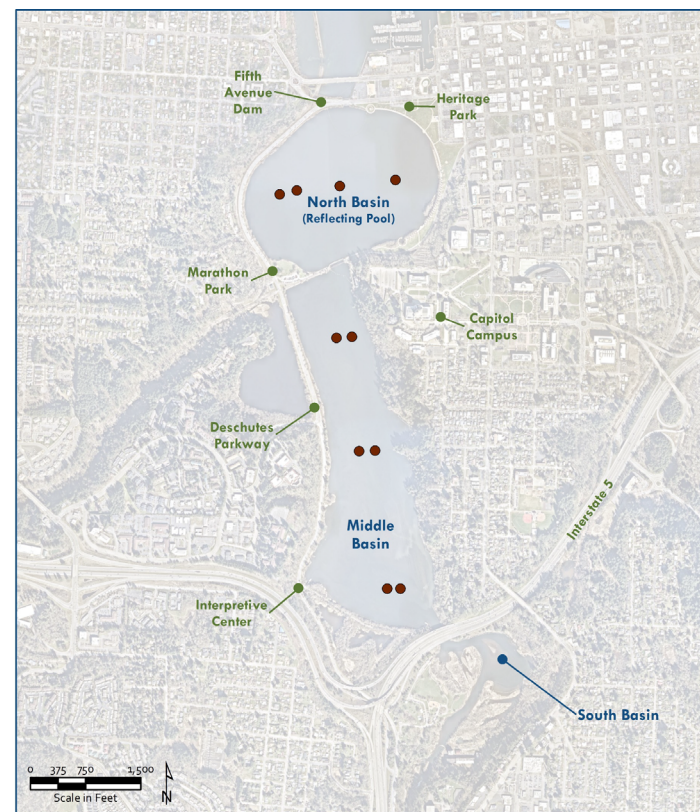
- Historical data
- Sediment sampling by EIS Project Team (2020)

✦ West Bay

- Historical data

✦ Evaluation of sediment quality

- Chemical concentrations compared to health and disposal criteria



Legend

- Sampling Station



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Long-Term Management Project Environmental Impact Statement

Key Findings

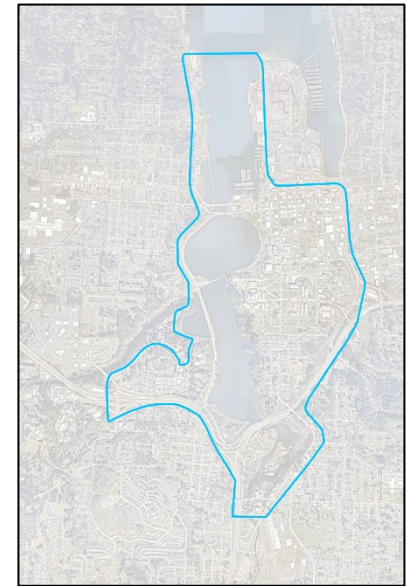
- ✦ Sediment quality in Capitol Lake is generally good, but with high sulfide concentrations
 - Sulfide concentrations do not pose a health risk to humans during recreational activities
 - Sulfide concentrations do affect benthic organisms
- ✦ No Action and Managed Lake Alternatives
 - Sediment quality would not substantively change
- ✦ Estuary and Hybrid Alternatives
 - Sediment export into West Bay would provide natural recovery to areas impacted by dioxin/furan and carcinogenic PAH sediment contamination, resulting in minor to substantial beneficial effects
- ✦ All Action Alternatives
 - Implementation of BMPs to minimize/monitor turbidity and avoid spills
 - No significant changes to mosquito breeding opportunities under any alternative





Transportation – Analysis

- ✦ Inventories of street, sidewalk, bike, and rail facilities in GIS format
- ✦ Transportation planning and policy documents for the jurisdictions in which the facilities are located
- ✦ Adherence to applicable federal, state, and local engineering design and construction standards



Transportation study area





Key Findings

- ✦ The transportation system would be fully restored after construction and no adverse long-term impacts to the multi-modal network are anticipated
- ✦ The new 5th Avenue Pedestrian Bridge would support many goals established by the City of Olympia for improved nonmotorized travel throughout the city
- ✦ Primary long-term impact is related to surface transport of sediment during long-term maintenance dredge events





Impact Determination

- ✦ Managed Lake Alternative
 - Hauling dredged material by truck or rail would result in congestion and delays causing a significant unavoidable impact on traffic operations for several months each time
- ✦ Estuary and Hybrid Alternatives
 - If dredged material is not suitable for in-water disposal, transport by truck or rail would have a significant impact on traffic operations
- ✦ All Action Alternatives
 - Prepare a Construction Traffic Management Plan for maintenance dredging to avoid or minimize impacts to surface streets





Public Services & Utilities – Analysis

- ✦ Evaluates potential impacts to utilities and to fire and emergency response services
- ✦ Considers flooding and extreme tide impacts to water, sewer, and stormwater utilities
- ✦ Describes potential impacts to LOTT as a result of water quality under the alternatives





Key Findings

- ✦ No Action and Managed Lake Alternatives
 - Flooding from extreme river flood events would not be addressed by the Olympia Sea Level Rise Response Plan; additional mitigation measures should be considered
 - Ecology could require LOTT and other dischargers to implement more stringent actions to improve discharges; this would be a significant impact
- ✦ Estuary and Hybrid Alternatives
 - Saltwater exposure could cause corrosion and reduce infrastructure life; significant impacts could be addressed through mitigation
- ✦ Estuary Alternative
 - Flood elevations predicted in Heritage Park would be mitigated by the improvements planned under the Olympia Sea Level Rise Response Plan
- ✦ Hybrid Alternative
 - Presence of the barrier wall will provide flood protection in Heritage Park area





Economics – Analysis

- ✦ Publicly available demographic and economic data
- ✦ Data reported in past project assessments
- ✦ Coordination with the Port of Olympia
- ✦ Proprietary data from data service providers
- ✦ Information generated from interviews and email correspondence with:
 - Planners and economic development officials
 - Private developers and real estate experts
- ✦ Methodology and findings reviewed by independent 3rd party experts





Key Findings

- ✦ No clear evidence that implementing any action alternative would reduce demand for residential or commercial development in downtown Olympia
- ✦ Effects of any action alternative on development in downtown Olympia would be beneficial, as long as the Preferred Alternative is implemented in a way that is both attractive and accessible
 - Key finding from project-specific interviews
- ✦ The economic activity and changes in economic value would be similar in type among the action alternatives



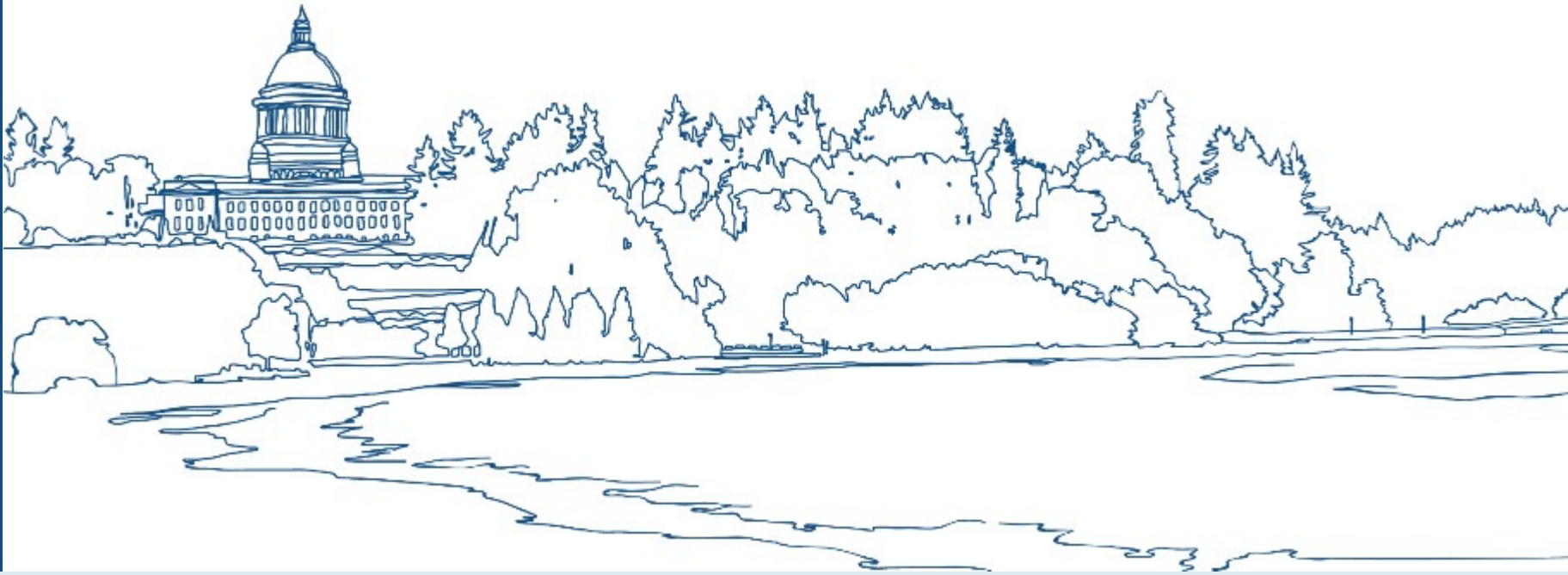


Ecosystem Services

- ✦ No Action and Managed Lake Alternatives
 - Ongoing equity and social justice issues to tribes given sustained loss of connection to the natural environment and access to usual and accustomed fishing places
- ✦ Estuary and Hybrid Alternatives
 - Would beneficially affect tribal populations from the cultural, heritage, spiritual, and educational value of the estuarine environment
 - Reduced or avoided regulatory compliance costs for LOTT and stormwater discharges, comparatively
- ✦ All action alternatives would increase value of recreation



Questions?



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Long-Term Management Project Environmental Impact Statement

Construction – Duration

| | |
|-----------------------|--------------|
| Design and Permitting | 3 to 5 years |
| Managed Lake | 4 to 5 years |
| Estuary or Hybrid | 7 to 8 years |

- ✦ Most construction activities occur in-water, and are limited to an "in-water work window" to avoid or minimize potential impacts to juvenile and adult salmon
 - June 1 – August 15 and November 15 – February 15
- ✦ Primary construction staging would occur in Marathon Park
- ✦ All alternatives require closure of 5th Avenue, but for varying durations



Construction – Significant Impacts

- ✦ Land Use, Shorelines, & Recreation
 - **Significant unavoidable impact** to recreational use from long-term closure of Marathon Park for construction staging, and from noise
- ✦ Cultural Resources
 - **Potentially significant impacts** to unrecorded archaeological resources if they are intersected, removed, or compacted by construction activities
- ✦ Visual Resources
 - **Significant unavoidable impact** to visual resources due to presence and duration of construction-related activities in Project Area
- ✦ Transportation
 - **Significant unavoidable impact** due to temporary closure of 5th Avenue
- ✦ Public Services & Utilities
 - **Significant impact** to emergency response services under Estuary and Hybrid Alternatives from long-term closure of the 5th Avenue Bridge

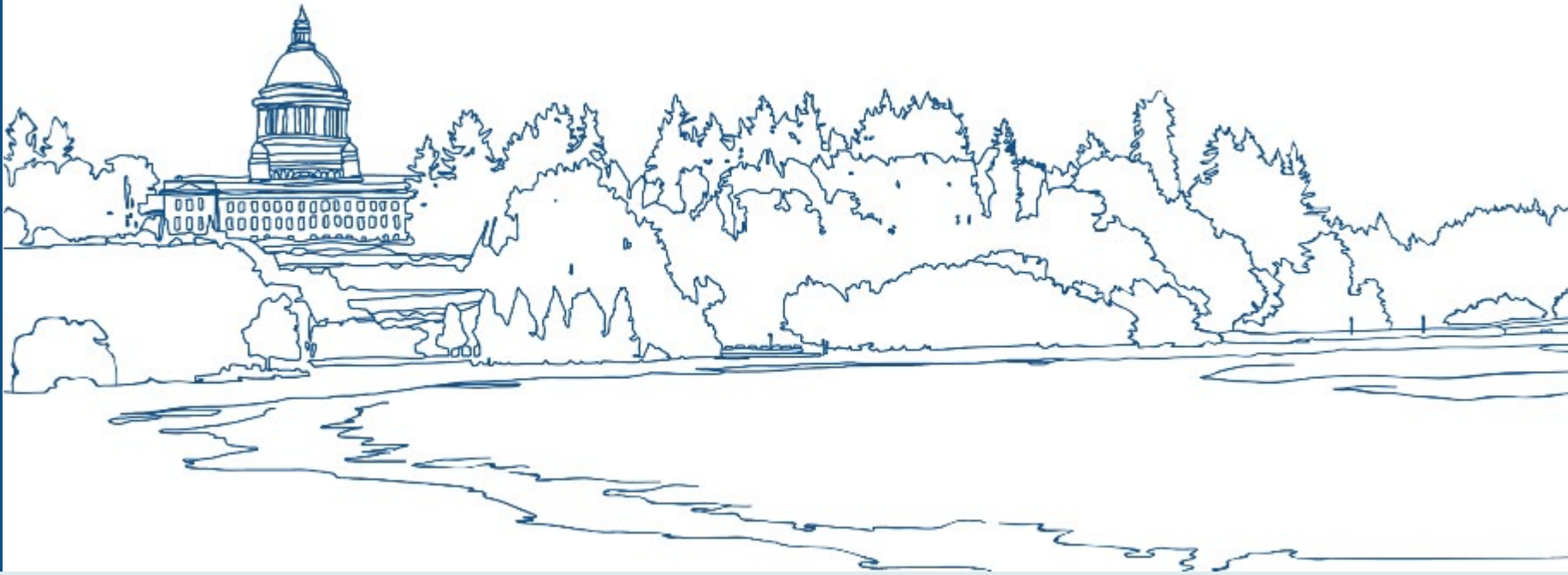


Construction – Mitigation for the Action Alternatives

| Land Use, Shorelines, & Recreation | Cultural Resources | Visual Resources | Transportation | Public Services & Utilities |
|--|--|---|---|---|
| <p>Evaluate feasibility of constructing 5th Avenue Pedestrian Bridge prior to work on the 5th Avenue Bridge in order to maintain the trail loop connecting Heritage Park and Deschutes Parkway during construction. Alternatively, construction of a temporary trail trestle could be considered.</p> <p>Use BMPs to minimize noise, dust, and other disturbances to visitors to recreation sites during construction, as well as in areas used for informal recreation (e.g., along roads).</p> | <p>Mitigation would be identified through the Section 106 process under the National Historic Preservation Act of 1966, and other similar processes.</p> | <p>Minimize Marathon Park staging area during periods of no construction to allow visual access if feasible.</p> <p>Plant project areas in parks and along Deschutes Parkway as soon as feasible to minimize the duration of construction disturbance.</p> <p>Remove in-water construction equipment, other than coffercells, from the lake between construction seasons.</p> | <p>Implement a Construction Traffic Management Plan</p> | <p>Coordinate with utility providers to locate existing utilities and avoid damage. Determine the extent and type of temporary protective measures that must be implemented to prevent damage to surface and subsurface utilities.</p> <p>Stage utility relocations to minimize service interruptions.</p> <p>Prepare traffic control plans for construction activities that may affect road rights-of-way.</p> |



Questions?



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Long-Term Management Project Environmental Impact Statement

Planning – Level Cost Estimates

| Project Alternative | Design, Permitting, & Construction Costs Construction beginning as soon as 2026 | Maintenance Dredging Costs over 30 Years Beginning as soon as 2040 | Construction + Maint. Dredging over 30 years | Funding Source for Construction & Maint. | Impact if There is a Funding Lapse after Construction | Potential Significant Additional Costs Not Associated with Construction or Maintenance Dredging |
|---------------------|--|---|---|---|--|---|
| No Action | \$0 | \$18 M | \$18 M | Other entities | Not applicable | <p>Ongoing repairs and future replacement of the 5th Avenue Dam, if permits could be obtained.</p> <p>Potentially significant costs to LOTT because more extensive water quality treatment is likely required by Ecology.</p> <p>Continued overland flooding events and associated costs to other entities. These costs would be most significant under the No Action and Managed Lake Alternatives.</p> <p>Continued costs to address tribal and public concern regarding impacts and environmental impairments.</p> |
| Managed Lake | \$89 – \$160 M | \$248 – \$447 M | \$337 – \$607 M | Primary responsibility of the State of Washington | Impacted recreation in North Basin; sunk construction cost | <p>Same as the No Action Alternative, but comparatively reduced costs associated with the 5th Avenue Dam.</p> <p>Potential significant costs to compensate for tribal and ecological impacts.</p> |
| Estuary | \$131 – \$235 M | \$48 – \$101 M | \$179 – \$336 M | <p>Construction: assumed primary responsibility of the State of Washington</p> <p>Maintenance dredging: potentially shared by FGWG members (with USACE contributions)</p> | Impacted navigation in West Bay | Flooding impacts and costs under the Estuary Alternative would be less significant than those under the No Action and Managed Lake Alternatives. |
| Hybrid | \$177 – \$319 M | \$72 – \$144 M | \$249 – \$463 M | Same as Estuary Alternative | Impacted navigation in West Bay | Same as Estuary Alternative, but reduced costs to other entities given the flood protection provided by the reflecting pool barrier wall. |

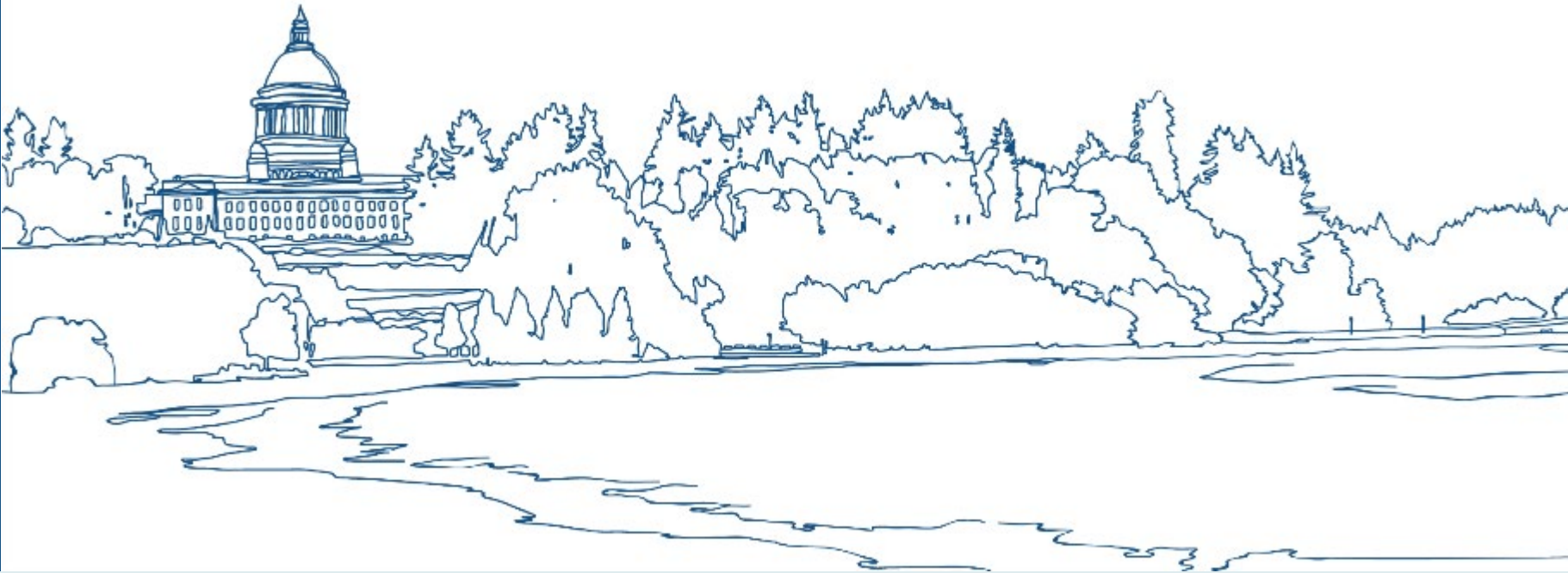
Refer to Chapter 7 of the Draft EIS for important assumptions and notes associated with these planning-level costs.



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Long-Term Management Project Environmental Impact Statement

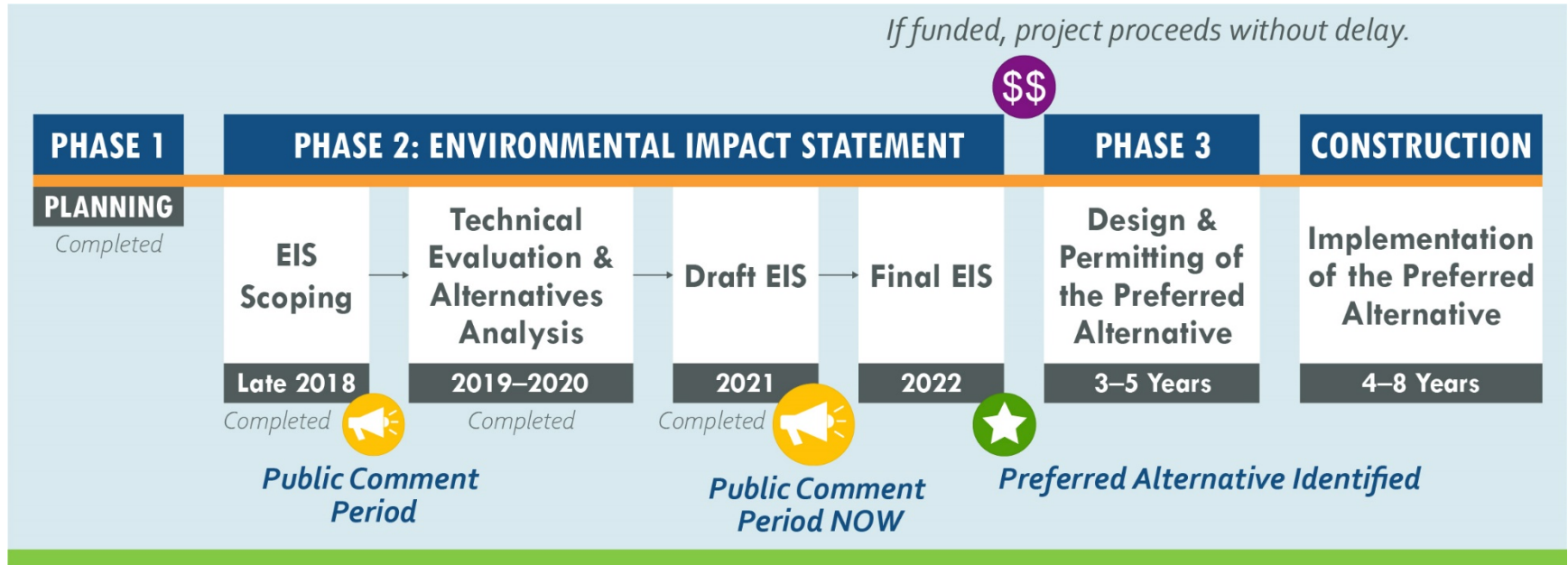
Questions?



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EIS Project Timeline

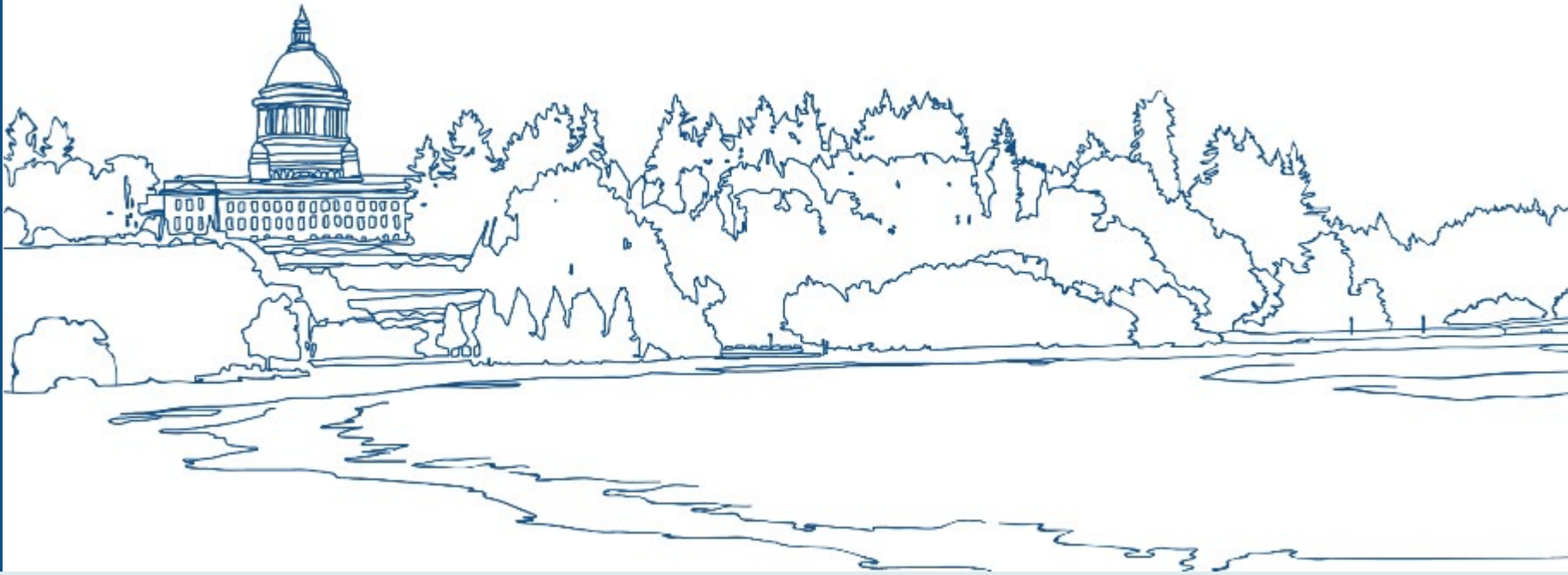


Draft EIS Outreach

- ✦ Submit comments by August 13
 - Thank you for your help in notifying your communities and encouraging public comment
- ✦ Visit the online open house at <https://clde.participate.online> and/or the Heritage Park Trail Loop Self-Guided Open House
- ✦ Join us at the July 27 public hearing



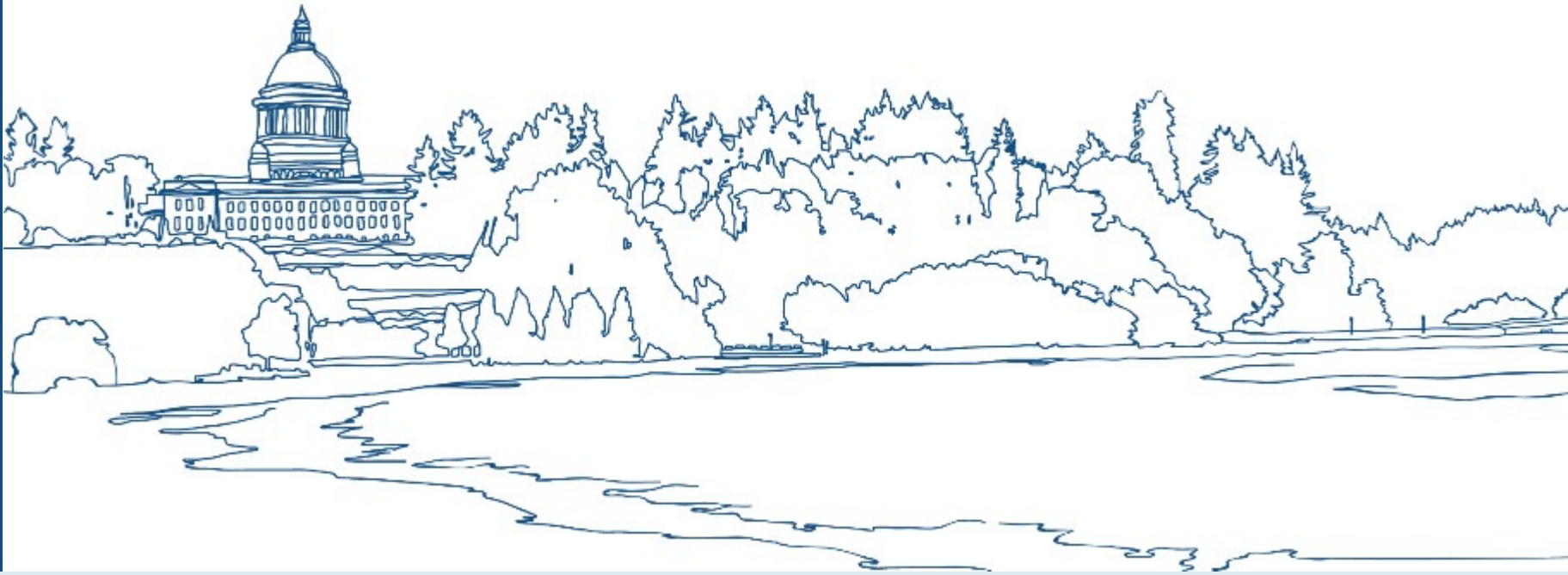
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Thank You!



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