



Executive Summary



The Washington State Department of Enterprise Services (Enterprise Services) is conducting an environmental review process under the State Environmental Policy Act (SEPA) for the Capitol Lake – Deschutes Estuary Long-Term Management Project. This Executive Summary provides an overview of the Draft Environmental Impact Statement (EIS), including information on long-term management alternatives and key findings from the technical analyses.

WHAT IS THE CAPITOL LAKE – DESCHUTES ESTUARY?

Learn more in Chapter 1.0

Historically, what is now known as Capitol Lake was part of the Deschutes Estuary, where freshwater from the Deschutes River would mix with saltwater from Budd Inlet over expansive tideflats. The Deschutes Estuary has long-standing cultural and spiritual significance to local tribes, particularly the Squaxin Island Tribe.

Between 1949 and 1951, a dam was constructed at 5th Avenue, and without the tidal exchange, the area was transformed into a freshwater lake, fed primarily by the Deschutes River. The waterbody was renamed Capitol Lake. Capitol Lake is the 260-acre waterbody located on the Washington State Capitol Campus, adjacent to downtown Olympia, at the base of Puget Sound. Capitol Lake was designed as part of the Washington State Capitol Campus, and it quickly became an important visual and recreational resource to the community.

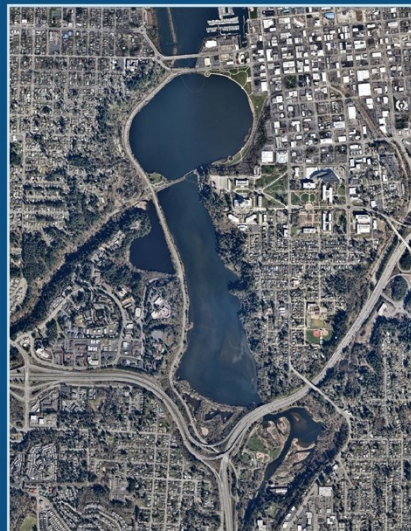
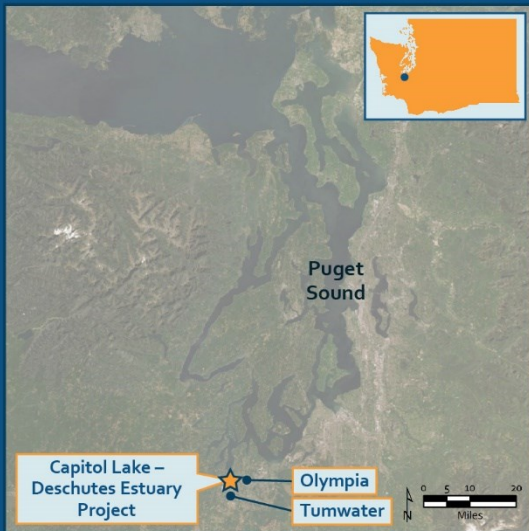
WHAT PROBLEM IS THIS PROJECT SEEKING TO RESOLVE?

Learn more in Section 1.2

An estimated 35,000 cubic yards of sediment are transported by the Deschutes River (and Percival Creek) into the Capitol Lake Basin each year, shallowing the lake and resulting in conditions that are visibly altered. Since construction of the 5th Avenue Dam in 1951, sediment accumulation has reached up to 13 feet thick in some areas. Water quality monitoring began in the 1970s in response to excessive growth of aquatic plants, dense algal mats, and reduced water clarity, which are caused by high nutrient levels in Capitol Lake. In 1985, the swimming beach in Capitol Lake was formally closed because of high bacteria levels, following years of intermittent closures due to water quality conditions. Beginning in the late 1980s, management strategies were implemented to address aquatic invasive species. There are now more than 15 different plant and animal aquatic invasive species in Capitol Lake. In 2009, the presence of the invasive New Zealand mudsnail resulted in official closure to all public uses.

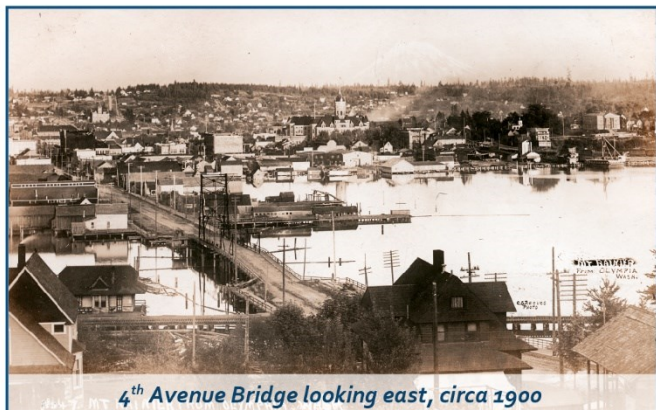
Many of these environmental conditions persist today and active use of the waterbody continues to be restricted. The long-term management project would address the diminished beneficial uses of the waterbody, caused by accumulating sediment, historically poor water quality, algal blooms, and invasive plant and animal species.

CAPITOL LAKE – DESCHUTES ESTUARY VICINITY MAP

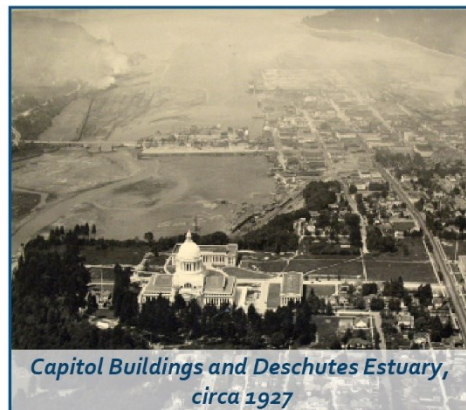


PRESENT-DAY
CAPITOL LAKE

DEVELOPMENT OF CAPITOL LAKE



4th Avenue Bridge looking east, circa 1900



Capitol Buildings and Deschutes Estuary, circa 1927



5th Avenue Dam during construction, circa 1949-50



Aerial of Capitol Lake area, 1959

Sources: (top left) Courtesy of the Brewmaster's House Collection, City of Tumwater. (bottom left) Photographer Western Ways, Inc., Washington State Archives. (bottom right) Photograph by Merle Junk, Commercial Photographer, Olympia, WA, The Susan Parish Collection of Photography.

EXISTING ENVIRONMENTAL IMPAIRMENTS IN CAPITOL LAKE – DESCHUTES ESTUARY

ACCUMULATION OF SEDIMENT IN THE SOUTH BASIN



LAKE CLOSURE TO ALL RECREATIONAL USE BECAUSE OF THE INVASIVE NEW ZEALAND MUDSNAIL



WATER QUALITY IMPAIRMENTS



DENSE COMMUNITY OF AQUATIC PLANTS AFFECTING ECOLOGICAL FUNCTIONS



WHAT ARE THE PROJECT GOALS?

Learn more in Section 2.1

In 2016, Enterprise Services, in coordination with the Squaxin Island Tribe, governmental and agency partners, and the community, identified four primary goals for long-term management of the Capitol Lake – Deschutes Estuary that should be satisfied by any long-term management alternative.

The goals were established during a collaborative process, referred to as Phase 1 of the Long-Term Management Project. There is broad agreement that a long-term management project must be implemented to achieve these goals and improve existing conditions in the Project Area.



The Capitol Lake – Deschutes Estuary Long-Term Management Project seeks to identify an environmentally and economically sustainable management alternative that will improve environmental conditions and enhance community use of the resource.

WHY IS AN EIS BEING PREPARED?

Learn more in Section 1.2

An EIS provides environmental information:

- That decision-makers should consider alongside economic, engineering, or other policy considerations.
- For agencies with permitting authority to consider as regulatory authorizations are developed.

Enterprise Services, as the lead agency under SEPA, determined that there were probable significant adverse impacts from construction and operation of a long-term management project. Thus, an EIS is required to evaluate potential significant environmental impacts (and benefits), and to inform decision-makers and the public of reasonable alternatives, including mitigation measures that would avoid or minimize adverse impacts or enhance environmental quality.

Neither short-term actions nor a long-term management alternative can be implemented until an EIS is completed and a Preferred Alternative is selected.

The Draft EIS provides an objective summary of long-term management alternatives, the impacts and benefits of the alternatives over a 30-year time horizon, short-term impacts during construction, and potential mitigation measures. It includes additional information that will be considered in the decision-making process, including planning-level costs, input from engaged governmental and agency partners, and permits and approvals that would be required to implement a Preferred Alternative.

WHAT LONG-TERM MANAGEMENT ALTERNATIVES ARE EVALUATED IN THE DRAFT EIS?

Learn more in Section 2.2

There are two general approaches for management of the Capitol Lake – Deschutes Estuary: keep the 5th Avenue Dam in place and maintain a freshwater lake, or remove the 5th Avenue Dam and restore tidal estuarine conditions.

Three long-term management alternatives (also referred to as action alternatives) have emerged from these two approaches, and are evaluated in the Draft EIS:

- **A Managed Lake**, which would be similar to the existing Capitol Lake but with additional actions to meet lake management objectives. The 5th Avenue Dam would be retained and overhauled to significantly extend the serviceable life of the structure.
- **An Estuary**, which would restore tidal flow to conditions similar to the historic Deschutes Estuary. The 5th Avenue Dam would be removed, and a 500-foot opening would be created to reconnect the Capitol Lake Basin with Budd Inlet.
- **A Hybrid**, which would restore tidal flow to conditions similar to the historic Deschutes Estuary. The 5th Avenue Dam would be removed, and a 500-foot-wide opening would be

created. A new barrier would be installed to create a smaller (approximately 45-acre) lake feature (or “reflecting pool”).

A No Action Alternative, which represents the most likely future expected in absence of implementing a long-term management project, is also evaluated. This is a required element of an EIS. It provides a baseline against which the benefits, impacts, and costs associated with the action alternatives can be compared.

The No Action Alternative does not meet project goals.

WHAT IS THE PROJECT AREA?

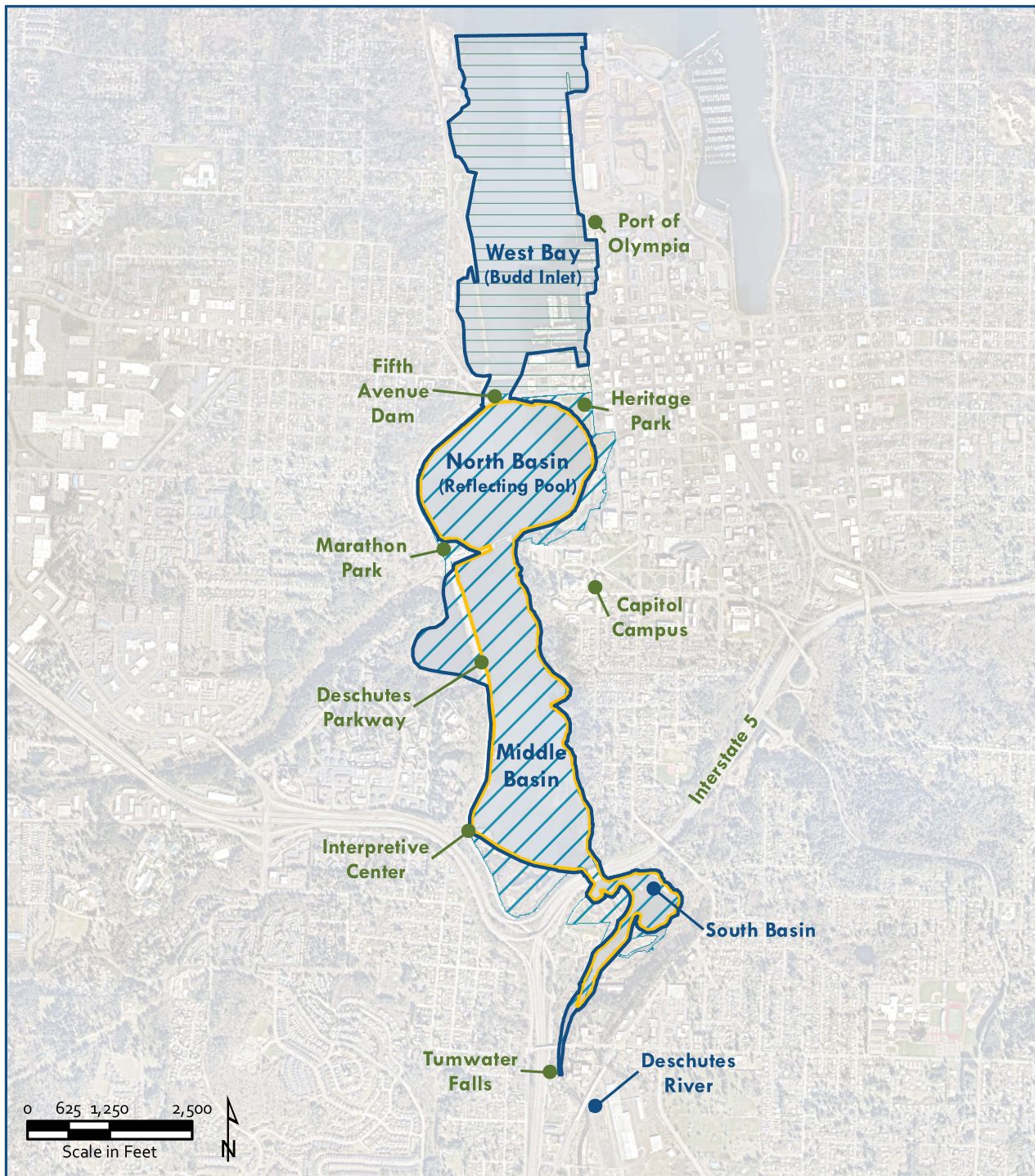
Learn more in Section 1.4

The Project Area includes the 260-acre Capitol Lake that is managed by Enterprise Services, and it extends to the northern point of West Bay of Budd Inlet. West Bay is not managed by Enterprise Services. However, project actions may occur in West Bay so it is included in the Project Area. The waterbody in this area is collectively referred to as the Capitol Lake – Deschutes Estuary.

Capitol Lake extends from the south end at Tumwater Falls in the City of Tumwater to the north end of the 5th Avenue Dam in the City of Olympia. There are three basins within this waterbody, referred to as the North Basin, Middle Basin, and South Basin.

The Project Area does not extend upstream of Tumwater Falls into the Deschutes River (south) because that area would not be directly affected by the Capitol Lake – Deschutes Estuary Long-Term Management Project. The Project Area is shown on Figure ES.1.

Figure ES.1 Project Area



Legend

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

HOW WERE THE ACTION ALTERNATIVES DEVELOPED?

Learn more in Section 2.1

The action alternatives were developed through a Measurable Evaluation Process. The initial step in the Measurable Evaluation Process was to screen the range of known management strategies (including specific design and operational elements that could be implemented to manage environmental conditions) and alternative variations that had been identified in earlier planning processes and through scoping for the EIS. The EIS Project Team, including multidisciplinary technical and policy experts working with Enterprise Services, completed the screening using objective criteria that considered technical and regulatory feasibility as well as environmental and economic sustainability. The screening process provided an opportunity to screen management strategies and components of an alternative variation without eliminating an entire alternative variation because one or more of its components were not feasible or sustainable. Following this screening process, Enterprise Services developed optimized versions of the Managed Lake, Estuary, and Hybrid Alternatives that would best achieve project goals.

WHAT ARE THE PRIMARY COMPONENTS OF THE ACTION ALTERNATIVES?

Learn more in Section 2.3

The primary components of the Managed Lake, Estuary and Hybrid Alternatives are summarized in Table ES.1 on the following page. The No Action Alternative is not included in this table because no new action would be taken to improve water quality, manage sediment, improve ecological functions, or enhance community use.

Table ES.1 provides an overview of the primary components of the long-term management alternatives (Managed Lake, Estuary, and Hybrid). Figures ES.2 through ES.4 provide visual simulations of the three alternatives.

Figures ES.5 through ES.7 describe the primary components of the three action alternatives and are provided at the end of this Executive Summary and in Chapter 2.0 of the Draft EIS.

Table ES.1 Primary Components of the Long-Term Management Alternatives

Project Goal	Managed Lake	Estuary	Hybrid
Water Quality	Implement an Adaptive Management Plan to meet lake management objectives, with particular focus on aquatic vegetation control.	Remove the 5 th Avenue Dam and create a 500-foot-wide opening to restore estuarine conditions and water quality typical of South Puget Sound inlets.	Same as the Estuary Alternative. <i>Implement an Adaptive Management Plan to maintain water quality if a freshwater reflecting pool is selected over the recommended saltwater reflecting pool.</i>
Sediment Management	Initial construction dredging in the North Basin to establish target depth for recreation, which also removes accumulated sediment. Recurring maintenance dredging in the North Basin on an approximately 20-year frequency to maintain target depth for recreation.	Initial construction dredging in the Middle and North Basins to establish a main channel and secondary channels, which also removes accumulated sediment. Recurring maintenance dredging in West Bay on an approximately 6-year frequency to avoid or minimize impacts to recreational and commercial navigation in West Bay.	Initial construction dredging is the same as the Estuary Alternative. Recurring maintenance dredging is the same as the Estuary Alternative, but with an approximately 5-year frequency .
Ecological Functions	Establish shoreline habitat areas in the Middle Basin using sediment from construction dredging. Allow passive transition of the Middle and South Basins to freshwater wetlands. Implement a Habitat Enhancement Plan to maintain ecological functions, including invasive and nuisance species management.	Restore estuarine habitat with reintroduced tidal flow. Establish shoreline habitat areas in the Middle and North Basins using sediment from construction dredging. A Habitat Enhancement Plan would be implemented, just as with the Managed Lake Alternative, but specific to estuarine conditions.	Same as the Estuary Alternative.
Community Use	Restore fishing and reconstruct dock at the Interpretive Center. Restore nonmotorized boating in the North Basin and establish a hand-carried boat launch at Marathon Park. Build a new 5 th Avenue Pedestrian Bridge in the North Basin, adjacent to 5 th Avenue. Boardwalks in the Middle and South Basins.	Same as the Managed Lake Alternative.	Same as the Managed Lake and Estuary Alternatives; and also includes a new trail along the barrier wall of the reflecting pool.

Figure ES.2 Managed Lake Alternative Visual Simulation



Figure ES.3 Estuary Alternative Visual Simulation at Mean Tide



Figure ES.4 Hybrid Alternative Visual Simulation at High Tide



WHAT ARE THE EXISTING WATER QUALITY CONDITIONS IN THE PROJECT AREA?

Learn more in Section 3.3.3

What is the existing water quality in Capitol Lake?

Historically, Capitol Lake has suffered from a variety of water quality problems, as evidenced by aquatic weed infestations, algal blooms, closure of the swimming area due to bacteria concentrations, and restrictions on boating and other beneficial uses. There are a number of factors that affect the water quality and overall aquatic health of the Capitol Lake aquatic ecosystem.

Capitol Lake is profoundly affected by a complex and continually changing interaction between physical (e.g., temperature, river flow and tides, erosion, and sedimentation), chemical (e.g., nutrients, dissolved oxygen, and pH), and biological (e.g., algae, bacteria, aquatic plants, and animals) characteristics.

The Deschutes River, which is the predominant inflow source, flows through Capitol Lake at a rate that keeps the water well circulated compared to other lakes in the region. Most regional lakes become stratified in the summer with a warm layer at the surface and colder water below. Because of the river's influence, the water in Capitol Lake is rapidly replaced and water quality conditions commonly associated with stratification (e.g., high temperatures in shallow waters, oxygen depletion in deeper waters, widely fluctuating pH, toxic algal blooms) are less pronounced than in other lakes in the region.

As part of the water quality analysis for the Draft EIS, the EIS Project Team evaluated monitoring data from 2004 to 2014 and also collected water quality samples in 2019 to compare current conditions against the historical dataset. Despite what has been perceived to be worsening conditions in Capitol Lake, monitoring data indicate that water quality conditions have actually been improving in the lake and are relatively good in terms of physical and chemical characteristics important to aquatic life. There are only occasional seasonal violations of water quality standards, primarily associated with slight changes in temperature and dissolved oxygen.



The interrelationship among all of the factors affecting the Capitol Lake aquatic ecosystem are important to consider in evaluating the water resources throughout the ecosystem. Perceptions of poor water quality and worsening conditions in Capitol Lake are likely based on historical impairments, the continued impacted aesthetics from aquatic plant growth, and the ongoing restrictions on recreational use, rather than on the water chemistry. These improving water quality trends reduce the level of management that would be needed under a Managed Lake Alternative to meet lake management objectives.

What is the existing water quality in Budd Inlet?

Portions of Budd Inlet have low dissolved oxygen concentrations, with the lowest concentrations occurring each year in the late summer and early fall. These low dissolved oxygen concentrations are typical of the long narrow inlets that comprise much of South Puget Sound. The seasonal periods of low dissolved oxygen do not meet state water quality standards. Dissolved oxygen is important for aquatic habitat, particularly for cold water fish like salmon. Budd Inlet, along with most inlets in South Puget Sound, frequently violate the water quality standard for dissolved oxygen. Budd Inlet has a relatively high maximum daily depletion of dissolved oxygen from human-caused sources compared to other South Puget Sound inlets, but the Deschutes River input moderates dissolved oxygen conditions.

How do the project alternatives support the project goal of improving water quality?

Learn more in Section 4.3

Under a Managed Lake Alternative, water quality in Capitol Lake would be improved by actions to meet specific lake management objectives. Given the relatively good water quality, these actions would primarily focus on removing aquatic plants to maintain a healthy aquatic plant community so recreation and aquatic life uses are not impaired. Capitol Lake would continue to experience summertime algal blooms, occasional violations of state standards for dissolved oxygen, pH, and temperature, and frequent violations of total dissolved gas. These types of conditions are consistent with other lowland lakes in the Puget Sound region, although they are not as severe in Capitol Lake. The general conditions for cold water fish in Capitol Lake would not substantively change. There would be no change to water quality in Budd Inlet.

Under the Estuary Alternative, water quality may be moderately improved due to removal of the 5th Avenue Dam. Budd Inlet would continue to experience summertime algal blooms, occasional exceedances of temperature and pH, and frequent exceedances of dissolved oxygen in the summer. These exceedances would be consistent with other narrow, shallow estuaries in South Puget Sound, and numeric water quality standards would continue to not be met under an Estuary Alternative. The modest improvements to dissolved oxygen would not result in substantive changes for cold water fish, though overall habitat conditions would improve.

Within the reflecting pool of the Hybrid Alternative, tidal water would be exchanged twice daily and that water would be cooler, with higher dissolved oxygen concentrations, and less algae than the estuarine water outside of the reflecting pool. It is possible that dissolved oxygen concentrations within the reflecting pool could meet numeric marine water quality standards. No active management of a saltwater reflecting pool is assumed. If a freshwater reflecting pool were chosen over a saltwater reflecting pool, it would require active management to avoid impacts to public health and visual quality. Water quality in the estuary portion of the Hybrid Alternative would be similar to the Estuary Alternative.

Seasonal and occasional violations of water quality standards would occur under all long-term management alternatives.

How were future changes to water flow, water levels, & sediment transport evaluated?

Learn more in Section 3.1

A state-of-the-art three-dimensional computer model, Delft3D, was used to predict the movement of water (hydrodynamics) and the movement of sediment in the study area under the project alternatives. The numerical model uses complex systems of physics-based equations to calculate how water and sediment move in response to tides, river inflow, the lake bed, and the sediment load input. The model predicted variations among the project alternatives using the same hydrologic and tidal inputs but varying project geometries.

The numerical model used historical and current bathymetry (underwater topography) data; streamflow, tide, weather and stream measurements both upstream and downstream of the dam; historical records of dam operations; flooding and climate change projections; and sediment measurements.

Numerical modeling of hydrodynamics and sediment transport allowed the EIS Project Team to evaluate potential changes across many of the environmental disciplines addressed in the Draft EIS. It projected average water levels under each alternative, and maximum water levels from extreme river flows or tidal events. This supported a review of potential overland flooding in adjacent parks, in downtown Olympia, and at the Port of Olympia. The numerical model and EIS incorporate climate change projections related to sea level rise and extreme river flows as part of the future conditions for all alternatives and affected resource areas. (In addition, the EIS incorporates qualitative consideration of other climate change trends [e.g., temperature] where appropriate.)

The numerical model also projected the rate of sediment accumulation within the Project Area, which allowed the EIS Project Team to estimate the frequency and extent of long-term maintenance dredging that would be needed to avoid or minimize impacts under the action alternatives.

The methodology, calibration/validation, and results of the numerical model were reviewed by independent third-party experts (refer to Attachment 5, Hydrodynamics and Sediment Transport Discipline Report).

How would the water levels change within the Capitol Lake – Deschutes Estuary under each action alternative?

Learn more in Section 4.1

Under the Managed Lake Alternative, the North Basin would be dredged to establish an average depth of 13 feet (for recreational boating). The Middle and South Basins would not be dredged, and average water depths would be 6 feet or less. Over time, as a result of sediment accumulation, the Middle and South Basins would become even more shallow and slowly transition to vegetated freshwater wetlands.

Under the Estuary and Hybrid Alternatives tidal conditions and water elevations in the Deschutes Estuary would be similar to Budd Inlet. An inundation curve, which represents a statistical analysis of

predicted tides in Budd Inlet, shows that the North Basin would have water in it approximately 80% of the time. Water depths would rise and fall with the tide, but there would be some amount of standing water in the North Basin for most of the day.

Under the Hybrid Alternative, the average water depth in the reflecting pool would be approximately 8 feet.

How do the alternatives support the project goals of sediment management & can impacts from sediment accumulation be mitigated?

Learn more in Chapter 2.0 and Section 4.2

Since 1949, when 5th Avenue Dam construction began, the largest area of sediment deposition has occurred in the South Basin, where sediment has accumulated up to 13 feet thick. Sediment accumulation in the Middle Basin averages approximately 6 feet, with some spots reaching up to approximately 13 feet. Most of the North Basin has a sediment accumulation averaging between 3 to 7 feet in total.

Sediment Management During Construction

All action alternatives include initial dredging during construction to remove some of the sediment that has accumulated within the Capitol Lake Basin over time. (There have been only two dredge events in Capitol Lake since 5th Avenue Dam construction.)

Under the Managed Lake Alternative, only the North Basin would be dredged during construction. Dredging would establish an average water depth of approximately 13 feet to support recreational boating. Under the Estuary and Hybrid Alternatives, dredging would occur in the Middle and North Basins in the area that would transition to the main channel of the estuary and Deschutes River, and in smaller secondary channels to develop conditions similar to the historic estuary.

Under all action alternatives, sediment dredged during construction would be beneficially reused within the Project Area to create new shoreline habitat areas. Beneficially reusing the material on-site to develop shoreline habitat would improve ecological function and habitat diversity for all action alternatives. It would also result in a significant cost savings for the project—it avoids or minimizes costs associated with hauling the material off-site for upland disposal. Notably, when the Capitol Lake Basin was last dredged in the 1980s, that sediment was placed in the area now referred to as the Interpretive Center and wetland habitat has developed over time.

Long-Term Sediment Management

The approach to long-term sediment management would vary across the alternatives. Under the Managed Lake Alternative, sediment would be managed to avoid recreational impacts. This means that the North Basin would be dredged before water depths became too shallow for use by nonmotorized boats and other watercraft. Long-term maintenance dredging is expected approximately 20 years after construction, and on an increasing frequency after that dredge event.

Under the Estuary and Hybrid Alternatives, sediment deposition would be 3 to 4 times higher in West Bay than under the Managed Lake and No Action Alternatives, because sediment transported by the Deschutes River would not be held back behind the 5th Avenue Dam. A long-term maintenance dredging program would be established to minimize impacts to commercial and recreational navigation. Maintenance dredging would occur along the eastern shore of West Bay, at the Olympia Yacht Club, private marinas, and areas of navigational access between these resources, and at the Port of Olympia. Maintenance dredging would not occur in the Capitol Lake Basin (though, the initial construction dredging in the Capitol Lake Basin would reduce impacts from sediment deposition by about 48% at the Olympia Yacht Club).

Sediment accumulation would be monitored annually in West Bay because the rate of sediment accumulation is highly dependent on river flow conditions. The numerical model predicts that spot-dredging would be needed every 5 years under the Hybrid Alternative, and on a 6-year frequency under the Estuary Alternative. When dredging occurs at the Port of Olympia and private marinas, some slips, piers, and boathouses may need to be temporarily relocated to other locations in West Bay.

WHAT FACTORS ARE AFFECTING ECOLOGICAL FUNCTION IN THE PROJECT AREA?

Learn more in Sections 3.3 and 3.4

Construction of the 5th Avenue Dam blocked the tidal exchange between the Deschutes River and Budd Inlet, substantially altering the lower river system.

In addition to changes in water quality and sediment transport, ecological functions have been impacted by a dense community of aquatic plants that have existed in Capitol Lake for several decades. In the past, saltwater flushing was used to control the aquatic plants, but this was discontinued due to concerns about adverse impacts to lake ecology. In 2004, the herbicide triclopyr was applied to Capitol Lake to control the infestation of Eurasian watermilfoil. At that time, it was estimated that the plants covered almost the entire lake surface and the Washington State Department of Ecology (Ecology) estimated the volume at 72 tons of dry weight. Two months following the treatment, the Eurasian watermilfoil was nearly eliminated; however, the native aquatic plant biomass had returned to a comparable density. The primary aquatic plant at that time was common waterweed; Capitol Lake is currently dominated by coontail, a native floating plant.

Fifteen different aquatic invasive species have been documented in Capitol Lake in recent survey efforts, including plants, invertebrates, fish, waterfowl, and aquatic mammals. There are only limited management strategies currently being implemented to address these nuisance and invasive species.

How do the alternatives support project goals of improving ecological functions?

Learn more in Sections 4.4 through 4.6

All action alternatives would improve ecological functions within the Project Area and include shoreline habitat areas developed with sediment dredged during construction. Implementation of a Habitat

Enhancement Plan with management strategies to meet performance standards and to address nuisance and invasive species is also included in all action alternatives.

Wetland habitat conditions under the Managed Lake Alternative would improve with a transition from deepwater to vegetated freshwater wetlands. This increase in habitat complexity would provide minor improvements in ecological function. Active lake management, focusing on aquatic plant removal, would have minor benefits to fish and other aquatic species, although fish and wildlife distribution and use patterns would remain similar to existing conditions. The Managed Lake Alternative would best support the foraging base for bats, which would be significantly impacted by the Estuary and Hybrid Alternatives.

Comparatively, the Estuary and Hybrid Alternatives would reestablish estuarine wetland and tidelflat habitats that have been greatly diminished and degraded because of historical development patterns. While both vegetated freshwater wetlands and estuarine wetlands have experienced historical declines, the loss of estuarine wetlands in Puget Sound represents a dramatic change in the historical occurrence in these once-prominent nearshore ecosystems. Estuarine wetlands provide water quality, hydrologic, and habitat functions that are particular to their position in the landscape. The mixing of freshwater and saltwater in estuarine environments creates some of the most productive and valuable habitat on earth. The reestablishment of estuarine conditions by reintroducing saltwater and tidal influences to the Capitol Lake Basin would substantially improve ecological functions in the Project Area. In addition to supporting key ecological processes, estuarine conditions would provide productive habitat for shellfish, salmon, other anadromous species, and marine fish in the area, potentially including Endangered Species Act-listed Chinook salmon (non-hatchery) and steelhead trout. Shallow water habitats with salt marsh vegetation along the shoreline would provide preferred forage and rearing habitat for juvenile salmon. The freshwater aquatic plants that dominate the basin today would not persist.

Removal of the dam would provide a natural freshwater to saltwater salinity gradient that is physiologically favorable to salmon and is not available under the Managed Lake Alternative. Prior to construction of the 5th Avenue Dam, salmon and other anadromous fish species spawned in the Deschutes River downstream of Tumwater Falls. (Historically, Tumwater Falls was a natural barrier to anadromous fish, meaning that there is no naturally reproducing native salmon population in the Deschutes River because migrating adults were not able to pass Tumwater Falls.)

WHAT IS IMPACTING RECREATION IN THE PROJECT AREA?

Learn more in Sections 3.4 and 3.8

In 2009, the presence of the invasive New Zealand mudsnail resulted in official closure of the waterbody to all public uses. State agencies determined that closure of Capitol Lake was feasible, and doing so would be an effective method to prevent the spread of these highly invasive species into other waterbodies where they pose a risk of environmental and economic harm. Human activity is the primary way that New Zealand mudsnails are spread.

Before this closure, boating had been impacted by the density of aquatic plants and management strategies that were being implemented to control the aquatic plants. Water quality conditions had also resulted in intermittent closures of the historical swimming beach through the 1970s, and formal closure of the swimming beach in 1985.

How would the action alternatives support the goal of enhanced recreational use?

Learn more in Section 4.8

The approach to restoring recreation is similar across all of the action alternatives.

A hand-carried boat launch would be established at Marathon Park to restore nonmotorized boating. Under the Managed Lake Alternative, this could include small sailboats. Under the Estuary and Hybrid Alternatives, predominant use would likely be kayaks, paddleboards, or other shallow-draft vessels. Nonmotorized boating would be possible at all times under the Managed Lake Alternative and within the approximately 45-acre reflecting pool of the Hybrid Alternative. Under the Estuary and Hybrid Alternatives, tidal water level variations would influence when boating could occur, though it is estimated that there will be water in the North Basin most of the time. This is the primary difference in recreational opportunity across the alternatives. For all action alternatives, the existing dock at the southern point of the Interpretive Center would be rebuilt to support fishing.

Under all action alternatives, decontamination stations would be installed at the proposed boat launch in Marathon Park, the existing boat launch in Tumwater Historical Park, near the reconstructed fishing dock at the Interpretive Center, and if needed, at the existing boat launch in West Bay Park. Decontamination stations would provide hot water for recreationalists to power spray the exterior of vessels and gear before entering the waterbody and after exiting to reduce or avoid the spread of aquatic invasive species. This approach has been used in other recreational areas that have been affected by the New Zealand mudsnail. The New Zealand mudsnail is not expected to be eradicated entirely under any alternative, so decontamination stations are assumed for the Managed Lake, Estuary, and Hybrid Alternatives. There would be a greater population (density) of the New Zealand mudsnail under the Managed Lake Alternative, but distribution may be wider under the Estuary and Hybrid Alternatives.

Elevated boardwalks would be constructed along the west shoreline of the South and Middle Basins, and adjacent to the shoreline habitat areas. Pedestrian access would also be improved along the existing loop around the North Basin with a new 5th Avenue Pedestrian Bridge constructed just south of 5th Avenue. Under the Hybrid Alternative, an additional pathway would be constructed on top of the reflecting pool barrier wall.

Would the old swimming beach be reconstructed?

Learn more in Section 2.3-4

The swimming beach that existed in the North Basin of Capitol Lake from 1964 to 1985 was operated by the City of Olympia, not by the State of Washington. Operating formal swimming facilities is not in

alignment with the mission of Enterprise Services, and there are no known plans to introduce such services into the agency mission or scope of services. Additionally, during the Measurable Evaluation Process, the EIS Project Team concluded that formal swimming facilities would be more expensive to operate compared to other ways to enhance active community use of the resource, like boating and fishing.

This project does not preclude or prohibit swimming. A governmental or agency partner could negotiate a lease to operate formal swimming facilities in Capitol Lake, should water quality conditions be suitable, following separate environmental review.

WHAT ARE THE IMPACTS AND BENEFITS OF THE PROJECT ALTERNATIVES?

Learn more in Chapter 4.0

The potential long-term impacts and benefits of the project were analyzed across 14 environmental disciplines. Table ES.2 (provided at the end of the Executive Summary) provides key findings of the long-term environmental changes from the multidisciplinary impact analyses. A more complete summary of the findings is provided in the Draft EIS, with the full technical analyses provided in the discipline reports that are attached to the Draft EIS. The short-term impacts from project construction are discussed in the following table.

WHAT ARE THE TEMPORARY IMPACTS FROM CONSTRUCTION OF THE ACTION ALTERNATIVES?

Learn more in Chapter 5.0

Construction would result in temporary impacts to many of the environmental disciplines analyzed in the Draft EIS. The construction duration would range from 4 to 8 years, depending on the alternative. Many of the construction elements would occur under all action alternatives (e.g., dredging, habitat area formation, boardwalks, etc.). The primary difference in construction impact is the duration.

Table ES.3 (provided at the end of the Executive Summary) summarizes the primary impacts of project construction, beginning with impacts that are common to all action alternatives. Construction activities that would increase the magnitude, intensity, or type of impact specific to a particular alternative are also described. If there are no additional construction impacts beyond those common to all action alternatives, that cell is shaded gray. Under the No Action Alternative, the project would not be constructed; therefore, there are no construction impacts and the No Action Alternative is not included in this table.

ARE THERE SOCIAL JUSTICE & EQUITY ISSUES ASSOCIATED WITH THE PROJECT?

Learn more in Section 4.14

Tribal populations would experience disproportionately adverse impacts from the Managed Lake Alternative, raising environmental justice concerns. The Managed Lake Alternative would have a continued impact on Usual and Accustomed Fishing Grounds and Stations, and on the Deschutes

Estuary, both of which have cultural, religious, and economic significance. The Managed Lake Alternative would also perpetuate historic and continued loss of tribes' and tribal members' connection to the natural environment.

Removal of the 5th Avenue Dam under the Estuary Alternative (and the Hybrid Alternative, to a lesser extent) would have beneficial effects for ecological, cultural, heritage, spiritual, and educational value for tribes. Tribal populations would likely experience the beneficial effects of restoration of the Capitol Lake Basin to an estuarine system most significantly.

CAN THE PROJECT ALTERNATIVES BE REFINED AFTER THE DRAFT EIS?

Learn more in Section 1.13

Enterprise Services can refine the project alternatives further as a result of the technical analyses and/or public comments on the Draft EIS. If a project alternative is refined and the refinement only results in minor changes to the environmental impacts or benefits evaluated in the Draft EIS, and there is no new significant information that is relevant to the analysis, then the changes would be summarized in the Final EIS, rather than a supplementary environmental review. Should significant new information that substantively changes the conclusions about environmental impacts or benefits be introduced after the release of the Draft EIS, supplementary environmental review may be required.

HOW WOULD THE PROJECT BE FUNDED?

Learn more in Section 7.2

After the EIS, funding will be needed to design and permit the Preferred Alternative, to construct the Preferred Alternative, and for long-term management of the Preferred Alternative. The funding sources for these future phases have not yet been identified. However, as the party responsible for constructing the 5th Avenue Dam and as the resource manager, it is assumed the State of Washington would contribute significant funding in support of the Preferred Alternative.

Enterprise Services is facilitating a Funding and Governance Work Group to evaluate potential shared funding and governance for long-term management of the Capitol Lake – Deschutes Estuary. The Funding and Governance Work Group is made up of governmental partners with jurisdiction and/or taxing authority in the Project Area.

Are planning-level cost estimates provided for the project alternatives?

Learn more in Section 7.2

Planning-level cost estimates were developed for the project alternatives based on conceptual design components. The accuracy of the planning-level cost estimates is consistent with the conceptual level of design, and accuracy will increase as design is further developed following selection of a Preferred Alternative. The planning-level cost estimates reflect an accuracy variation of - (minus) 25% to + (plus) 35%. Planning-level costs are provided in the Draft EIS for construction and for long-term maintenance dredging. They assume 3.5% annual escalation with construction beginning in 2028.

Given the numerical modeling that was conducted for the Draft EIS, costs associated with sediment management can be estimated and represent the largest long-term maintenance cost. Costs associated with long-term maintenance dredging were estimated for a 30-year duration after construction. They assume that the dredged material would be trucked to an upland disposal site under the Managed Lake Alternative and would be taken by barge to an in-water disposal site under the Estuary and Hybrid Alternatives. Upland disposal via truck is significantly more expensive than in-water disposal via barge, resulting in higher dredging costs for the Managed Lake Alternative. Other long-term costs, such as those associated with future project permit conditions or alternative-specific Adaptive Management Plans, Habitat Enhancement Plans, and other operations and maintenance activities would be estimated during design and permitting of the Preferred Alternative, when those requirements are better understood.

Based on initial recommendations from the Funding and Governance Work Group, it is assumed that the State of Washington would be responsible for the construction costs associated with any alternative. The approaches to funding long-term maintenance are expected to vary by alternative and are included in Table ES.4.

Table ES.4 Planning-Level Costs Summary Table

Alternative	Estimated Construction Costs	Estimated Long-Term Maintenance Dredging Costs	Suggested Approach to Funding Long-Term Maintenance
Managed Lake Alternative	\$89M to \$160M	\$248M to \$447M	State of Washington
Estuary Alternative	\$131M to \$235M	\$48M to \$101M	Potential for shared funding across local jurisdictions
Hybrid Alternative	\$177M to \$319M	\$90M to \$162M	Potential for shared funding across local jurisdictions

Were the potential economic impacts of the project alternatives evaluated?

Learn more in Section 4.14

Potential long-term economic impacts were assessed for this project based on the potential for the action alternatives to result in changes in economic activity or economic value in the region.

The economic analysis found that there is no clear evidence that implementing any action alternative would reduce demand for residential or commercial development in downtown Olympia. The City of Olympia’s plans for the redevelopment of downtown are long-range, and investment in residential and commercial development is projected to increase in intensity over the next decade. Effects of any of the action alternatives 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. This was a key finding in a series of project-specific interviews with municipal planners, economic development officials, private developers, and real estate experts. Overall, the economic analysis concludes that economic factors

other than Capitol Lake – Deschutes Estuary Long-Term Management Project would have more influence on market conditions for development.

The economic activity and changes in economic value would be similar in type among the action alternatives. There were four primary categories or topics that were evaluated in the economic analysis, including potential long-term economic impacts to downstream economic activity, downtown development, demand for and value of recreation, and demand for and value of ecosystem services.

The methodology for the economic analysis and the findings were reviewed by independent third-party experts (refer to Attachment 5, Hydrodynamics and Sediment Transport Discipline Report).

HOW ARE GOVERNMENTAL AND AGENCY PARTNERS ENGAGED IN THE EIS PROCESS?

Learn more in Sections 8.1, 8.2, and 8.3

Throughout the process to prepare this EIS, Enterprise Services has actively engaged governmental and agency partners that have jurisdiction or regulatory authority within the Project Area, including the City of Olympia, City of Tumwater, LOTT Clean Water Alliance (LOTT), Port of Olympia, Squaxin Island Tribe, Thurston County, Washington State Department of Archaeology and Historic Preservation, Ecology, Washington State Department of Fish and Wildlife (WDFW), and Washington State Department of Natural Resources. These entities have been studying and considering long-term management options for several decades.

Enterprise Services convened several work groups, including an Executive Work Group, Technical Work Group, and Funding and Governance Work Group to provide structured opportunities to engage in the EIS process and provide input on substantive project topics.

The project engagement approach is provided at the end of the Executive Summary. It reflects an understanding that the Capitol Lake – Deschutes Estuary is a shared resource, and long-term management planning should be a collaborative process that includes potential beneficiaries and key stakeholders, including the community.

This engagement process is showing on Figure ES.8 (provided at the end of the Executive Summary).

HOW IS THE COMMUNITY ENGAGED IN THE EIS PROCESS?

Learn more in Section 8.4

Enterprise Services convened a Community Sounding Board to participate throughout the EIS process, recognizing continued community interest in long-term management planning. A 25-member Community Sounding Board was selected through an application process that focused on assembling a group representing a wide range of community interest areas. To contribute to a robust and well-informed EIS process, Enterprise Services met with the Community Sounding Board six times between 2019 and 2021 to understand the concerns of the community, represented by the 25 members, values, and perspectives on specific topics of interest.

HOW DOES THIS PROJECT INTERSECT ECOLOGY'S WORK TO IMPROVE WATER QUALITY IN THE DESCHUTES RIVER & BUDD INLET?

In 2015, Ecology issued a Water Quality Improvement Report and Implementation Plan for the Deschutes River, Percival Creek, and Budd Inlet. In 2020, the U.S. Environmental Protection Agency (USEPA) revised some of the recommendations from Ecology and approved a total maximum daily load (TMDL) for the Deschutes River and its tributaries. Ecology is currently preparing a TMDL for Budd Inlet (and Capitol Lake), and that document is expected to be issued in 2022. A TMDL is the calculation of the maximum amount of a pollutant allowed to enter a waterbody so that the waterbody will meet and continue to meet water quality standards for that particular pollutant.

These studies and the subsequent actions to improve water quality by reducing pollutant loading in the Deschutes River and the Project Area are separate from the Capitol Lake – Deschutes Estuary Long-Term Management Project. However, water quality under all project alternatives would improve as the water quality improvement strategies required by the TMDL are implemented. For example, if the TMDL goal for total phosphorus in the Deschutes River is achieved, it would result in a substantive reduction in nutrients in the Project Area, which would reduce algal blooms and improve dissolved oxygen concentrations.

The work of Ecology and the USEPA focuses solely on water quality and numeric targets to achieve consistency with state water quality standards. In contrast, the Draft EIS considers a wide range of interrelated environmental impacts and benefits that would occur under each project alternative. The Draft EIS is intended to support a comparative analysis of the project alternatives relative to all four project goals, including, but not limited to, water quality.

The water quality analysis conducted for the Draft EIS was completed independently from the work of Ecology and the USEPA; it was also reviewed by an independent third-party expert (refer to Attachment 5, Hydrodynamics and Sediment Transport Discipline Report).

HOW DOES THIS PROJECT INTERSECT WITH THE OLYMPIA SEA LEVEL RISE RESPONSE PLAN?

To address flooding vulnerabilities of downtown Olympia and its combined sewer system, the City of Olympia, LOTT, and the Port of Olympia prepared an Olympia Sea Level Response Plan. In the near term, the Olympia Sea Level Rise Response Plan calls for flooding to be managed through emergency response activities, installation of backflow prevention on key stormwater outfalls and pipes, and landscaping of low spots to reduce flood impacts. The Olympia Sea Level Rise Response Plan also includes future response strategies, such as construction of a berm within Heritage Park to increase flood protection.

The Olympia Sea Level Rise Response Plan is separate from the Capitol Lake – Deschutes Estuary Long-Term Management Project and is focused solely on increasing resiliency of the City of Olympia from the effects of rising sea levels.

The hydrodynamic and sediment transport numerical model used for the Draft EIS incorporated relative sea level rise projections consistent with those used in the Olympia Sea Level Rise Response Plan. Under the Managed Lake Alternative, flooding from extreme river flood events would not be mitigated by the Olympia Sea Level Rise Response Plan. Under the Estuary Alternative, the modeled flood elevations predicted in the Heritage Park area would be mitigated by the improvements planned under the Olympia Sea Level Rise Response Plan. The potential for flooding in Heritage Park under the Hybrid Alternative would be addressed by the protective presence of the barrier wall for the hybrid reflecting pool.

WHEN IS THE DRAFT EIS PUBLIC COMMENT PERIOD?

Enterprise Services is soliciting comments on the Draft EIS between June 30, 2021, and August 13, 2021.

Comments on the Draft EIS can be submitted in several ways.

- **Project website.** Visit the website for additional information about the project and access to a comment submittal form. <https://CapitolLakeDeschutesEstuaryEIS.org>
- **Online open house.** Visit a website created to support the Draft EIS comment period; it also includes a comment submittal form. <https://clde.participate.online>
- **Via email.** Send an email to the email address listed here, with your comment on the Draft EIS. comment@CapitolLakeDeschutesEstuaryEIS.org
- **In writing.** Submit your Draft EIS comment letter through the mail.
Department of Enterprise Services
Capitol Lake – Deschutes Estuary EIS
PO Box 41476
Olympia, Washington 98504
- **Online public hearing.** Participate in an online public hearing to provide and listen to oral testimony, which will be transcribed by a court reporter. The online public hearing is scheduled for Tuesday, July 27, 2021, from 6:30 to 8:30 PM. Visit the project website for guidelines and registration <https://CapitolLakeDeschutesEstuaryEIS.org>.

WHAT HAPPENS AFTER THE DRAFT EIS & ITS COMMENT PERIOD?

Learn more in Section 1.13

Enterprise Services will review the comments received on the Draft EIS and evaluate whether additional technical analyses are required to ensure a complete evaluation and support informed decision-making. The EIS Project Team will prepare the Final EIS, which will include responses to public comments on the Draft EIS. The Final EIS is targeted for release in mid-2022, pending the extent of public comments received and additional technical analyses.

HOW & WHEN WILL A DECISION BE MADE ON THE PREFERRED ALTERNATIVE?

Learn more in Section 1.12

Enterprise Services developed a decision-making process for this project that will consider findings from the Draft EIS along with other factors that are critical to informed decision-making, such as cost, long-term management, and durability of the decision. In the process to identify a Preferred Alternative, Enterprise Services will evaluate the Managed Lake, Estuary, Hybrid, and No Action Alternatives against the following selection criteria.

- **Performance Against Project Goals.** The degree to which the long-term management alternatives would meet project goals.
- **Other Environmental Disciplines.** The potential significant impacts and benefits across the other environmental disciplines analyzed in this EIS but not directly associated with the project goals.
- **Environmental Sustainability.** The ability to provide net environmental benefits over a 30-year horizon, considering relative contribution to project goals; and the level of active management required to achieve the project goals.
- **Economic Sustainability.** Measured by the relative cost-effectiveness in constructing and operating the alternative in a way that would meet the project goals; and the severity of economic impacts if there is a lapse in long-term funding.
- **Construction Impacts.** The duration and magnitude of construction impacts.
- **Decision Durability.** Evaluated by the ability of an alternative to achieve long-term support from local tribes, stakeholders, and communities. Input on this selection criterion will be solicited from the engaged tribes, governmental and agency partners, the Community Sounding Board convened for this project, and the State Capitol Committee. These groups collectively represent the communities most likely to be affected by this decision.

These selection criteria were reviewed with the governmental and agency partners, the Community Sounding Board, and the State Capitol Committee. These entities also provided input to Enterprise Services on the relative importance of these criteria and how they may be weighted in the decision-making process. Enterprise Services has integrated opportunities within the decision-making process to solicit meaningful input from the key stakeholders.

A Preferred Alternative will be selected as part of the process to prepare the Final EIS, and the rationale for that decision will be included in the Final EIS, along with a description of the Preferred Alternative, including any changes made as a result of input to the Draft EIS. After the Final EIS is issued, Enterprise Services will submit a capital request to the Washington State Legislature for funding to design and permit the Preferred Alternative.

Figure ES.5 Managed Lake Alternative Overview

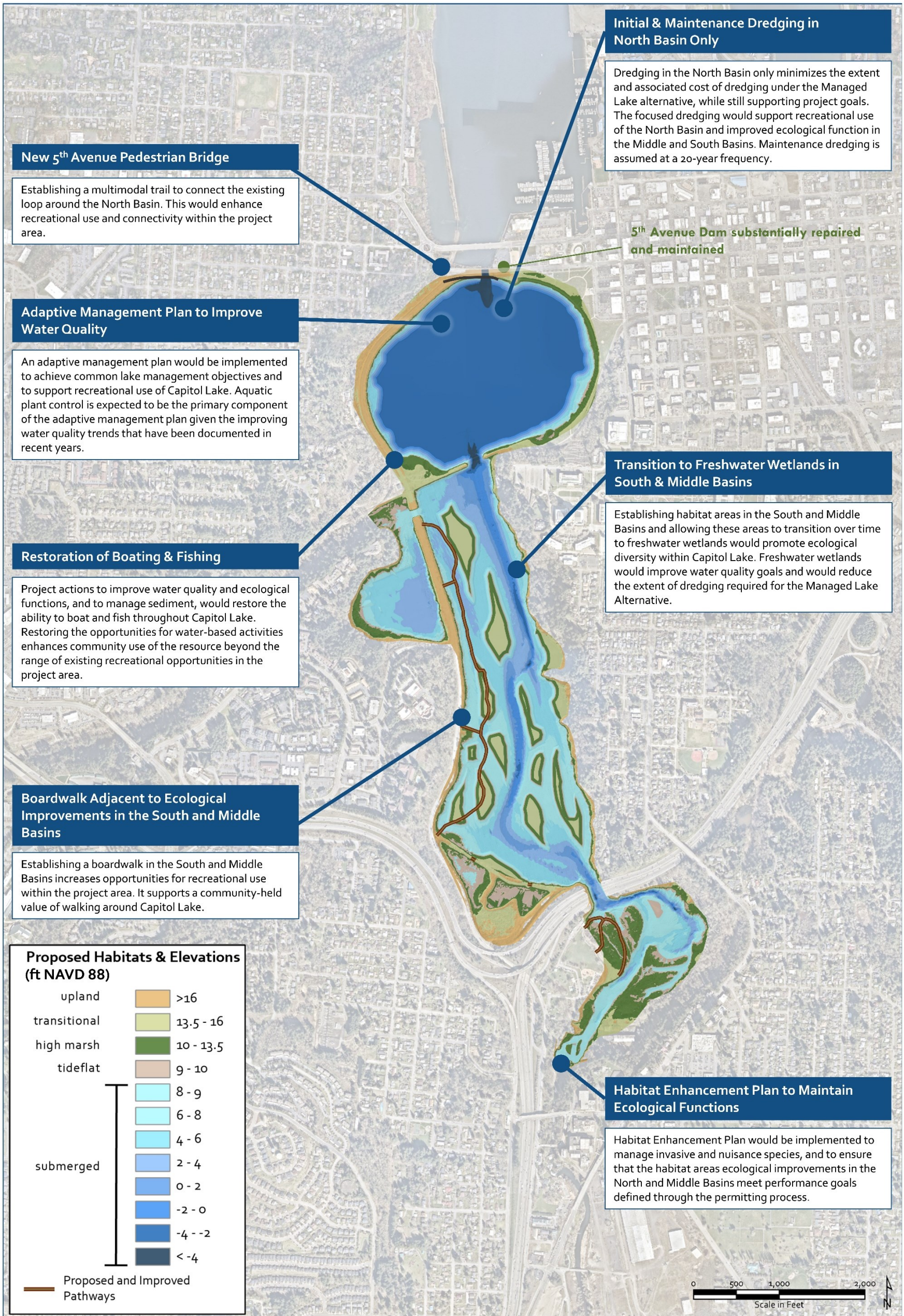
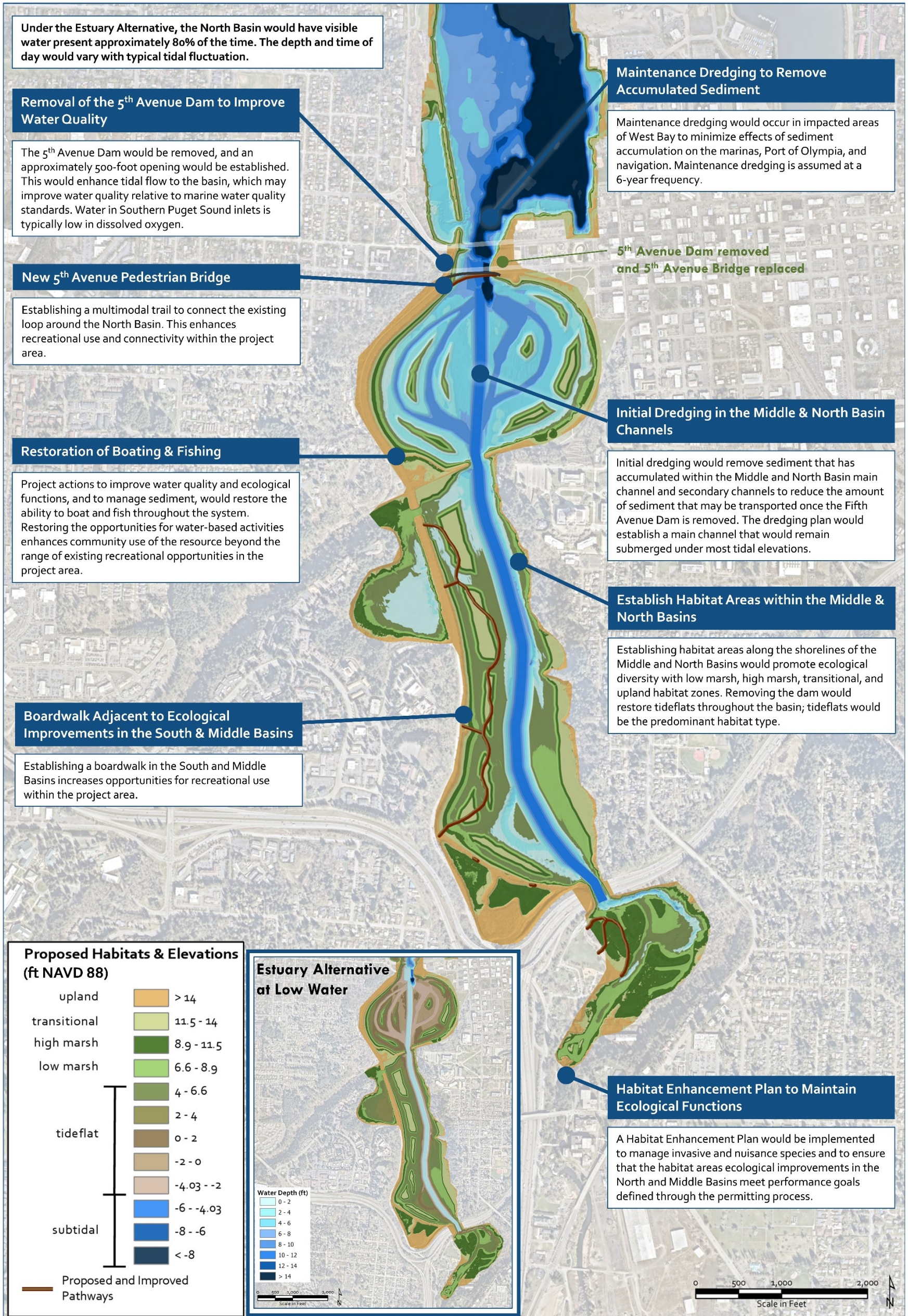


Figure ES.6 Estuary Alternative Overview



ES.7 Hybrid Alternative Overview

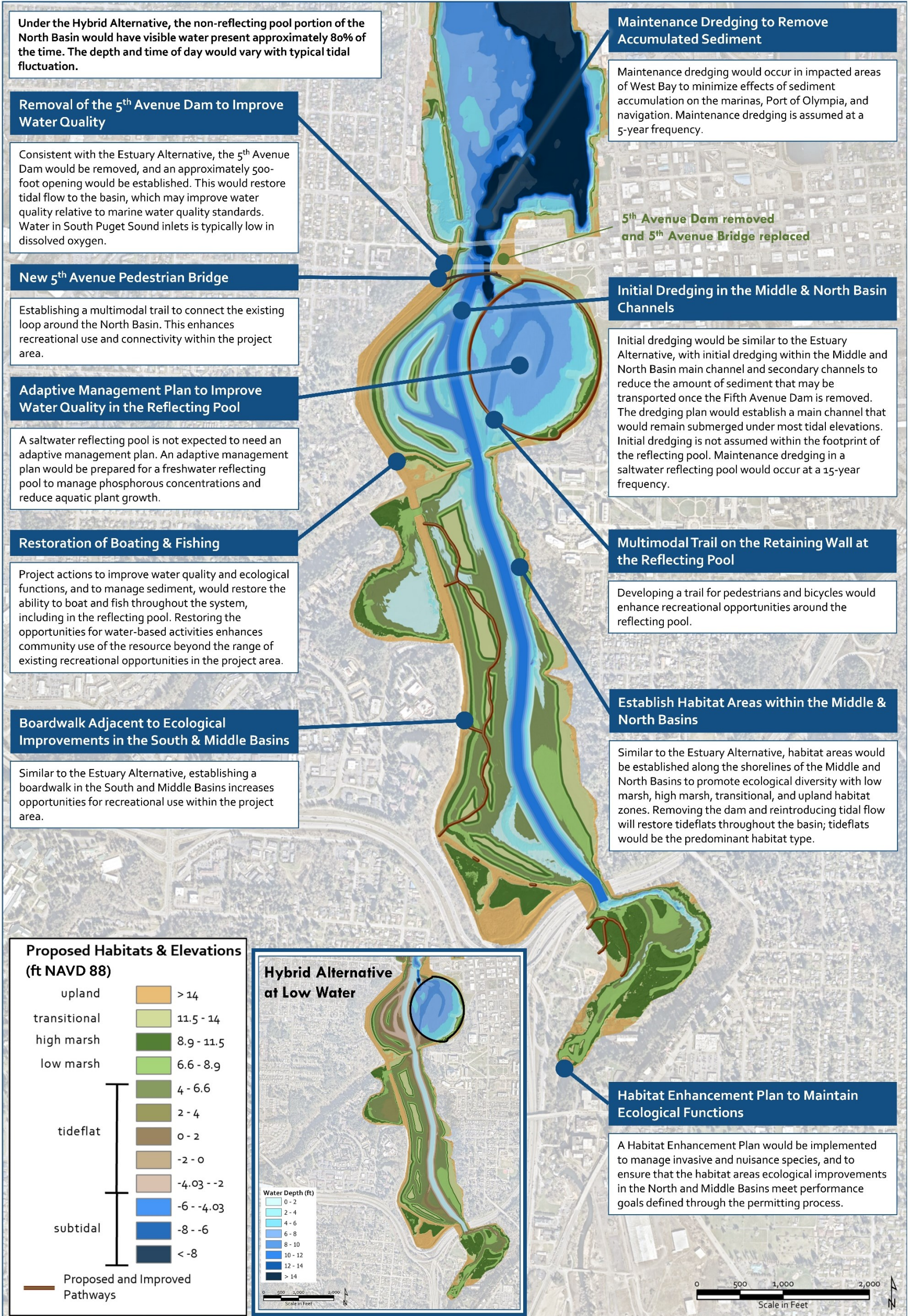


Table ES.2 Summary of Key Findings – Long-Term Impacts, Benefits, And Proposed Mitigation

Environmental Disciplines Analyzed in the Draft EIS	No Action Alternative	Managed Lake Alternative	Estuary Alternative	Hybrid Alternative
<p>Hydrodynamics & Sediment Transport (Draft EIS Section 4.1)</p>	<p>Hydrodynamics Maximum water levels and extent of flooding during extreme river floods would be higher than the Estuary and Hybrid Alternatives, and comparable but slightly lower than the Managed Lake Alternative.</p> <p>Sediment Transport Sediment would continue to settle in the Capitol Lake Basin, though some suspended sediment would continue to pass through the 5th Avenue Dam and deposit in West Bay.</p>	<p>Hydrodynamics Highest maximum water levels and greatest extent of flooding during extreme river floods compared to other project alternatives.</p> <p>Sediment Transport Sediment would continue to settle in the Capitol Lake Basin. Compared to the No Action Alternative, more sediment would settle in the North Basin resulting in less suspended sediment passing through the 5th Avenue Dam and depositing in West Bay.</p>	<p>Hydrodynamics Maximum water levels would occur under major tidal floods (rather than river floods), though maximum water levels would be lower than the highest water levels of the No Action and Managed Lake Alternatives.</p> <p>Sediment Transport Sediment deposition in West Bay would be approximately 3 times more than under the No Action and Managed Lake Alternatives.</p>	<p>Hydrodynamics The long-term hydrodynamic conditions for the Hybrid Alternative would be similar to those of the Estuary Alternative. However, flooding in Heritage Park and along Powerhouse Road SW in the North Basin would be avoided due to the barrier wall that would define the westerly perimeter of the reflecting pool.</p> <p>Sediment Transport Sediment deposition in West Bay would be approximately 4 times more than under the No Action and Managed Lake Alternatives.</p>
<p>Navigation (Draft EIS Section 4.2)</p>	<p>No change to the navigational impact in West Bay; separate entities would continue to dredge for navigability. Impacts to navigation from ongoing sediment deposition would be less than significant but could become significant over time if dredging is delayed in the future, similar to existing conditions.</p>	<p>Same as No Action Alternative.</p>	<p>Navigational impacts from sediment deposition would be significant but could be reduced to less than significant if consistent funding is available for the long-term dredging program (with dredging estimated at a 6-year frequency), and with implementation of an annual sediment monitoring program to ensure that maintenance dredging is responsive to actual sediment deposition that is highly influenced by environmental conditions.</p> <p>Proposed Mitigation</p> <ul style="list-style-type: none"> • Implementation of a sediment monitoring plan. Monitoring would be conducted regularly and used to modify the long-term dredging plan, as necessary. • As part of the maintenance dredging program, scheduling and phasing would be developed in coordination with the USACE, the Olympia Yacht Club, other private marinas, and the Port of Olympia. 	<p>Same as the Estuary Alternative (with dredging estimated at a 5-year frequency).</p>

Environmental Disciplines Analyzed in the Draft EIS	No Action Alternative	Managed Lake Alternative	Estuary Alternative	Hybrid Alternative
<p>Water Quality (Draft EIS Section 4.3)</p>	<p>Current and improving water quality conditions and trends in Capitol Lake would continue. Eventually, there would be a significant impact from increased density and areal extent of aquatic plants that violate water quality standards related to aesthetics.</p> <p>There would be no change to water quality in Budd Inlet.</p>	<p>There would be minor to moderate beneficial effects to already improving water quality in Capitol Lake from reduced algal blooms and reduced aquatic plants from implementation of an adaptive lake management plan; however, violations of water quality standards would still occur.</p> <p>There would be no change to water quality in Budd Inlet.</p> <p>Proposed Mitigation</p> <ul style="list-style-type: none"> Consider whether modifications could be made to limit the pulsed nature of the discharge through the 5th Avenue Dam (this influences dissolved oxygen conditions in West Bay). Best Management Practices (BMPs) and other conditions would be included in approved water quality permits for aquatic plant removal and other projects implemented under a lake management plan. 	<p>Estuarine conditions throughout the restored Capitol Lake Basin would have seasonally low dissolved oxygen and frequent algal blooms, as is typical for South Puget Sound estuaries. Compared to existing dissolved oxygen conditions in Capitol Lake, this seasonal/periodic reduction in dissolved oxygen would be a significant impact. However, estuarine water is inherently different than freshwater.</p> <p>Aquatic vegetation would be reduced, resulting in a substantial benefit by improving aesthetic characteristics of water quality.</p> <p>There may be minor to moderate benefits to dissolved oxygen in Budd Inlet but numeric water quality standards would continue to not be met.</p>	<p>Same as the Estuary Alternative plus the following:</p> <p>The saltwater reflecting pool would have better dissolved oxygen and less algae than the estuary but would not consistently meet water quality standards.</p> <p>Under a freshwater reflecting pool, an adaptive management plan would need to be implemented to maintain water quality.</p>
<p>Aquatic Invasive Species (Draft EIS Section 4.4)</p>	<p>Capitol Lake would remain closed to the public due to the New Zealand mudsnail, and there would be limited management of invasive and nuisance species. There would be low risk of aquatic invasive species spreading outside of the Capitol Lake Basin to otherwise non-invaded water bodies so there would be less than significant impacts.</p>	<p>Management of the lake would likely not substantially affect the abundance and distribution of aquatic invasive species. There would be less than significant impacts from changes in the population and distribution of aquatic invasive species. Decontamination stations would be installed to support reopening Capitol Lake to recreational watercraft; educational signage, and an adaptive management plan with monitoring, would also reduce the potential spread of invasive species.</p> <p>Proposed Mitigation</p> <ul style="list-style-type: none"> Aquatic invasive species adaptive management plan would be developed and implemented. WDFW-approved BMPs would be implemented during long-term maintenance dredging. 	<p>Saltwater would have a substantial beneficial impact by reducing or eliminating freshwater aquatic invasive species. Tidal flow would move salt-tolerant aquatic invasive species into Budd Inlet, but these species are not expected to establish at high enough densities to significantly impact native species. Although there is uncertainty, there would be less than significant impacts related to potential changes in the population and distribution of aquatic invasive species, which may move into West Bay. Decontamination stations would be installed to support reopening Capitol Lake to recreational watercraft; educational signage, and an adaptive management plan with monitoring, would also reduce the potential spread of invasive species.</p> <p>Proposed mitigation is the same as the Managed Lake Alternative.</p>	<p>Same as the Estuary Alternative.</p>

Environmental Disciplines Analyzed in the Draft EIS	No Action Alternative	Managed Lake Alternative	Estuary Alternative	Hybrid Alternative
<p>Fish & Wildlife (Draft EIS Section 4.5)</p>	<p>Habitat quality and use by some fish and other aquatic species would continue to be affected by the presence of the dam and lack of active lake management, though there would be less than significant impacts from the incremental changes.</p>	<p>Efforts to actively manage the lake would result in changes in lake bathymetry and habitation conditions that would have minor benefits to fish and other aquatic species, although fish and wildlife distribution and use patterns would remain similar to existing conditions.</p> <p>Less than significant impacts on fish and wildlife would be associated with additional permanent overwater and in-water structures, artificial lighting elements, buttressing berm, and maintenance dredging.</p> <p>Proposed Mitigation</p> <ul style="list-style-type: none"> BMPs and other measures would be implemented to avoid and minimize impacts to fish and wildlife. A Habitat Enhancement Plan would be developed and implemented. 	<p>The estuary habitat conditions reestablished by dam removal would result in substantial beneficial effects for salmon, other anadromous species, and marine fish. Due to historical declines, estuary habitat is scarce and valued in the region compared to freshwater ponds and lakes, which remain relatively abundant. The removal of the dam and restoration of estuarine conditions would also improve migration and habitat for anadromous fish and wildlife, including shorebird and wading birds.</p> <p>Eliminating the existing lake would have significant impacts to freshwater fish species and the Woodard Bay bat colony.</p> <p>Less than significant impacts on fish and wildlife would be associated with additional permanent overwater and in-water structures, artificial lighting elements, and maintenance dredging.</p> <p>In addition to mitigation proposed under the Managed Lake Alternative, trees removed to realign Deschutes Parkway would be replaced based on City of Olympia’s tree protection ordinances and critical areas regulations.</p>	<p>Same as the Estuary Alternative plus the following:</p> <p>The saltwater reflecting pool would provide fair to moderate rearing habitat for salmonids, and resting deepwater habitat for diving and dabbling ducks when the estuary portion of the project is at low tide.</p> <p>A freshwater pool would not provide habitat for marine fish and would stress anadromous fish that go between the freshwater pool and the brackish water of the estuary, similar to existing conditions. A freshwater pool would provide some habitat for bats and would not support raptors and fish-eating birds well because of reduced productivity of the freshwater lake.</p>
<p>Wetlands (Draft EIS Section 4.6)</p>	<p>Wetland habitat conditions would improve incrementally over time as Capitol Lake transitions to a more diverse complex of freshwater wetlands through ongoing sediment deposition, resulting in a minor beneficial effect.</p>	<p>A transition from deep water to vegetated freshwater wetlands in the Middle and South Basins would increase habitat complexity and provide a minor beneficial effect.</p> <p>There would be less than significant impacts on wetlands associated with fill and indirect shade impacts associated with additional permanent overwater and in-water structures.</p> <p>Proposed Mitigation</p> <ul style="list-style-type: none"> BMPs and other measures would be implemented to avoid and minimize impacts to wetlands. A Habitat Enhancement Plan would be developed and implemented. 	<p>Reestablishment of estuarine wetlands by reintroducing saltwater and tidal influences to the restored Capitol Lake Basin would provide a substantial beneficial effect because estuarine wetlands are some of the most productive and valued habitats on earth.</p> <p>There would be less than significant impacts on wetlands associated with fill and indirect shade impacts associated with additional permanent overwater and in-water structures.</p> <p>Proposed mitigation is the same as the Managed Lake Alternative.</p>	<p>Same as the Estuary Alternative but with less estuarine wetlands given the presence of the reflecting pool.</p>

Environmental Disciplines Analyzed in the Draft EIS	No Action Alternative	Managed Lake Alternative	Estuary Alternative	Hybrid Alternative
<p>Air Quality & Odor (Draft EIS Section 4.7)</p>	<p>Odors due to continued algal growth and decay would change little from existing conditions where impacts are infrequent, short in duration, and with low intensity, resulting in less than significant impacts.</p>	<p>Less algal growth than under the No Action Alternative would result in lower odor potential and less than significant impact from odor.</p> <p>Criteria pollutant and greenhouse gas emissions from long-term management activities are lower than state thresholds and, therefore, there would be less than significant impacts to air quality from post-construction activities.</p> <p>Proposed Mitigation</p> <ul style="list-style-type: none"> Compliance with air quality rules and implementation of BMPs for controlling dust and reducing emissions would reduce potential exposure of people to emissions during maintenance dredging. 	<p>The variability in personal perception of naturally occurring odors from tideflats makes an impact determination subjective. In consideration of the variable frequency and duration, and low intensity, there is expected to be less than significant impacts from odor.</p> <p>Criteria pollutant and greenhouse gas emissions from long-term management activities are lower than state thresholds and, therefore, there would be less than significant impacts to air quality from post-construction activities.</p> <p>Most opportunity for carbon sequestration and least methane emissions, comparatively.</p> <p>Proposed mitigation is the same as the Managed Lake Alternative.</p>	<p>Same as the Estuary Alternative.</p>
<p>Land Use, Shorelines, & Recreation (Draft EIS Section 4.8)</p>	<p>Increasing frequency and extent of flooding could result in displacement of existing uses, disinvestment, and economic blight in areas of downtown Olympia. Therefore, there is a risk of significant impact on land use from the No Action Alternative.</p>	<p>There would be no substantial changes to land or shoreline uses and no conflict with plans and policies; therefore, there would be less than significant impacts. Increased flooding is expected and could impact downtown land uses and low-lying parks; the impacts would be most significant under the Managed Lake Alternative compared to the other action alternatives due to higher maximum river flood elevations.</p> <p>Improved water quality, sediment management, improved ecological functions, and increased opportunities for community use would have a substantial beneficial effect on recreation.</p> <p>Proposed Mitigation</p> <ul style="list-style-type: none"> Coordination with the Olympia Sea Level Rise Response Plan on design parameters for the flood protection design of the Heritage Park berm to account for extreme river flooding. 	<p>There would be no substantial changes to land or shoreline uses, and no conflict with plans and policies; therefore, there would be less than significant impacts. Increased flooding is expected and could impact downtown land uses and low-lying parks.</p> <p>Improved water quality, sediment management, improved ecological functions, and increased opportunities for community use would have a substantial beneficial effect on recreation.</p> <p>Proposed Mitigation</p> <ul style="list-style-type: none"> Enterprise Services would work with owners of identified properties requiring acquisition and provide compensation in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act. Restrictions on motorized boat use would continue to be enforced, including signage at the entry from West Bay to the North Basin. If incidental motorized boat use occurs in the North Basin, a speed limit would be established. Rules such as no-wake, lower speed, or restricted access for motorized boats would be established in areas frequented for wildlife viewing. 	<p>Same as the Estuary Alternative plus the following: The barrier wall and reflecting pool would provide additional recreational opportunities compared to the other project alternatives.</p>

Environmental Disciplines Analyzed in the Draft EIS	No Action Alternative	Managed Lake Alternative	Estuary Alternative	Hybrid Alternative
<p>Cultural Resources (Draft EIS Section 4.9)</p>	<p>Continued river flooding could impact archaeological resources, if present, and there would be potentially significant impacts.</p>	<p>Continued flooding could impact cultural resources, and there would be potentially significant impacts.</p> <p>Recurring maintenance dredging could intersect, remove, or compact unrecorded resources, and there would be potentially significant impacts.</p> <p>Proposed Mitigation</p> <ul style="list-style-type: none"> Mitigation would be identified through the Section 106 process under the National Historic Preservation Act of 1966. Several additional mitigation measures that could help to maintain the character-defining features of affected historic properties are included in Section 5.7.2.1 of the Cultural Resources Discipline Report (Attachment 13). 	<p>Same as the Managed Lake Alternative, though potential impacts from flooding would be less than the Managed Lake and No Action Alternatives.</p> <p>Additionally, if the Des Chutes Basin Project Historic District (which includes Capitol Lake – Deschutes Estuary, the 5th Avenue Dam, the 5th Avenue Bridge, and the Olympic Street W Bridge) is determined eligible for listing, the elimination of the dam and the reflecting pool would have a significant impact. However, the return of the estuary would reestablish its historic use patterns.</p> <p>Proposed Mitigation</p> <ul style="list-style-type: none"> Mitigation would be identified through the Section 106 process under the National Historic Preservation Act of 1966. Several additional mitigation measures that could help to maintain the character-defining features of affected historic properties are included in Section 5.7.2.2 of the Cultural Resources Discipline Report (Attachment 13). 	<p>Same as the Estuary Alternative plus the following:</p> <p>The barrier wall for the reflecting pool would mitigate impacts on historic resources related to the 5th Avenue Dam and bridge removal, and loss of the existing reflecting pool, to less than significant impact levels.</p>
<p>Visual Resources (Draft EIS Section 4.10)</p>	<p>Aquatic plants and algae populations would continue in Capitol Lake, and likely increase as it becomes shallower through sediment deposition. Capitol Lake is already affected by aquatic algae and aquatic plant populations, so there would be less than significant impacts on visual quality from continued and worsening vegetative growth.</p>	<p>Additional view access from the boardwalks would have substantial beneficial effects.</p> <p>Improved water quality and aquatic plant removal would have minor beneficial effects related to the aesthetics.</p> <p>There would be less than significant impacts associated with loss of some views of open water in the Middle Basin due to riparian vegetation growth in new habitat areas.</p> <p>Proposed Mitigation</p> <ul style="list-style-type: none"> Design of park modifications/improvements could be developed with input from user groups. Design of habitat areas and shoreline plantings could include the establishment of view corridors. Lighting on the walkways could be placed as low as possible and directed onto the walkway surface only to reduce contrast with the natural surroundings. Maintenance dredging could be scheduled to minimize impacts on views from Marathon Park during the summer season. 	<p>Additional view access from the boardwalks would have substantial beneficial effects.</p> <p>Tidal fluctuations would change the appearance of the waterbody substantially, but the landscape would remain unified and harmonious with the natural setting of the existing surroundings resulting in less than significant impacts.</p> <p>Proposed Mitigation</p> <ul style="list-style-type: none"> Design of park modifications/improvements could be developed with input from user groups. Design of habitat areas and shoreline plantings could include the establishment of view corridors. Lighting on the walkways could be placed as low as possible and directed onto the walkway surface only. A view corridor could be established from the realigned section of Deschutes Parkway and 4th Avenue W to maximize motorists' views toward the water. 	<p>Same as the Estuary Alternative plus the following:</p> <p>Visual impacts of the barrier wall would be severe. Although mitigation for the appearance of the wall could be provided, its sheer scale would result in a significant unavoidable impact.</p> <p>Proposed Mitigation</p> <p>Same as the Estuary Alternative plus the following:</p> <ul style="list-style-type: none"> The barrier wall could have a textured concrete surface to improve the appearance of the structure. The barrier wall design could be adjusted to better integrate with the long-term plans for the Eastern Washington Butte. Guardrails on the barrier wall walkway could be designed to be as transparent as possible.

Environmental Disciplines Analyzed in the Draft EIS	No Action Alternative	Managed Lake Alternative	Estuary Alternative	Hybrid Alternative
<p>Environmental Health (primarily sediment quality) (Draft EIS Section 4.11)</p>	<p>There would be no change to sediment quality in Capitol Lake or Budd Inlet.</p>	<p>The risk of sediment quality degradation from maintenance dredging is low because dredged sediment would be similar to the high-quality conditions currently present in Capitol Lake, resulting in less than significant impacts.</p> <p>Proposed Mitigation</p> <ul style="list-style-type: none"> BMPs would be implemented in accordance with permit requirements for turbidity management and spill prevention. A Water Quality Monitoring and Protection Plan would also be prepared, approved by the regulatory agencies, and implemented throughout construction. 	<p>The risk of sediment quality degradation from maintenance dredging is low because sediment dredged from West Bay would be material deposited from the Deschutes River, which will be similar to the high-quality sediment conditions currently present in Capitol Lake, resulting in less than significant impacts.</p> <p>The export of sediment into West Bay would improve sediment quality in West Bay as cleaner sediment is deposited on existing sediment, resulting in minor to substantial beneficial effects.</p> <p>Proposed mitigation is the same as the Managed Lake Alternative.</p>	<p>Same as the Estuary Alternative.</p>
<p>Transportation (Draft EIS Section 4.12)</p>	<p>There would be no change to traffic operations in Capitol Lake or Budd Inlet.</p>	<p>During maintenance dredging events that are estimated to occur every 20 years, hauling dredged material by truck or rail would result in congestion and delays that would cause a significant unavoidable impact on traffic operations for several months each time.</p> <p>Proposed Mitigation</p> <ul style="list-style-type: none"> A Construction Traffic Management Plan would be prepared for maintenance dredging. 	<p>During maintenance dredging events that are estimated to occur every 6 years, impacts to traffic operations would be less than significant if the dredged material is transported by barge for in-water disposal. If the dredged material is not suitable for in-water disposal, transport by truck or rail would have a significant impact on traffic operations.</p> <p>Proposed Mitigation</p> <ul style="list-style-type: none"> A Construction Traffic Management Plan would be prepared for maintenance dredging. 	<p>Same as the Estuary Alternative, except maintenance dredging events are estimated to occur every 5 years.</p>
<p>Public Services & Utilities (Draft EIS Section 4.13)</p>	<p>There would be significant impacts on utility infrastructure from extreme river flooding, but these could be addressed through mitigation measures.</p> <p>There would be significant impacts if Ecology requires LOTT and other dischargers to implement more stringent actions for stormwater and wastewater discharges to improve water quality and meet regulatory standards in the Capitol Lake Basin.</p>	<p>Same as the No Action Alternative.</p> <p>Proposed Mitigation</p> <ul style="list-style-type: none"> In coordination with the Olympia Sea Level Rise Response Plan, design parameters would be included for the flood protection design of the Heritage Park berm to account for extreme river flooding. 	<p>Impacts on utility infrastructure from saltwater exposure could cause corrosion and could reduce infrastructure life; this would be a significant impact but could be addressed through mitigation measures.</p> <p>The reestablished estuarine conditions would reduce the extent of overland flooding from river floods, resulting in a minor beneficial effect.</p> <p>Proposed Mitigation</p> <ul style="list-style-type: none"> During design, an evaluation of utilities would be completed within low-lying areas potentially vulnerable to flooding under future conditions with relative sea level rise, and those vulnerable to seawater corrosion, and would be coordinated with public and private utility owners in developing a protection or replacement schedule. 	<p>Same as the Estuary Alternative.</p>

Environmental Disciplines Analyzed in the Draft EIS	No Action Alternative	Managed Lake Alternative	Estuary Alternative	Hybrid Alternative
<p>Economics (including ecosystem services) (Draft EIS Section 4.14)</p>	<p>Project benefits would not be realized under the No Action Alternative, and there would be ongoing equity and social justice issues to tribes given the sustained loss of connection to the natural environment and access to Usual and Accustomed Fishing Grounds and Stations.</p>	<p>There would be ongoing equity and social justice issues to tribes given the sustained loss of connection to the natural environment and access to Usual and Accustomed Fishing Grounds and Stations. The long-term impacts on economic activity and changes in economic value would be similar in type among the action alternatives.</p> <p>The enhancements to trails, habitat areas, and restored water-based recreation would increase the value of recreation in the basin across all action alternatives. The action alternatives would improve habitats, visual aesthetics, and cultural, heritage, spiritual, and educational values.</p>	<p>Same as the Managed Lake Alternative; except that the Estuary Alternative would beneficially affect tribal populations through the cultural, heritage, spiritual, and educational value that an estuarine environment provides. This would address equity and social justice impacts associated with the No Action and Managed Lake Alternatives.</p> <p>There would be reduced or avoided regulatory compliance costs for LOTT and stormwater discharges compared to the No Action and Managed Lake Alternatives.</p>	<p>Same as the Estuary Alternative.</p>

Table ES.3 Summary of Key Findings – Short-Term Construction Impacts and Proposed Mitigation

Environmental Disciplines Analyzed in the Draft EIS	Construction Impacts Common to All Action Alternatives	Managed Lake Alternative	Estuary Alternative	Hybrid Alternative
Hydrodynamics & Sediment Transport (Draft EIS Section 5.1)	The changes in hydrodynamics (water flow and elevation) and sediment transport (areas of sediment accumulation and erosion) would occur after construction and are summarized in Table ES.2.	No additional construction impact beyond those common to all action alternatives.	No additional construction impact beyond those common to all action alternatives.	No additional construction impact beyond those common to all action alternatives.
Navigation (Draft EIS Section 5.2)	There would be no change to navigation in West Bay during construction. Potential impacts to commercial and recreational navigation in West Bay would occur after construction and are summarized in Table ES.2.	No additional construction impact beyond those common to all action alternatives.	No additional construction impact beyond those common to all action alternatives.	No additional construction impact beyond those common to all action alternatives.
Water Quality (Draft EIS Section 5.3)	<p>Construction impacts on water quality would be largely related to the sediment disturbance from dredging, habitat construction, and building recreational amenity structures. With implementation of BMPs, short-term impacts on water quality such as localized turbidity (suspended sediments that reduce water clarity) and resuspended sediments can be confined within the allowable mixing zone and, therefore, there would be less than significant impacts.</p> <p>Proposed Mitigation</p> <ul style="list-style-type: none"> Standard dredging and overwater and in-water construction BMPs would be implemented in accordance with permit requirements for in-water work. A Water Quality Monitoring and Protection Plan would be prepared, approved by the regulatory agencies, and implemented throughout construction. To reduce potential dissolved oxygen impacts to Budd Inlet, dam operations could be modified to restrict lake outflow during dredging and during construction activities and increase lake outflow at night. 	Construction impacts on water quality would occur intermittently and in varying locations over approximately 4 to 5 years.	Construction impacts on water quality would occur intermittently and in varying locations over approximately 7 to 8 years.	Same as the Estuary Alternative.
Aquatic Invasive Species (Draft EIS Section 5.4)	<p>Prior to construction, Capitol Lake would be treated to significantly reduce the population of aquatic invasive species and minimize the potential spread of aquatic invasive species outside of the study area. Construction equipment would be decontaminated before entering and leaving the Project Area. For these reasons, construction would have less than significant impacts on aquatic invasive species populations and distribution. Reuse of dredged material within the habitat areas may have a minor beneficial effect due to burial of some aquatic invasive species.</p> <p>Proposed Mitigation</p> <ul style="list-style-type: none"> Capitol Lake would be treated prior to construction to significantly reduce the population of aquatic invasives. WDFW-approved BMPs would be implemented during construction. 	No additional construction impact beyond those common to all action alternatives.	<p>Some dredged sediment may be exported out of the study area; this could provide a cause for transmission of aquatic invasive species. However, treatment of the dredged material and disposal at an approved upland site would ensure that there is less than significant impact on aquatic invasive species populations and distribution.</p> <p>Proposed Mitigation</p> <ul style="list-style-type: none"> An Aquatic Invasive Species Management Plan would be followed during transport and upland disposal of material dredged during construction. 	Same as the Estuary Alternative.

Environmental Disciplines Analyzed in the Draft EIS	Construction Impacts Common to All Action Alternatives	Managed Lake Alternative	Estuary Alternative	Hybrid Alternative
<p>Fish & Wildlife (Draft EIS Section 5.5)</p>	<p>Construction activities could produce localized turbidity and sedimentation and temporarily disrupt ecological functions of aquatic and terrestrial habitats. With implementation of BMPs and other permit conditions (in particular, adherence to the established in-water work windows), impacts on fish and wildlife from construction would be avoided or minimized; thus, there would be less than significant impacts.</p> <p>Proposed Mitigation</p> <ul style="list-style-type: none"> Standard overwater and in-water construction and demolition BMPs would be implemented in accordance with permit requirements. In-water work would only occur within the allowable work window to minimize potential impacts to fish and wildlife. 	<p>Construction impacts on fish and wildlife would be localized to areas experiencing active construction over approximately 4 to 5 years.</p> <p>Proposed Mitigation</p> <ul style="list-style-type: none"> Installation of the berm that would be installed to increase stability of the 5th Avenue Dam would be timed to occur at low tide as feasible to minimize impacts of in-water work on fish. 	<p>Construction impacts on resident fish and wildlife would be localized to areas experiencing active construction over approximately 7 to 8 years.</p>	<p>Construction impacts on resident fish and wildlife would be localized to areas experiencing active construction over approximately 7 to 8 years but would also include construction of the reflecting pool barrier wall, which would generate in-water noise and vibration that can impact aquatic species.</p>
<p>Wetlands (Draft EIS Section 5.6)</p>	<p>Construction activities would produce localized turbidity and sedimentation and temporarily disrupt ecological functions of wetlands. With implementation of standard construction BMPs, however, all impacts on wetlands from construction would be avoided or minimized; thus, there would be less than significant impacts.</p> <p>Proposed Mitigation</p> <ul style="list-style-type: none"> BMPs would be implemented, in accordance with project permits, to minimize potential construction impacts on wetlands. 	<p>Construction impacts on wetlands would be approximately 4 to 5 years.</p> <p>Proposed Mitigation</p> <ul style="list-style-type: none"> Installation of the berm that would be installed to increase stability of the 5th Avenue Dam would be timed to occur at low tide as feasible to minimize impacts of in-water work on fish. 	<p>Construction impacts on wetlands would be approximately 7 to 8 years.</p>	<p>Same as the Estuary Alternative.</p>
<p>Air Quality & Odor (Draft EIS Section 5.7)</p>	<p>The annual emissions for criteria pollutants from construction activities are estimated to be less than state thresholds and would result in less than significant impacts to air quality and odor.</p> <p>Proposed Mitigation</p> <ul style="list-style-type: none"> Compliance with air quality rules and implementation of BMPs for controlling dust and reducing emissions would reduce potential exposure of people to emissions during dredging and construction activities. 	<p>The Managed Lake Alternative would generate the lowest construction emissions.</p>	<p>The Estuary Alternative would generate emissions greater than the Managed Lake Alternative but less than the Hybrid Alternative.</p>	<p>The Hybrid Alternative would generate the most construction emissions.</p>

Environmental Disciplines Analyzed in the Draft EIS	Construction Impacts Common to All Action Alternatives	Managed Lake Alternative	Estuary Alternative	Hybrid Alternative
<p>Land Use, Shorelines, & Recreation (Draft EIS Section 5.8)</p>	<p>Most recreational resources in the Project Area would remain open, but most of Marathon Park would be closed for the entire duration of construction. There would be construction noise and visual disturbance, which would reduce the value of the Project Area for some recreation activities. Impacts to Marathon Park from staging and impacts on recreational use related to noise and other disruptions could not be fully mitigated and would be a significant unavoidable impact.</p> <p><u>Proposed Mitigation</u></p> <ul style="list-style-type: none"> • The feasibility of constructing the 5th Avenue Pedestrian Bridge prior to removal or repair of the 5th Avenue Bridge would be evaluated 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. • BMPs would be implemented 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). • Coordination with potentially affected park districts/departments would be needed, to ensure that the public is well-informed of upcoming construction activities, and to plan construction to minimize conflicts with park events to the extent feasible. • Alternative access points to recreation sites and trail detours would be provided. • Signage along trails or park entrances would be provided at least 1 week prior to closures. • Pedestrian and bicycle access routes would be clearly marked, as well as detour signage and other wayfinding elements. • Recreation sites or trails would be restored after construction. • Construction activities would be scheduled in a way that minimizes or avoids impacts to major festival days, whenever feasible. • Coordination with festival and event planners would be needed when conflicting construction activities and closures cannot be avoided. This could include planning for detours, signage, media notifications, and similar actions. • Construction hours would be limited to avoid high-use times in parks, such as weekends and festival hours. • Given the duration of construction, interpretative signage would be provided in adjacent parks to explain how the work meets project goals, adding interest for some users. • A 24-hour hotline would be provided to address complaints or safety concerns that may arise during construction. 	<p>Construction impacts to recreational resources would be approximately 4 to 5 years.</p>	<p>Construction impacts to recreational resources would be approximately 7 to 8 years.</p>	<p>Construction impacts to recreational resources would be approximately 7 to 8 years and this would be the most intensive of the action alternatives due to construction of the reflecting pool barrier wall.</p> <p><u>Proposed Mitigation</u></p> <ul style="list-style-type: none"> • For barrier wall construction, vibratory pile driving would be the preferred construction method, rather than impact pile driving, to minimize disruption.

Environmental Disciplines Analyzed in the Draft EIS	Construction Impacts Common to All Action Alternatives	Managed Lake Alternative	Estuary Alternative	Hybrid Alternative
<p>Cultural Resources (Draft EIS Section 5.9)</p>	<p>Initial dredging and other construction activities could intersect, remove, or compact unrecorded archaeological resources, and, if present, there would be potentially significant impacts.</p> <p>Construction impacts on historic resources could occur from temporary construction activities and could reduce a resource’s historic register eligibility or reduce the ability of the resource to convey its historic significance. However, measures to reduce construction impacts would be implemented, and there would be less than significant impacts from temporary construction activities.</p> <p>Proposed Mitigation</p> <ul style="list-style-type: none"> Mitigation would be identified through the Section 106 process under the National Historic Preservation Act of 1966. Additional mitigation measures may be separately developed through consultation with the Washington State Department of Archaeology and Historic Preservation, affected tribes, the City of Olympia, the City of Tumwater, and other stakeholders. An Archaeological Site Alteration and Excavation Permit may be required if impacts on a protected archaeological resource could not be avoided and would contain conditions and stipulations. Potential stipulations are listed in Section 5.9.6.1 of the Draft EIS. Several mitigation measures that could help to maintain the character-defining features of affected historic properties are included in Section 5.7.2.1 of the Cultural Resources Discipline Report (Attachment 13). 	<p>No additional construction impact beyond those common to all action alternatives.</p>	<p>There would be a greater risk of encountering unrecorded archaeological sites due to greater ground disturbance compared to the Managed Lake Alternative.</p> <p>Proposed Mitigation</p> <ul style="list-style-type: none"> A Protection and Monitoring Plan would be developed for historic resources adjacent to the Deschutes Parkway realignment work. Construction work adjacent to the Deschutes Parkway realignment work would be monitored as needed based on the Protection and Monitoring Plan for historic resources. 	<p>Same as the Estuary Alternative.</p>
<p>Visual Resources (Draft EIS Section 5.10)</p>	<p>Construction staging areas would be established in nearby parks, and public access to these parks and other public facilities would be reduced or restricted. Most of Marathon Park would be closed during construction, resulting in an obstruction to visual access to the shoreline. Construction activities, equipment, and materials would also remain in place in the water of the Capitol Lake Basin for several years. Given the duration of construction-related staging at Marathon Park and in-water construction and staging, construction impacts on visual resources are considered a significant unavoidable impact for all action alternatives.</p> <p>Proposed Mitigation</p> <ul style="list-style-type: none"> The staging area in Marathon Park would be minimized during periods of no construction to allow visual access where feasible. Project areas in parks and along Deschutes Parkway would be planted as soon as feasible to minimize the duration of construction disturbance. In-water construction equipment, other than coffercells, would be removed from the lake between construction seasons. 	<p>Construction impacts to visual resources would be approximately 4 to 5 years.</p>	<p>Construction impacts to visual resources would be approximately 7 to 8 years.</p>	<p>Construction impacts to visual resources would be approximately 7 to 8 years.</p>

Environmental Disciplines Analyzed in the Draft EIS	Construction Impacts Common to All Action Alternatives	Managed Lake Alternative	Estuary Alternative	Hybrid Alternative
<p>Environmental Health (primarily sediment quality) (Draft EIS Section 5.11)</p>	<p>Construction activities and dredging would not change sediment quality in the lake basin. Dredging would uncover sediment with lower sulfide concentrations (though the existing sulfide concentrations do not pose a health risk to humans); this would result in minor beneficial effects on sediment quality in Capitol Lake.</p> <p>Sediment dredging and placement of dredged sediments in constructed habitat areas would have no adverse impacts on sediment quality because high sediment quality is present throughout Capitol Lake within and below the dredge areas.</p> <p>Proposed Mitigation</p> <ul style="list-style-type: none"> • BMPs for turbidity management and spill prevention would be implemented during dredging activities to minimize and avoid impacts to sediment quality. • A Water Quality Monitoring and Protection Plan would also be prepared, approved by the regulatory agencies, and implemented throughout construction. 	<p>No additional construction impact beyond those common to all action alternatives.</p>	<p>There would be no adverse impacts to sediment quality associated with removing the 5th Avenue Dam because all dam demolition would be contained within a coffercell to prevent the spread of sediment beyond the mixing zone established by the water quality permit.</p>	<p>Same as the Estuary Alternative.</p>
<p>Transportation (Draft EIS Section 5.12)</p>	<p>Construction for all action alternatives would include a period in which the 5th Avenue Bridge is closed. Although mitigation measures would minimize adverse traffic impacts, traffic increases along the 4th Avenue Bridge detour route could still result in congested operations during some periods of peak traffic demand, resulting in a significant unavoidable impact during the times that it occurs.</p> <p>Proposed Mitigation</p> <ul style="list-style-type: none"> • In addition to implementation of a Construction Traffic Management Plan with measures described in Section 5.12.6, the following additional measures could be considered: <ul style="list-style-type: none"> ○ Apply time-of-day restrictions for construction trips ○ Use rail to reduce truck trips ○ Coordinate with the City of Olympia to establish and sign traffic detour, which is expected to use the 4th Avenue Bridge and new connection to Deschutes Parkway that would be constructed with the project ○ Develop and implement a public communications strategy, to encourage alternative transportation choices and reduce overall volumes crossing the waterway ○ Prohibit construction employee parking in residential neighborhoods, Capitol Campus, and downtown streets ○ Coordinate with Intercity Transit to reroute affected bus routes to the 4th Avenue Bridge ○ Move bus stops for 5th Avenue SW routes to 4th Avenue W, about 300 to 500 feet away ○ Coordinate with rail owner to ensure that construction activities do not interfere with scheduled rail trips across the Project Area ○ Construct the 5th Avenue Pedestrian Bridge prior to closure of the 5th Avenue Bridge, or construct a temporary trail trestle during the time the 5th Avenue Bridge is closed 	<p>The 5th Avenue Bridge would be narrowed or closed for approximately 7 weeks for repairs and overhaul work.</p>	<p>The 5th Avenue Bridge would be closed for approximately 4 to 5 years for replacement.</p>	<p>Same as the Estuary Alternative.</p>

Environmental Disciplines Analyzed in the Draft EIS	Construction Impacts Common to All Action Alternatives	Managed Lake Alternative	Estuary Alternative	Hybrid Alternative
Public Services & Utilities (Draft EIS Section 5.13)	<p>Accidental damage to utility lines during construction could temporarily disrupt utility services. However, with measures to locate utility lines and to coordinate final construction plans with affected utilities, there would be less than significant impacts on utilities.</p> <p>Proposed Mitigation</p> <ul style="list-style-type: none"> • Prior to construction, consultation would be needed with local police, fire, and emergency response to develop and implement emergency response plans, establish emergency vehicle routes, and ensure that general emergency management services are not compromised. • Coordination would be needed with utility agencies and companies to locate existing utilities and avoid damage. The extent and type of temporary protective measures that must be implemented to prevent construction damage to surface and subsurface utilities would be determined. • Utility relocations would be staged to minimize interruptions in service. • Contractors would be required to prepare a Construction Traffic Management Plan for construction activities that may affect road rights-of-way. 	<p>Closure of the 5th Avenue Bridge for repairs would be temporary and short (about 7 weeks), so impacts related to increased emergency response time and travel time in the corridor would be less than significant.</p>	<p>Closure of the 5th Avenue Bridge for repairs would be approximately 4 to 5 years, which could have a significant impact on emergency service response times. This impact could be reduced to less than significant levels with implementation of a Construction Traffic Management Plan and coordination with local jurisdictions.</p>	<p>Same as the Estuary Alternative.</p>
Economics (including ecosystem services) (Draft EIS Section 5.14)	<p>Construction spending would temporarily support jobs, labor income, and economic output. Some recreation facilities would be closed or blocked during construction, causing people to recreate elsewhere or choose other lower-preference activities, although some people might enjoy watching the construction activities. Construction would also disrupt the value of ecosystem services, but the effects would be localized and temporary.</p>	<p>Construction spending would be least under the Managed Lake Alternative, but because of the shorter construction duration, construction would be less disruptive to ecosystem services than the Estuary and Hybrid Alternatives.</p>	<p>Construction spending would be greater than the Managed Lake Alternative but less than the Hybrid Alternative.</p>	<p>Construction spending would be highest under the Hybrid Alternative.</p>

The No Action Alternative would not result in construction impacts because the project would not be built. The No Action Alternative is not included in this table for that reason.

Figure ES.8 Project Process Map

