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CLIPA

Capitol Lake Improvement and Protection Association

"Save the Lake – Preserve the Past, Improve the Future."

July 2010

Dear Friends of Capitol Lake:

Last summer, our community was stunned by the CLAMP Steering Committee's split vote favoring removal of the dam which creates Capitol Lake. This action would result in reverting the Capitol Lake area back to a tidal mud flat, irretrievably losing Capitol Lake and all that it provides to the citizens, businesses, and community. Almost as startling, the CLAMP study focused on Capitol Lake to the exclusion of the Deschutes Watershed as a whole, missing the opportunity to identify and address water quality and sediment management concerns through more viable, long-term and cost-effective solutions.

In response, a group of concerned citizens, most with strong environmental interests and credentials, formed the non-profit organization "Capitol Lake Improvement and Protection Association" (CLIPA) in order to study the issue and identify more appropriate alternative solutions which would provide for improved water quality and sediment management in the Deschutes Watershed, including Capitol Lake basin and Budd Inlet, while preserving one of our state's most precious icons, Capitol Lake.

This committed grassroots group has worked steadily, creating a strong Science and Policy Panel and challenged the Panel members to create a realistic, scientifically-based and practical plan which would accomplish the above goals. This packet contains the results of those exhaustive efforts. You will note that in addition to our stated position, we provide many options and alternatives. A solution must embrace the many interests in support of aesthetics and ecosystem health, as well as economic vitality and social needs, and be flexible to findings from continued research.

We hope you will read this body of work carefully, as we believe we have addressed environmental, aesthetic, social, economic, and fiscal responsibilities in a balanced manner to the benefit of the public.

Sincerely,
Jack Havens
Chair

Capitol Lake Improvement and Protection Association
120 State Ave #1006 Olympia, Washington 98501-8212
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CLIPA is a non-profit, 501(c)(3) organization. Your contribution is tax-deductible.

Preserving Capitol Lake



A White Paper with Recommendations Prepared by a Consortium of Community Citizens and Organizations

"Save the Lake – Preserve the Past, Improve the Future."

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CLIPA Board Members and Science and Policy Panel

CLIPA's mission is to preserve and protect Capitol Lake as part of Washington State's Capitol Campus.

Recognizing the unique amenity of Capitol Lake and its location within an urban environment, CLIPA's goal is to achieve a balanced approach toward human needs with ecosystem management, including the long-term, sustainable improvement of the freshwater and marine system that make up the Deschutes Watershed. CLIPA advocates for enhancing the overall ecosystem, providing for recreational and educational opportunities, and preserving the aesthetics of Capitol Lake.

Board of Directors members are:

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Robert Utter
Bob Wubbena

Marc Horton is the Chair of CLIPA's Science and Policy Panel. Marc is currently working as an Environmental Consultant, and formerly served as Deputy Director of the Washington State Department of Ecology (DoE).

Science and Policy Panel Subject Matter Experts are:

Bob Barnes	Public Events Planning
Harvey Childs	Fiscal Budget and Public Administration
Denis Curry	Organizational Management and Economics
Curtis Dahlgren	Fisheries and Environmental Permitting
John DeMeyer	Forestry and Aquatic Land Management
Les Eldridge	Water Quality and Shoreline Policy
Jack Havens	Wildlife / Aquatic Information Coordination
Brenda Hood	Policy Analysis, Public Administration and Research
Marc Horton	Water Quality, Permitting, and Environmental Policy
Eric Hurlburt	Shellfish, Aquaculture and Economic Development
Norman Johnston	Architectural Historian of State Capitol Campus Design
Gary Larson	General Administration History and Capitol Lake Management
Jim Lengenfelder	Social Science and Economics
Allen Miller	Heritage Park Development / Capitol Campus Design and Development
Ron Rants	Community Development
Oscar Soule	Environmental Policy and Science
Robert Utter	Environmental Law
Bob Van Schoorl	Port Operations
Bob Wubbena	Watershed Management and Marina Operations



**CLIPA's White Paper
for
How to Manage Capitol Lake
for Future Generations**

"Save the Lake – Preserve the Past, Improve the Future."

July 2010



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Executive Summary

Findings

Managing Capitol Lake as a central design element of the Washington State Capitol Campus and the surrounding communities has become a focused discussion, and deservedly so as the treasured icon of our state. The Washington State Department of General Administration (GA) has the responsibility from the State Legislature to manage Capitol Lake as part of the Capitol Campus Grounds “as a lake” (see below for RCW references). However, since 1986 the State has not acted on the mandate to provide stewardship, preservation and maintenance of this public asset with respect to carrying out a maintenance dredging program. We applaud the State and GA for many beneficial improvements around Capitol Lake. However, immediate funding is needed to restore the lake through dredging.

The purpose of this White Paper and attached Maintenance Plan and Financial Projections is to strongly advocate for the State to actively carry out its mandate, providing for a more comprehensive, responsive, and sustained management of Capitol Lake and the adjacent marine water areas of lower Budd Inlet. These areas require a dredging and maintenance plan as a part of a publicly approved management program. This program also must consider the larger Deschutes Watershed ecosystem, and the priorities of the surrounding communities. ***By collaborating with public and private partners, we believe these goals are very achievable through innovative watershed-wide ideas and solutions.***

A recent GA advisory committee (“CLAMP”) focused its efforts on exploring the option of reverting the Capitol Lake area to a tidal mud flat over the next 50 to 80 years. The advisory committee recommended (on a split vote) to remove the dam that separates Capitol Lake from lower Budd Inlet and proceed with an estimated \$250-\$300 million project, including removal of the dam, building a new 5th Avenue bridge and many other costly changes. The value of this work even within the limited scope of the CLAMP study highlights for the community how the lack of attention to the Deschutes Watershed and Capitol Lake environment has led to systemic degradation of Capitol Lake, the larger ecosystem, and valued community uses of the area.

While the CLAMP study suggested that reverting to tidal mud flats may provide water quality benefits for lower Budd Inlet, it failed to address the underlying problems and the need for an overall management of the Deschutes Watershed as part of a comprehensive and long-term strategy for both water quality and sediment management. Also worrisome is that the CLAMP study did not fully acknowledge the extensive public investments in making the Olympia waterfront a multiple purpose environment. These investments accommodate not only the Capitol Campus and its aesthetics, but also recreational uses as well as residential, business, and urban watershed interests. It is a place where people come to live, work, and play.

The CLAMP study’s recommended plan is irreversible. It has the potential of destroying the design of the Capitol Campus, and of seriously undermining the aesthetic appeal and viability of the Olympia waterfront and the economic and social vitality of Olympia’s city center.

The call to action is compelling. As a result of the growing problems and controversy surrounding the future of Capitol Lake, a consortium of community organizations and citizens with diverse interests and expertise have joined together to form the “Capitol Lake Improvement and Protection Association” (CLIPA). CLIPA is a grassroots non-profit organization dedicated to saving Capitol Lake. In this packet we present a scientifically-based policy and operations strategy that reflects a broad-based community and urban watershed interest.

Recommendations

1. **Immediate investment:** CLIPA estimates a minimum initial expenditure of about \$4.5 million will address the accumulated sediment build-up and begin to reverse the damage to the surrounding environment caused by almost 25 years of neglect. We advocate for a plan in the first biennium that will initiate a positive and environmentally sensitive management program that considers both the urban and the ecosystem benefits.
2. **Joint coordination:** CLIPA also recommends an interest-based “coordinating board” be formed and authorized to develop a long-term maintenance and public/private financing plan to maintain Capitol Lake as it was envisioned by the Wilder and White Plan of 1911, and coordinate a proactive management approach for the Deschutes Watershed as a whole.
3. **Broaden focus to watershed for improved water quality:** The CLIPA findings support more effective management of the upper Deschutes Watershed to address water quality issues including: dissolved oxygen, temperature, nutrient loading, sediment control, and removal of point discharges of other contaminants. Invasive species, such as the New Zealand mud snail (prominent in many west coast bays and estuaries) will continue to be a challenge throughout the life of the watershed, regardless of the alternative chosen for the Deschutes Watershed, and must be dealt with as a current management issue and not a short-term cause to modify the long-term plan as suggested by the CLAMP study.¹
4. **Proactive lake management:** We recommend the State move forward with a revisioning plan for Capitol Lake, one that takes into account the aesthetic value of the lake for the Capitol Campus as well as the explicit management of this urban lake for water quality, sediment management, recreation, and other valued uses. The immediate maintenance dredging of Capitol Lake and continued use of the lake as a “sediment trap” for the estimated 35,000 cubic yards of annually transported runoff sediment from the upper Deschutes Watershed is the most cost-effective and environmentally sensitive management program for this urban landscape.
5. **Long-term sustainable approach:** CLIPA has developed and is recommending a two, ten and fifty-year management program for consideration by the General Administration, the State Capitol Committee, the State Legislature, and affected local governments to consider as an immediate approach to address the need to manage our *shared* Capitol Lake and marine waterfront. The actions we take now will impact many future generations.

¹ Sources find that the New Zealand mud snail is in many west coast bays and estuaries such as Alberní, Longbeach, Columbia, Tillamook, Rogue, and Alsea.

Purpose of White Paper and Packet

The purpose of this White Paper is to present a 21st century vision and plan for Capitol Lake that integrates our aesthetic values for the Capitol Campus along with our environmental values for a healthy watershed and our social values for a functional and thriving urban landscape. This paper seeks to present a reasoned, scientifically-based, holistic approach to a complex problem.

Background and Why the Call to Action is Compelling

In the early 1900's, the State of Washington chose an inspired vision developed by Wilder and White for the Capitol Campus. As part of this vision, Capitol Lake was created on the basis of its aesthetic value and ability to transform the downtown into a more vibrant capital city.²

In 1951, the State of Washington created Capitol Lake by constructing the current 5th Avenue dam. The lake consists of the three basins (South, Middle or "Mid," and North – we capitalize to draw attention to each individual basin). As part of this broader vision, the dam reduced the need for major dredging of lower Budd Inlet to maintain water depths needed for navigation, and as a result the city waterfront began evolving into its present form. Our State Capitol Campus quickly became a national and state-wide iconic treasure.

Capitol Lake itself represents the heart and soul of our area, providing a strong sense of community.

Nautical charts from the mid-19th century show that all of lower Budd Inlet was an extensive mud flat at low tide, requiring a mile-long pier to gain access to water depths suitable for navigation. The Deschutes River system produces and delivers approximately 35,000 cubic yards of sediment per year (more or less – for example, significantly more in 2008 and 2009). During the early 20th century, the first of several major dredge operations occurred. The dredging spoils were used to enlarge and further develop downtown Olympia and the Port of Olympia. Dredging also ensured adequate water depth for navigation purposes.

The sediment from the Deschutes River flowed into lower Budd Inlet prior to the construction of the dam, creating the extensive and growing mud flats. Now, much of that sediment settles into Capitol Lake, with most of the siltation settling into the North basin. The most recent Capitol Lake dredging occurred in 1986, almost 25 years ago. Dredging in the marina waterfront occurred in the early 1980s and at the Port of Olympia Turning Basin in 2009. The pre-1986 Capitol Lake North basin water depth was about 15 feet, but is currently at about 8 feet. Water depths in the Middle and South basins have declined by 3.6 feet between 1949 (immediately pre-dam) and 2004 due to siltation.

The Department of General Administration (GA), which has been directed by the State Legislature to manage Capitol Lake "as a lake" as part of the State Capitol Campus has completed multiple studies and analyses since the 1970s. There has been no report that has been accepted by the State or any

² As quoted from a 1911 report signed by Wilder and White: "A tide lock at the Boulevard (5th Ave) would form a lake and the whole effect would be visible from most parts of the city as well as from the sound" (from Norman J. Johnston's book "Washington's Audacious State Capitol and Its Builders," p.33). The 1912 Olmsted Brothers landscape plan also shows a "salt water pond" independent of the Deschutes River.

recommendation proposing a change in the status of Capitol Lake *as a lake* that appears to have gained widespread acceptance by the public. The “no action alternative” taking place by default since the mid-1980s due to the lack of active management by the State is not and never has been acknowledged by anyone to be an acceptable management practice. The failure to act by the State is creating an increased liability in terms of overall water quality and sediment management, navigation in lower Budd Inlet, maintenance and preservation of Capitol Lake as part of the Capitol Campus, and use and enjoyment of this asset by citizens.

Authority for the Stewardship and Preservation of Capitol Lake

The laws of Washington State, as contained in the Revised Code of Washington (RCW), make it clear that Capitol Lake is an essential part of the state capitol grounds and that the Department of General Administration is responsible for the stewardship, preservation and maintenance of this asset. The pertinent RCWs include:

- RCW 43.34.090 section 4 states: For purposes of this section, "state capitol grounds" means buildings and land owned by the state and otherwise designated as state capitol grounds, including the west capitol campus, the east capitol campus, the north capitol campus, the Tumwater campus, the Lacey campus, Sylvester Park, Centennial Park, the Old Capitol Building, ***and Capitol Lake***.
- RCW 79.24.720 states: The department of general administration is responsible for the ***stewardship, preservation, operation, and maintenance of the public and historic facilities of the state capitol***, subject to the policy direction of the state capitol committee and the legislative buildings committee as created in chapter . . . (*House Bill No. 1301), Laws of 2005, and the guidance of the capitol campus design advisory committee.
- RCW 79.24.530 states: The department of general administration shall develop, amend and modify an overall plan for the design and establishment of state capitol buildings and grounds ***... in accordance with current and prospective requisites of a state capitol befitting the state of Washington***. The overall plan, amendments and modifications thereto shall be subject to the approval of the state capitol committee.

In 1997, a multi-jurisdictional advisory committee known as the Capitol Lake Adaptive Management Plan (“CLAMP”) Steering Committee was established to advise GA’s Director on management of the lake. The committee shifted direction and focused its effort primarily toward advocating for the reversion of the area into tidal mud flats, at great immediate expense, over the next 50 to 80 years. The findings from this effort are problematic and numerous. Below we outline some of the more significant issues.

Water Quality Issues

Incomplete and misapplication of the science within the CLAMP 2009 Capitol Lake Alternatives Analysis – Public Review Draft (CLAMP study) includes the assumed benefits to water quality created by such a reversion. WAC 173.201A-020 provides water quality definitions for a lake versus a river. Different standards exist for lake systems compared to river systems. The CLAMP study applied the

river definition to Capitol Lake. In doing so, it misreports that the mud flats concept provides a water quality benefit, even though there is no change in pollutant or sediment loading. Instead, these “reported benefits” occur because the standards of measure are arbitrarily (and inappropriately) changed from “lake” standards to “river” standards. The CLAMP study fails to state this major change.

Second, the Department of Ecology (DoE) as a member of CLAMP advisory committee is conceding an argument it has objected to consistently over the past 40 years – the argument that “the solution to pollution is dilution.” It is a well known fact of lake ecosystems that lakes must be managed because their tendency is to fill naturally. In the case of Capitol Lake, this is caused by accumulated sediment deposition from the upper Deschutes; in other lakes, the filling may be due to nutrients and plants. This management requirement was recognized by the State when Capitol Lake was created, but not acted on over the past 25 years. The recent CLAMP study confuses this issue, and misses the opportunity to identify and address sources of water quality and sedimentation problems and viable solutions.

The CLAMP study properly recognizes that “water quality violations related to dissolved oxygen are predicted to occur whether the system is managed as a lake or as an estuary.” (p.74) Destruction of Capitol Lake and the 5th Avenue dam is no solution to this challenge. However, a comprehensive watershed management plan is a solution, which we advocate and further explain below.

The key take-away points are:

- ***The solution to pollution is NOT dilution.***
- ***Changing the definition of a water quality standard does not by itself change water quality.***

Impact on Public Facilities and Economy

The CLAMP study insufficiently addresses the lost public investment of over \$80 million in public facilities, should Capitol Lake be allowed by design or default to return to a tidal mud flat environment. In addition to the existing investments, the CLAMP study does not address the newly planned public investments, such as that of the remodeled Percival Boardwalk. Of great concern, the costs and impacts are missing from the study for the every three-year dredging which would be required to keep Percival Landing and the public docks open, and to upgrade/replace the transportation, storm drainage systems, and other infrastructure that is currently designed for a lake environment.

The 2009 CLAMP study proposal would place the entire public investment in Capitol Lake, the North Capitol Campus, the Olympia waterfront, and lower Budd Inlet in irreversible jeopardy.

The key take-away points include:

- ***Over \$80 million investment in infrastructure put at risk.***
- ***Recreation and public events would decline dramatically.***
- ***The Port of Olympia might have to discontinue ocean shipping.***
- ***Downtown and waterfront businesses would lose business.***
- ***Extensive, active boating would decline as a recreation and business stimulus.***

Misclassification of Reversion and Assumed Benefits

The CLAMP study's conclusion that the reversion of Capitol Lake to a tidal mud flat environment would be an environmental benefit compared to the planned Capitol Lake management program is unrealistic. The widely circulated images of emergent vegetation are misleading. A Deschutes Watershed reversion should more accurately be termed a "tidal basin," not an "estuary" as the CLAMP study describes it. The future of such action would be similar to what is now occurring in the Mud Bay and East Bay estuary environments, ***not*** the Nisqually Delta as has been suggested. Our organization strongly supports funding directed at appropriate estuary locations such as the Nisqually Delta.

The location at the southernmost end of Puget Sound would result in continued accumulated deposits in lower Budd Inlet with the removal of the dam. The sediment would not be carried away by currents in the manner that occurs at Nisqually. In this scenario, the CLAMP study did not account for 30% of the sediment dispersal. It stated that it just "dissipated." However, upon questioning this assumption, we were told by GA that this sediment does not "dissipate," rather it would stay within Budd Inlet, filling in the western side of the inlet. The science supports this, indicating that sediment tends to "clump" in salt water much more than fresh water. With the two daily incoming tides, removal of the dam could lead to accelerated accumulation of sediment in the lower Budd Inlet than with the dam.

The CLAMP study acknowledges that the transition from the initial process of estuary formation to the time when it would produce any potentially measureable environmental benefits would be 50-plus years. Even then, those benefits would be disrupted every three years, according to the study, by the need to dredge the lower Budd Inlet portion of the proposed Deschutes Watershed tidal mud flats.

Restoring Capitol Lake to Achieve Sediment Management and a Watershed Solution

CLIPA's group of experts serving as a "Science and Policy Panel" (Panel) has identified and reviewed over 150 various studies and reports, many of which are State-funded studies, that have evaluated how best to manage Capitol Lake. For example, the Panel reviewed the 2004 Department of Ecology WRIA 13 Deschutes Watershed Plan and the 1996 Department of General Administration Plan to complete a maintenance dredging program, as some of the baseline documents for the long-term plan. The Panel researched those documents, keeping in mind the intentions of the original Capitol Campus design plans, to form this vision and action plan.

Immediate Dredging Activity and Future Options

The Capitol Lake Adaptive Management Plan Final Environmental Impact Statement (FEIS) of May 20, 1999, prepared by GA on behalf of the State, identified six alternatives for the long-term management of Capitol Lake. The FEIS referred to adoption of the 2003-2013 Capitol Lake Adaptive Management Plan, a portion of which calls for interim dredging to address current problems and develop a longer-term lake management program.³ The science is understood in this area, and the need for an active and ongoing sediment management maintenance program is defined and should proceed

³ It should be noted that the estuary option was an alternative that was not selected by the GA as a project to pursue.

by fiscal year 2013 to avoid further damage caused by the lack of maintenance dredging. This recommendation was included in the 1999 FEIS and could proceed under the immediate authorization of the State Legislature and the filing for the Corps of Engineers dredging permit by GA.

The State-funded studies and the experience of environmental, regulatory, design, operation, and public policy experts assembled by CLIPA for this review support the conclusion that little additional study is needed to make an informed decision on how best to manage Capitol Lake as an integral part of the State Capitol Campus, the City of Olympia, and the larger Deschutes River Watershed including lower Budd Inlet.

The Panel's recommendations include immediate steps during the next biennium (2011-2013) to complete predesign studies, design, and implementation of a maintenance dredge of the North basin of Capitol Lake. The dredge would begin to partially reverse the damages to both public and private investments stemming from the current "do nothing" approach. CLIPA estimates the first two-year pre-design, dredging, and damage control project would cost about \$4.5 million. We note that this dredging and damage control project would be required regardless of which long-term management program for the Capitol Lake and lower Budd Inlet is advanced.⁴ This first phase of activity also would include dredging of the lower Budd Inlet in the third year of the project (in the 2013-2015 biennium).

CLIPA's vision of the Deschutes Watershed and Capitol Lake continues to advocate for the three-basin area known as Capitol Lake to be restored and maintained. However, at least in the short-term, CLIPA acknowledges that a more feasible solution of restoring and maintaining the North basin, with the possibility of some or all of the Middle basin being restored at a later date, may be a more cost-effective and viable solution. CLIPA offers these thoughts on what this plan might look like with the caveat that additional information produced during the predesign phase may indicate options in favor of a greater percentage of Capitol Lake being restored and maintained.⁵ For example, the three basins may be necessary if a comprehensive management plan is not developed, funded, and implemented for the Deschutes Watershed. Lack of such a plan would allow the continuation of 35,000 cubic yards of sediment to flow annually to Capitol Lake and lower Budd Inlet.

Alternatively, some freshwater wetlands in the South basin and a portion of the Middle basin could be part of the final community strategy along with an extensive educational trails system within this urban environment (see the Lake Maintenance Plan, attached, for further details). If the upper Deschutes Watershed is managed to minimize sediment transfer and to improve water quality, the possibility of cost savings may translate into opportunities to develop such a mixed landscape. We support inclusion of an extensive environmental education and urban trails system in this program.

⁴ The CLAMP study develop questionable cost estimates of dredging as high as \$250,000,000 to \$300,000,000 with predicted delays that will increase the cost of associated damages to public and private investments already made. CLIPA used actual costs from the Port of Olympia recent dredging activities and other State information that provided more accurate assessments of costs and timing.

⁵ At a minimum, predesign elements for this type of project should include the following: sediment removal options; how to dispose of sediment (e.g., sites, transport methods, etc.); flooding/hydrology studies; schedule and schedule constraints (e.g., fish windows); cost factors; water quality/management of land including invasive species; habitat restoration; recreation opportunities; adjacent entities planning efforts/activities (e.g., City of Olympia Boardwalk and Percival Landing); opportunities for partnerships; funding strategy (e.g., federal grants, public/private partnerships, etc.).

Monitoring and Management

Regardless of which approach is taken, we have taken a strong position that any plan adopted and funded by the Legislature must include ongoing data collection, scientific study, performance monitoring, and reporting. What the CLAMP study brought to light by its limitations is the need for a more comprehensive, watershed-wide management planning and oversight group. CLIPA recommends the State Legislature begin discussions around either a “coordinating board” or perhaps a Public Facilities Deschutes/Capitol Lake Management District to oversee this monitoring and reporting, and ensure a responsive approach is implemented⁶.

Our recommendations include:

1. Establishing a long-term management program that incorporates the protection and enhancement of an environmental and community treasure – the entire Deschutes Watershed – under the direction of a public/private “coordinating board.” The board would include representation of the impacted groups and governmental agencies and, under the authority of the State Legislature, would operate with GA functioning as the coordinating board’s technical staff.
2. We recommend that a Deschutes Watershed Adaptive Management Plan be developed and implemented (with Legislative review) under the guidance of this newly established “coordinating board.” This board would begin the process of developing a rich and complementary public/private partnership, including a plan for public/private cost sharing. For example, this “coordinating board” could facilitate partnering with the Natural Resource Conservation Service and Washington Department of Transportation among others to develop sediment management plans.
3. Our recommendations consider the 2011-2015 predesign study and dredging program of the Capitol Lake North basin and lower Budd Inlet/boat basin as an interim step, while the ten and twenty-year management program update is further documented in an update to the 2013 Adaptive Management Plan that will define how much of the Middle and South basins are dredged or converted to a freshwater wetland, using dredge spoils to enhance a recreation and education area.
4. The updated plan will then be integrated into the more comprehensive sediment management program for the entire Capitol Lake and related Deschutes Watershed Adaptive Management Plan for implementation by the new “coordinating board.”

Evolving Ideas toward a Deschutes Watershed Solution

Almost every State funded study relating to Capitol Lake, with State regulatory and resource management agency input, concludes that the most appropriate method to manage the water environment, the 35,000 cubic yards of annual sediment, and the public use and benefit of the

⁶ At the time of this White Paper, we had not yet fully researched the options of a “district” designation and intend to do so. This may or may not be a beneficial designation; some other approach may be more viable and effective. We also had not fully researched various models and structures for a “coordinating board.” For example, the Nisqually River watershed plan development and management process may be a useful model for these purposes, to ensure no new level of government, but to establish a new coordinating entity (e.g., the Nisqually River Council). This White Paper is intended as a starting point for such conversations.

Deschutes Watershed, Capitol Lake and the southernmost part of Budd Inlet, is the routine dredging of the Capitol Lake basins and lower Budd Inlet. Such dredging is necessary to prevent the accumulating sediment deposition from the Deschutes Watershed from choking off open waterways and navigation. While the 2009 CLAMP study focused only on Capitol Lake and the tidal mud flat (“estuary”) alternatives, it, too, recognized that the North basin and the lower Budd Inlet need to be dredged as a first priority if the estuary proposal is advanced.

In developing a vision for the future that addresses overall ecosystem health and water quality, CLIPA was surprised to discover that the CLAMP study and previous studies excluded a Deschutes Watershed-wide approach. In our collective mind, a solution should include a watershed and basin management plan, including these goals:

1. Development and enforcement of land use policies above Deschutes Falls to increase water quality, address contaminants, and decrease sediment transport downriver. Note that harmful chemicals bind with sediment and are carried downriver and into Puget Sound. Solutions should include the following:
 - a. Abate stormwater runoff.
 - b. Localize sediments upriver via sediment management “traps.”⁷
 - c. Monitor and report the percent of sediment reduction upstream, and concomitant reductions in Capitol Lake.
 - d. Decrease water temperature to healthy limits. (Increase riparian shade via tree planting, etc.)⁸
 - e. Increase dissolved oxygen levels.
 - f. Increase water circulation.
 - g. Retain aesthetics.
 - h. Incorporate TDML (total daily maximum load) findings from the Department of Ecology study.
 - i. Track and report on bacteria entering the Deschutes River system.
2. A riparian system management plan.
3. A dredging management plan that takes into account fisheries resources, a distribution plan for dredge materials, armoring and contouring issues, and recreation opportunities.
4. Ongoing data collection, analysis, and reporting with an updated management plan at least every 10 years.
5. Formalized coordination among various jurisdictions regarding stormwater drainage, nonpoint source and point source control, sediment management, watershed improvement planning, recreation and other uses, storm event management, etc.
6. Further modeling and study of the relationship between incoming tides and outgoing tides regarding sedimentation transport.
7. A plan to engineer the lake floor topography to positively impact future sediment deposition.

⁷ Also, according to the Department of Ecology, woody debris could help by protecting river banks.

⁸ For example, according to a Department of Ecology staffer speaking at a Deschutes TMDL Advisory Group meeting, many areas of the middle Deschutes Watershed are in violation of water temperature standards (some in the lethal range for fish, as temperature correlates inversely with dissolved oxygen – the main influence on dissolved oxygen in this portion of the watershed is temperature, not nutrients such as nitrogen and phosphorus). Some of these areas could be improved by as much as 5 degrees Celsius/9 Fahrenheit during the summer by providing shade. Shaded areas in the middle Deschutes River Basin average 40% but could be improved to as much as 80% with proper riparian planting. This is especially true between Deschutes Falls and Offut Lake.

Conclusions

CLIPA believes that a public/private partnership is urgently needed to create, coordinate, and oversee a comprehensive management program that incorporates the entire Deschutes Watershed, including Capitol Lake and lower Budd Inlet. Our intent is not to create another “layer” of bureaucracy, and it is hoped such a forum could facilitate more innovative ideas and solutions. This is integral to the future interests of the State of Washington, local governments, and all citizens.

We further believe that the time to act is *now* with development and implementation of a two, ten and fifty-year plan. This plan should be guided by a “coordinating board” of affected parties that has the direct responsibility to ensure that the plan is designed, funded, and implemented with a balanced approach to address multiple statewide interests.

Inaction is not an acceptable option; and reversion to tidal mud flats is just that – going backwards toward problems we worked hard to overcome.

By moving forward with a 21st century vision, and embracing ecosystem principles and repurposing Capitol Lake for its aesthetic values, as a sediment trap, and as a community gathering place, we will benefit all with immediate and long-term benefits.



CLIPA's Lake Maintenance Plan for How to Manage Capitol Lake for Future Generations

"Save the Lake – Preserve the Past, Improve the Future."

July 2010



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A Science-based Watershed-wide Maintenance Solution

The recommendations and options outlined in this Capitol Lake maintenance plan represent the ideas originally developed at the “Save Capitol Lake Workshop” assembled earlier in the year by CLIPA. This group had depth and breadth of expertise in biology, ecology, fisheries, engineering, finance/capital budgeting, law, State regulations and EIS process, permitting, policy development and policy implementation. The group had a strong working knowledge of relevant issues related to the specific management and operations of Capitol Lake over the last 25+ years, and the historical development and decision making around Capitol Lake, as well as generally to riparian areas, wetlands, lakes, and the marine environment.

The ideas presented here are meant to provide options and alternatives that will assist in the State’s decision making process, and to further support the White Paper and Financial Projections included in this packet. As a volunteer group we recognize certain omissions and errors may exist, and while inadvertent, we advocate for a thorough predesign study to ensure the best information is made available prior to design and implementation. We have outlined elements that might be included in the predesign study in the Financial Projections section of the packet.

The lake maintenance plan draws heavily from the existing Capitol Lake Adaptive Management Plan Final Environmental Impact Statement (FEIS) of May 20, 1999 option for the “Lake/River Wetland Without Trap Alternative.” A permit for continuing a Capitol Lake maintenance dredging program should be applied for under the authority of this alternative.

Lake/River Wetland Without Trap Alternative (Ref: FEIS Alternative)

Under this alternative, the tide gate would remain and there would be no initial maintenance dredging in the South and Middle basins. Under this alternative, these basins would evolve into freshwater wetlands for a period of 50 to 85 years as they filled with sediment from the Deschutes River. As the South and Middle basins filled with sediment, the North basin would be continuously retained as an open-water area by maintenance dredging in the basin repeated every 2 years. (*See Attachment A*)

Our Stated Position, with Specific Amendments and Options to this Alternative

Our investigation shows that the North basin would only need to be dredged once every 5 years. We recommend and identify funding for a Deschutes Watershed management plan that addresses sediment management upstream as part of a comprehensive sediment management strategy. When implemented, the costs for dredging Capitol Lake could be reduced and the timing could be extended considerably.

(It should be noted we are not advocating a shift in costs from the state to the local level, but a cost sharing program consisting of a public/private partnership.)

CLIPA strongly advocates for the restoration and protection of the entire lake, consisting of the three basins (South, Middle or “Mid,” and North – we capitalize each to draw attention to each individual basin). We recognize the State’s inaction to maintain the lake through routine dredges has resulted in the South basin turning into a wetland. We somewhat reluctantly support the continuation of the South basin as a wetland if: (1) funds are not sufficient to return this basin into a lake; (2) a Deschutes Watershed plan and the predesign studies clearly indicate the benefits of this wetland to the system as a whole, and; (3) this wetland be incorporated into an overall watershed and lake strategy to provide for the needs to the ecosystem and community, such that it is properly maintained and enhanced for habitat and other appropriate uses.

CLIPA recognizes the Mid basin has at least three possible courses that it may follow:

- (1) Our preferred alternative of restoring and protecting it in its entirety, which is identified in the funding proposal;
- (2) Our next preferred alternative of restoring and protecting the northerly section of it, while allowing the southerly section of it to fill with sediment (naturally and/or as a sediment disposal site for North basin sediment dredging spoils) into a wetland, and to be managed for habitat, recreation, and education as such (the timing would remain the same as in the funding proposal, it would just be reduced to account for the partial treatment);
- (3) The entire loss of the Mid basin as part of Capitol Lake, which we do not support, as outlined in the alternative.

It is important to note that this decision does not need to be made until later in the first decade, after further study, experience from the North basin maintenance dredge, and coordination of a Deschutes Watershed plan. With respect to the latter two alternatives, we first recommend considering Percival Cove as a dredged material disposal site (see “Alternative Considerations,” below), but should the Mid basin be (partially) converted into a wetland, we strongly recommend dredging spoils not be placed along the western shore (or either shore for that matter) at any time, as this would preclude the optimal development of a wetland. Optimal development of a wetland for multiple purposes, whether for part or all of the Mid basin, would suggest creating a south to north “island,” with streams running along either side. A walking bridge could be constructed to access this area once it was built up enough, for the purposes of trails and interpretation. (*See Figure 1 – Maintenance Dredging Method, which includes a sketch of option #2 only for illustrative purposes*)

Sediment “Trap” Concept

With respect to aspects the predesign study might include, the EIS Alternative “Lake/River Wetland With Trap” should also be considered regarding the “trap” concept. However, a sediment trap located in the Middle basin in the pathway of the moving river current may only have a trapping efficiency of 25% according to the 1997 Entranco Study, and reiterated in the 2008 Moffatt & Nichol Dredging Report (page 36). We are intrigued as to whether relocating the “trap” to the southerly section of the North basin would provide a more effective and efficient location. In our White Paper and Financial Projections, we consider the center of North basin, and thus North basin itself, to act as the sediment “trap” until further study indicates otherwise.

Recommendation

The CLIPA Capitol Lake maintenance study finds that the “maintenance dredge” activity should begin immediately within the Capitol Lake North basin. A prime location for a sediment “fall-out” pocket is where the current no longer flows, which in this lake/river system is in the center of the North basin.

Methods

The maintenance dredging equipment could mobilize in the North basin at either the east edge of Marathon Park or at the extreme southwest end of Heritage Park, both of which are accessed by roadway and adjacent to the railway tracks at each end of the trestle. (See *Figure 3 – Capitol Lake Pocket Dredge*)

- Alternatively, the North basin could be completely drained and allowed to sufficiently dry, such that equipment could enter the basin directly for dredging operations.

These two approaches have the following dredging spoils options:

- A “dewatering staging area” established at the GA acreage located directly west of Marathon Park for future upland distribution;
- Directly loaded into railway cars for overnight dewatering and haul off for landfill caps at various Pacific Northwest locations;
- Transfer the dredging spoils into Percival Cove; or in the southwest corner of the Middle basin where prior dredging spoils were deposited; or contiguous to this area in the southern portion of the Middle basin, to begin creating a wetlands viewing park within the lake. This latter concept likely would require development of predesigned berms at strategic locations. The material would be redistributed into the Middle basin by creating wetland berms, for nature pathways, and additional park area. This set of options eliminates the need for exporting sediment, would have minimal costs, and could be accomplished within a typical “fish-window” timeframe.

Another option is for piping infrastructure to be installed between the North basin and lower Budd Inlet, through the dam. The North basin sediment would be pumped by tight-line to dredging barges situated in lower Budd Inlet, to be transported to another location. (See *Figure 2 – Maintenance Dredge Pipeline, Shoreline Park and Small Boat Launch*)

The pre-1986 North basin water depth was about 15 feet and is currently about 8 feet. The maintenance dredging volume to obtain the average depth of 13 to 15 feet (taking into account sloping bank contouring) is estimated to be about 100,000 cubic yards.

Lower Budd Inlet Marine Dredge

A dredging operation within the lower Budd Inlet and Percival Landing boat basin is also recommended during the first phase dredging scenario, beginning in the first year of the second biennium (2013-2015). The funding request reflects this activity. This dredging task could be accomplished with various types of dredging equipment and barges, with dredging spoils to be

relocated along the western shoreline of lower Budd Inlet for park/boardwalk development. The dredge spoils also could be sent off for deep water disposal (e.g., Anderson Island, or Commencement Bay). (See Figure 4 – Budd Inlet Boat Basin Dredge)

- Dredging within the lower Budd Inlet, including the western section and the boat marinas, must be done to relieve shallow waters that ultimately interfere with navigation. This accumulated sedimentation was created by recent years of sediment drop-out of increased materials transferred from Capitol Lake through the dam during the twice per day drain-downs.
- Dredging of the resultant “mud flats” from this accumulating sedimentation directly north of the dam and west of the Olympia Yacht Club must be dredged to **re-open** the “flow-channel” into the northern inlet. (See Figure 4 – Budd Inlet Boat Basin Dredge)
 - This mud flat area created by lack of State maintenance to Capitol Lake is resulting in a blockage of the natural northerly current flow of water being drained from Capitol Lake each day, and redirects the current and sediment easterly and directly into and through the Olympia Yacht Club moorings. The eddying effect also results in accumulating sediment being deposited into the water-dependent areas including Percival Landing, Martin Marina, One Tree Marina, Fiddlehead Marina, Percival Plaza, and the Port of Olympia. The unintended consequences result in impeding navigation and accumulating sediment deposition under a water-dependent use (the marina moorings).

Alternative Considerations for Dredging Spoils

Alternative considerations for the use of future lake maintenance dredging spoils and/or Budd Inlet dredging spoils are:

- Transport spoils to Percival Cove to create wetland viewing areas, pathways and parklands by strategically placing dredging spoils within the cove area. (This option is preferred over placing the dredging spoils within the Middle basin area.)
- Transfer spoils to Budd Inlet west bay shoreline for boardwalk and park development by the City of Olympia for its West Bay Waterfront Park plan.
- Transfer spoils to create a shoreline boardwalk and park-strip area along the extreme west side of the Budd Inlet lagoon located just north of the new 4th Avenue bridge. Currently, the steep bank ends abruptly into the lagoon water’s edge without an upland “land-bridge” for cross access. A bulkhead and sediment backfill could be used to extend the future park-strip and boardwalk to benefit the City of Olympia’s interest.
- Create a park and water’s edge “launching area” into the lagoon for access to Budd Inlet by canoes, kayaks, and similarly-sized boats. A drive access to this area could be created from the north end of Deschutes Parkway under the 4th Avenue and 5th Avenue bridges on the west side.
- Transport spoils to Budd Inlet for loading onto barges and disposal at a deep-water disposal site.
- Consider creating an “up-river” dredging pocket area for periodic easy access maintenance dredging to capture and remove sediment prior to entry into the lake system. These dredging spoils could be dewatered at the dredging site for later truck hauling to landfills, quarry reclamation, landscape use, etc.

- A possible location is within the Olympia brewery and City of Tumwater properties. The Deschutes River flows through south of the brewery and north of the Tumwater Valley golf course. Large brushy riverfront acreage exists at this location.

We recommend that the issues of Capitol Lake water quality such as fecal coliform, dissolved oxygen, temperature, pH, and turbidity may be better addressed with the up-river sediment management approach. We also recommend that the current purple loosestrife eradication program be aggressively continued to its extinction within the Capitol Lake system.

Attachments

Attachment A – Lake/River Wetland Without Trap Alternative (from FEIS)

Figure 1 – Maintenance Dredging Method

Figure 2 – Maintenance Dredge Pipeline, Shoreline Park and Small Boat Launch

Figure 3 – Capitol Lake Pocket Dredge

Figure 4 – Budd Inlet Boat Basin Dredge

Attachment A: Lake/River Wetland Without Trap Alternative (from FEIS)

SUMMARY



Lake/River Wetland Without Trap Alternative

Under this alternative, the tide gate would remain and there would be no maintenance dredging in the South and Middle basins. These basins would evolve into freshwater wetlands over a period of 50 to 85 years as the lake filled with sediment from the Deschutes River. Once the South and Middle basins have filled with sediment, the North Basin would be retained as an open-water area by maintenance dredging in this basin (repeated every 2 years). Refer to figures 1-2 and 1-3 and 3-2 for a full size map with legend.

Figure 1-2
Conceptual Illustration of Habitat Types
at Maturity for Lake/River Wetland
Without Trap Alternative

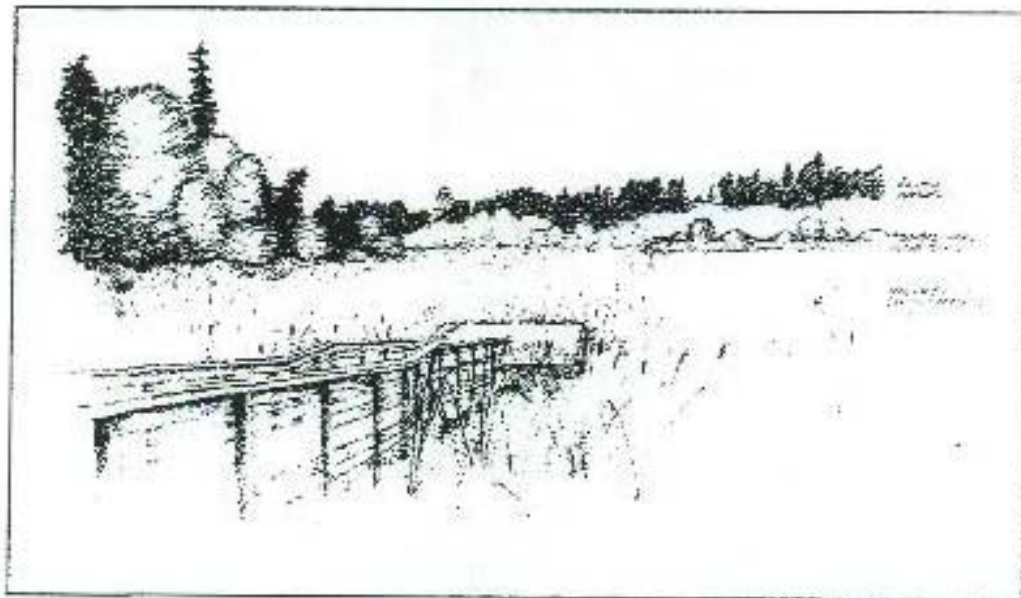


Figure 1-3
View from Capitol Lake Interpretive Center of
Both Lake/River Wetland Alternatives at Maturity

Figure 1 – Maintenance Dredging Method

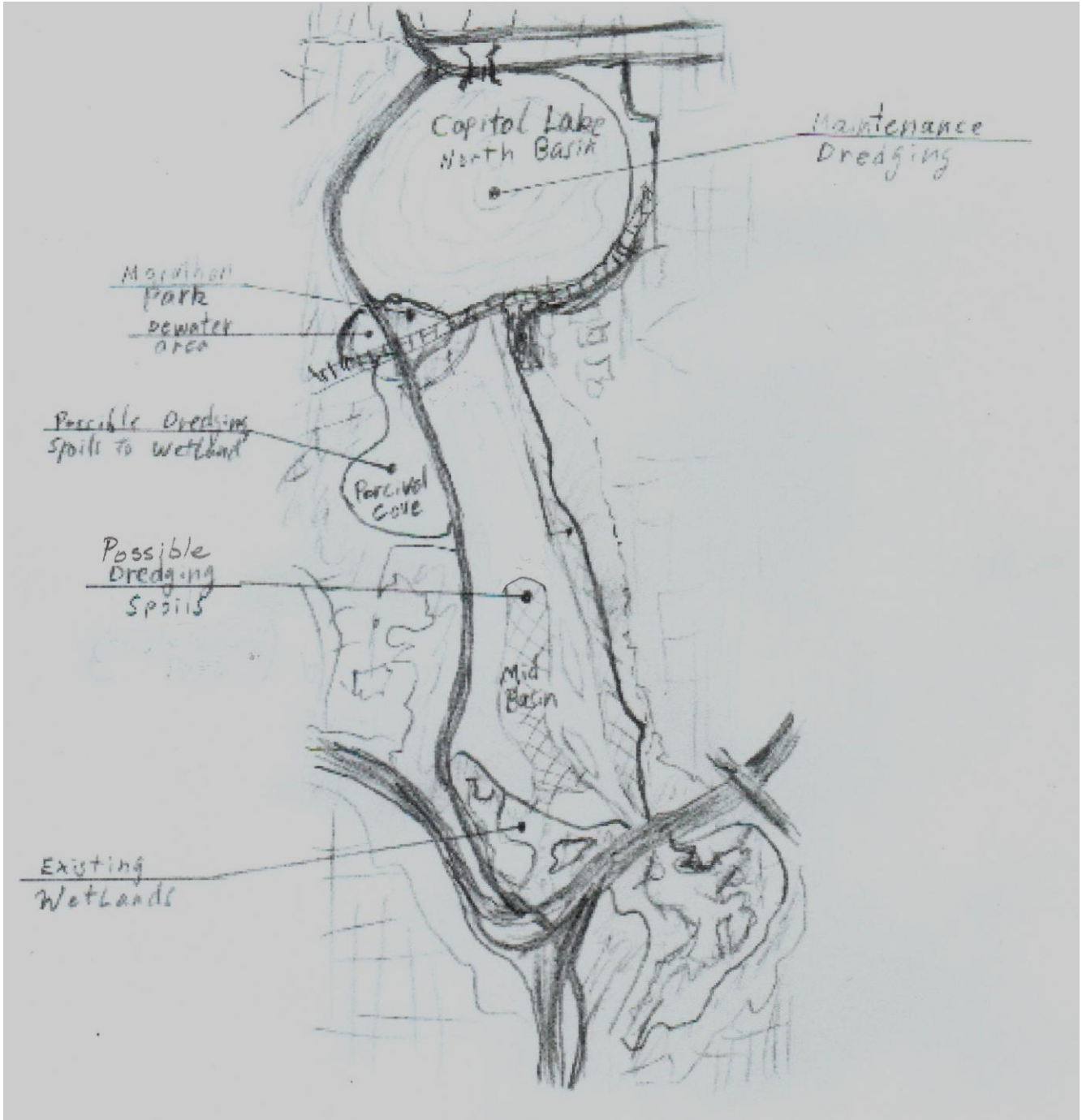


Figure 2 – Maintenance Dredge Pipeline, Shoreline Park and Small Boat Launch

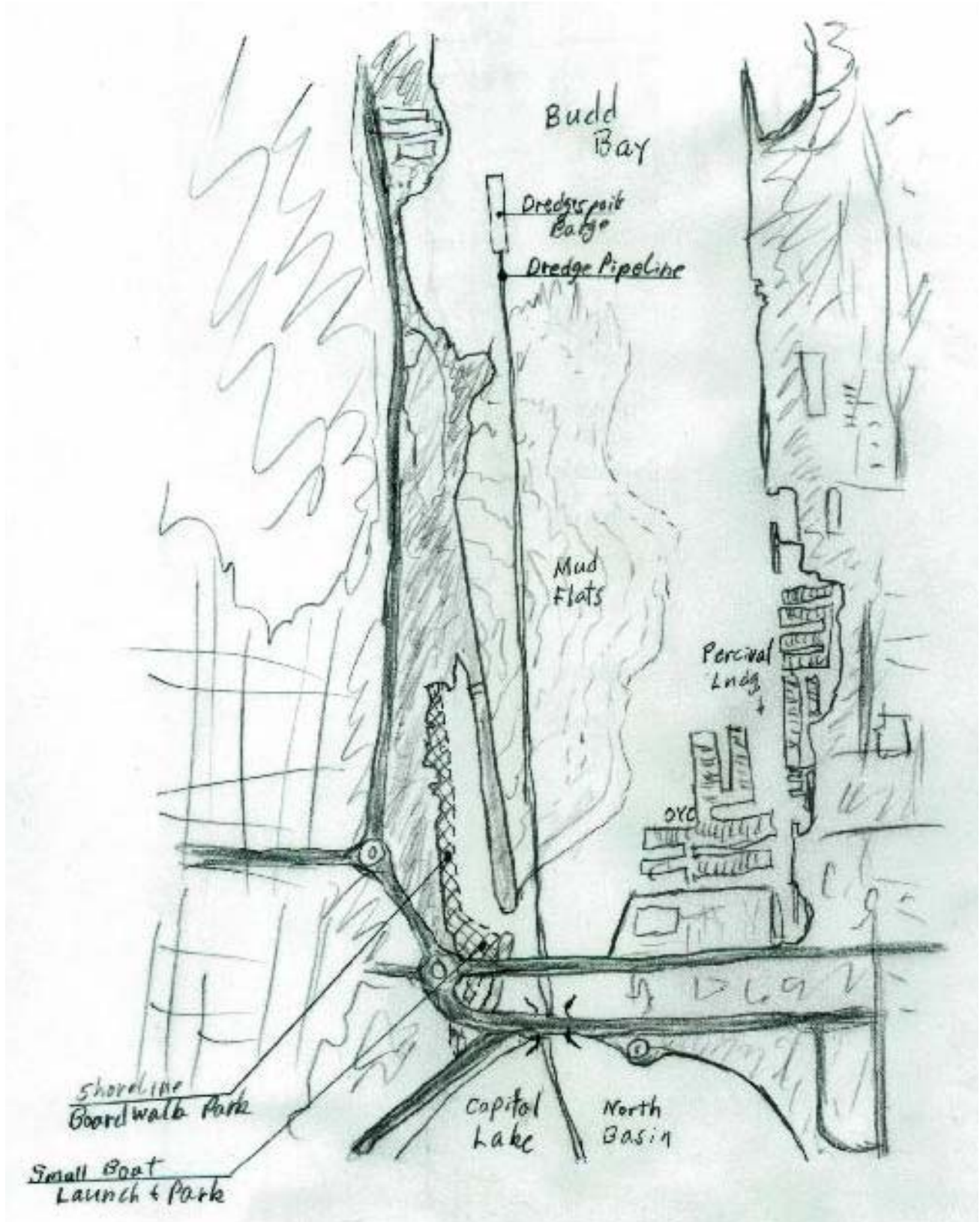
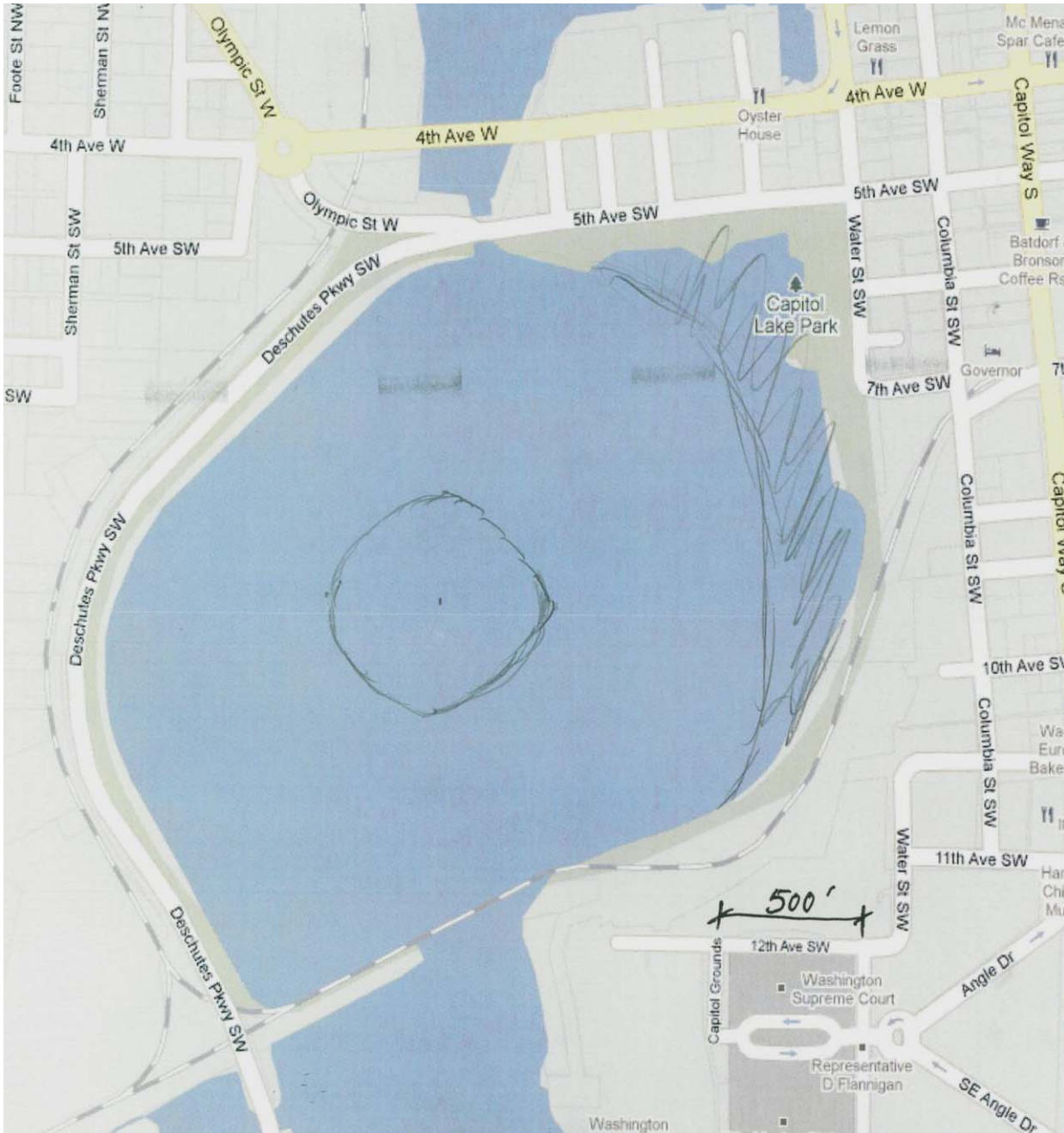


Figure 3 – Capitol Lake Pocket Dredge



500'
1" = 500'

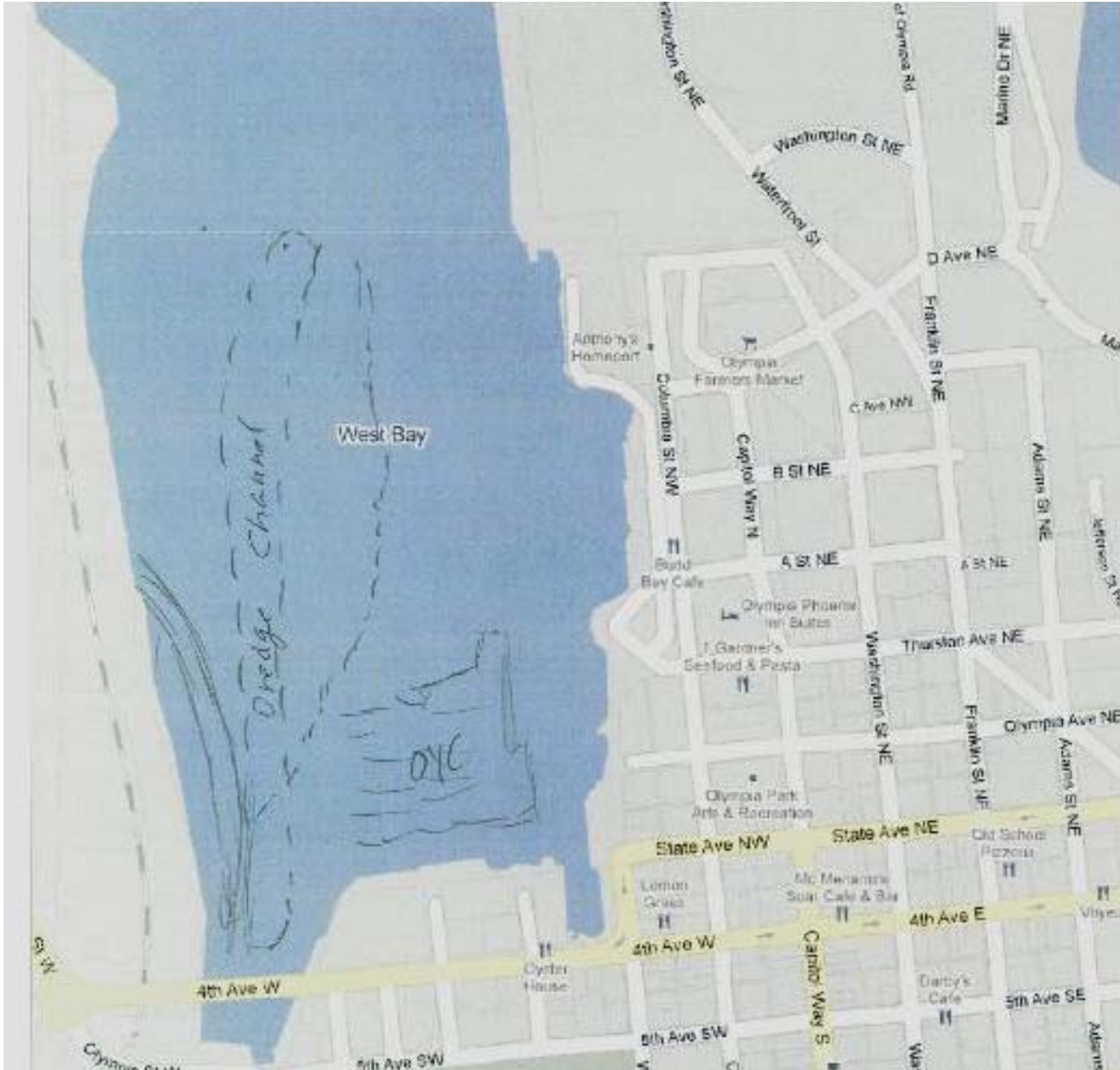
About 2,000 sq ft diameter of Lake

Pocket

700' circle = 384,650 sq ft

Depth 7' = 99,724 cubic yards

Figure 4 – Budd Inlet Boat Basin Dredge



500'
1" = 500'

Channel

100' wide x 2,500' long = 250,000 sq ft
Depth 7' = 64,814 cubic yards

OYC

700' x 1000' = 70,000 sq ft
Depth 4' = 10,370 cubic yards

Percival Landing = 10,000 cubic yards

Marinas = 15,000 cubic yards

Total = About 100,000 cubic yards



CLIPA's Financial Projections for How to Manage Capitol Lake for Future Generations

"Save the Lake – Preserve the Past, Improve the Future."

July 2010



CLIPA

Capitol Lake Improvement and Protection Association

"Save the Lake – Preserve the Past, Improve the Future."

Financial Projections – First Biennium

2011-2013 Biennium (\$4.5 million)

Based upon a preliminary estimate to be verified in the predesign study, the first biennium's activities would cost approximately \$4.5 million. A capital budget appropriation at this level will finance the predesign, sediment testing for disposal, design, permitting, project administration, and initial interim maintenance dredging of the North basin¹ of Capitol Lake. It is anticipated that this activity will establish the long-term maintenance dredging program and permits. It will also provide the necessary time to bring partners together to develop a Deschutes Watershed plan.

Predesign Elements

Predesign will focus on efforts to maintain the existing lake and the proper disposal of dredged lake sediment. We recommend a new dimension to this effort, in which the predesign study will include performance objectives and strategies to achieve long-term maintenance of Capitol Lake. The identification and quantification of scientifically-based, measurable objectives will then establish and be used as a baseline for future monitoring and public reporting by General Administration (GA) to the Legislature on a five-year cycle, timed to coincide with the expected needs for ongoing maintenance dredging.

For example, elements of the predesign study might include:

- ***Sediment removal options (for the planned maintenance dredging and future dredging options)***

For example, by explicitly identifying the lake as a sediment management "trap," and managed as such, the lake could be completely drained and dredged; it could be dredged using on-land operations; or, it could be dredged through piping out to lower Budd Inlet, and loaded onto a barge.

- ***Sediment disposal options – sites, transport methods, etc.***

For example, in any of the options above, the dredging spoils could be moved onto trucks, trains, or barges. The State has the added option of using adjacent upland acreage as a dewatering and storage area. The State would then have time (up until the next dredge, potentially up to 5 years) to market the dredging spoils as fill, potentially reducing or even eliminating the sediment disposal costs. While this might take time for the first dredge due to the contamination of purple loosestrife, future dredges would offer clean fill for landscaping and such. On-site sediment disposal options include using areas such as Percival Cove or adding to the existing wetlands in the southwest corner of the Middle basin which was created by prior dredging spoils.

¹ We capitalize each basin (North, Middle or "Mid," and South) to draw attention to each individual basin.

- ***Flooding/hydrology studies***
By explicitly identifying the lake as a vehicle for flood management, such studies might identify optimal contours of the lake, and the extent to which the three lake basins serve in conjunction with other measures to best manage for flood control.
- ***Schedule and schedule constraints (e.g., in-water work scheduled to protect aquatic resources)***
- ***Cost factors***
- ***Water quality and overall lake management, including invasive species***
The lake has not been well managed to anticipate and plan for its overall management as a body of water, nor has an overall watershed-wide plan been developed to utilize the lake features to improve upon overall quality and benefits to the ecosystem and to the community and visitors to the area.
- ***Habitat restoration***
Similarly, an overall watershed management approach should incorporate how the particular features of the lake basins and surrounds might be managed for habitat restoration. The predesign study could identify unique habitat provided by the lake and lake environment that might be enhanced, consistent with its location in an urban area connecting the upper Deschutes and lower Budd Inlet.
- ***Recreation and education/interpretation opportunities***
Increased opportunities to provide for recreation, as well as informal education and interpretation of the area should be identified. Signage providing historic “stories,” nature interpretation, and connecting the area with the Capitol Campus, along with trail walks, structured “naturescapes,” and other components could further enhance the use and enjoyment of the entire area, linking it more explicitly to the Capitol Campus, Deschutes Watershed, and Budd Inlet.
- ***Coordination of in-water work activities in lower Budd Inlet (e.g., City of Olympia Boardwalk and Percival Landing, west side development, etc.)***
Predesign should identify various activities planned by national, state, and local entities in and around the area to align with and support each other’s work, in scope, timing, and coordination.
- ***Opportunities for partnerships***
This is discussed in greater detail in CLIPA’s White Paper document.
- ***Funding strategy – e.g., Federal grants, Public/private partnerships, etc.***
For example, the proposed dredge of the lower Budd Inlet should coincide with dredges throughout that basin, with cost sharing among all beneficiaries, including the marinas, yacht club, Port of Olympia, City of Olympia, etc.

Planning and Coordination

Our recommendation is that any planning includes what we deem a necessary step of setting up a Capitol Lake/Deschutes Watershed “coordinating board” of public and private partners. Such a board is intended to provide intentional coordination and collaboration in the management of the Deschutes Watershed, and Capitol Lake's role in water quality and sediment management consistent with maintaining a healthy "lake environment." The coordinating board of public and private partners would oversee and guide the implementation of the plan for long-term sustainability and accountability.

A Water Quality and Sediment Management Plan for Capitol Lake should be a priority. It would identify improvements to and ongoing efforts needed for the long-term management of the Deschutes Watershed under the leadership of the County and the State, along with riparian and stormwater management by the cities and the Department of Transportation. The new “coordinating board” would provide routine reporting to the public on progress towards a healthy Deschutes Watershed and Capitol Lake program.

Maintenance Dredge Considerations

The intent is to obtain Corps of Engineers and State permits to authorize the interim maintenance dredge of about 100,000 cubic yards (cy) of sediment with a list of sites for disposal to be considered and selected in the predesign work. Ongoing routine and scheduled maintenance dredging would be included in the permit process. A preliminary draft plan was used to develop the attached draft budget for presentation to General Administration and to the Legislature as part of our proposed recommendations. The initial plan anticipates that the North basin of Capitol Lake would be dredged to an average depth of 13 to 15 feet (taking into account sloping bank contouring) and then be maintained at a depth that is consistent with the water quality and sediment management objectives for the lake, along with any other needs further identified during predesign (or future study and reporting).

Long-Term Strategy and Infrastructure

We recommend, and have included in our cost considerations, the incorporation of various strategies that will provide flexibility in the ongoing maintenance of Capitol Lake. Such strategies might include infrastructure needed for future dredges or “leave-behind” transition structures, such as a piping infrastructure at the dam (shown in CLIPA’s Maintenance Plan document) for piping dredges to lower Budd Inlet for barging, as possible options.

Financial Projections – Remaining 10-Year Plan

2013-2015 Biennium (\$2.4 million)

The first year of the second biennium would include maintenance dredging of approximately 110,000 cy of sediment in the marine water area between the dam and the Port Turning Basin. (This volume is slightly larger than the initial calculation from our Lake Maintenance Plan document due to approximation rounding.) This would be a joint operation with approximate dredging volumes in each area to be: 10,000 cy City of Olympia; 30,000 cy marinas and Olympia Yacht Club; 70,000 cy General Administration/lake carryover on the western side of lower Budd Inlet due to delayed maintenance dredging. If completed subsequent to the initial Capitol Lake interim maintenance dredge, the cost for the State portion is estimated to be about \$1.4 million for the 70,000 cy. Further analysis may determine that combining this dredging activity with the Capitol Lake North basin maintenance dredge in the second year of the first biennium would create economies of scale and thus cost savings. This might be an option for the Legislature to consider. If delayed much beyond this second biennium, the cost will continue to rise. The remaining costs of the approximately 40,000 cy of sediment beyond the western side of lower Budd Inlet would be paid for through cost sharing of the various public and private groups.

In addition to the estimated \$1.4 million for the Budd Inlet dredging, the State request includes \$1 million in funds for environmental enhancements and the water quality/sediment management plan implementation which would occur in the 2013-2015 biennium, as well as administrative costs for the coordinating board. Environmental, riparian, park, and trail enhancements would be subject to the location of lake sediment disposal. We recommend some of these funds be made available to the County on a matching grant basis for Deschutes Watershed enhancements specifically targeted toward up-river sediment management, water quality enhancements, and other riparian, wetland, recreation and education enhancements. The State could seek out matching federal funds for these purposes.

2015-2017 Biennium (\$200,000)

No new work is anticipated for this biennium. Any unspent funds from the prior biennium, especially from the \$1 million enhancement appropriation, may result in a reappropriation to continue and complete the environmental enhancements. \$200,000 is requested in this biennium to support ongoing water quality and sediment management monitoring and administrative costs for the coordinating board. Predesign studies in the 2011-2013 biennium could expedite maintenance dredging in the Middle basin of Capitol Lake, or identify other sediment disposal strategies, including recycling of lake sediments for landscaping objectives. Funds might be needed for GA's efforts in these areas.

2017-2019 Biennium (\$2.4 million)

Funding is requested for water quality and sediment management, and maintenance dredging of the North basin. It is estimated that on average 35,000 cy of new sediment settles into Capitol Lake from the Deschutes Watershed annually. We anticipate a 5-year routine maintenance dredging program to address this, requiring another 100,000 cy of sediment removal. Cost estimates of \$2.0 million are based on the dredging, pre-planning and permitting that occurred in 2011-2013.

However, it should be noted that any new sediment management techniques utilized upstream in the Deschutes Watershed beginning with the 2013-2015 biennium's activities stemming from the \$1 million request could reduce, perhaps significantly, sediment accumulations into Capitol Lake and either reduce the dredged material volume estimate and associated costs or extend the time period for needed maintenance dredging.

Another \$400,000 is requested for continuous improvements to the Deschutes Watershed/Capitol Lake environment, targeting water quality sampling and sediment management along with other needed improvements and enhancements, as well as administrative costs for the coordinating board.

2019-2021 Biennium (\$10-14 million)

Maintenance dredging of Capitol Lake's Middle ("Mid") basin is recommended for the 2019-2021 biennium, removing an estimated 500,000 to 700,000 cy at \$20/cy. The estimate anticipates the Mid basin would be dredged to a depth of 6 feet. This is an option, and one that we strongly recommend. Another option would be the conversion of the southern end of the Mid basin to a freshwater wetland and park area, with trails, interpretive areas, and enhanced habitat. The decision on this will be based

on the 2011-2013 Water Quality management studies, the predesign studies, and long-term sediment disposal plan and permitting program.

Note: The first dredge of the Capitol Lake North basin is estimated at \$25/cy, due to all of the “unknowns,” while subsequent dredges in the North basin and Middle basin are estimated at \$20/cy.

10-Year Dredge Cost Estimates

	2011-13	2013-15	2015-17	2017-19	2019-21	Total
Dredge North basin	4.5					4.5
Dredge Inlet/boat basin		1.4				1.4
Environmental Enhancements		1.0	0.2	0.4		1.6
Maintenance Dredge North basin				2.0		2.0
Dredge Mid basin					10-14	14.0
Total (in millions \$)	4.5	2.4	0.2	2.4	14.0	23.5

Financial Projections – Remaining 50-Year Plan

2021-2063

Capitol Lake will be managed for water quality, sediment management, habitat, and various multi-purpose uses by the community. The maintenance dredging program anticipates a five-year maintenance dredge of the "sediment trap" in Capitol Lake (North basin) of about 100,000 cy or \$2.0 million every five years, with long-term permitting planned in 2011-2013. An additional \$200,000 is included every five years for water quality and sediment management research, sampling, monitoring and reporting through the coordinating board. The plan also considers a ten-year cycle for the marine water maintenance dredging between the dam and the Port Turning Basin of about 50,000 cy or \$1.0 million. The plan does not include maintenance dredging for the Mid basin, as that will need to be determined based on the timing of the first dredge, upstream sediment management, and other considerations. The plan also does not include costs of dredging the South basin. We advocate for that work, believing it might best be done in the second decade. However, there is much to consider in these cost estimates, beyond the information we presently have available. We recommend the predesign study consider these activities and their costs as potential options in the out-going years after the first decade.

Subject to the water quality management objectives and the ability to manage sediment upstream, the amount of sediment removal should continue to be reduced, reducing overall costs and extending the timing of dredges. The cost estimate of \$20/cy is used with the premise that the long-term maintenance and permitting issues would be addressed in 2011-2013. The total cost of this 40-year span (years 11 – 50) would be about \$18.0 million for the lake, \$1.8 million for environmental monitoring and enhancement, and \$4.0 million for the marina/small boating area of lower Budd Inlet.

Summary

The 50-year cost of this program is anticipated to range from about \$43.3 to \$47.3 million using the above assumptions and estimates. The assumptions include the accepted State approach for some contingency budgeted. A more rigorous long-term budget will be verified after the predesign studies and permitting program, which provides for routine maintenance dredging, are outlined and negotiated.

As part of the coordinating board’s work in the first few years, a cost sharing approach should be identified and implemented to ensure that the entire lower Budd Inlet boat basin dredging occurs simultaneously, and thereafter the maintenance dredges reflect a cost sharing in an equitable manner by the State, City, Port, marinas, and Yacht Club. For example, the marinas and Yacht Club pay the State for lease costs (funds are deposited in the Aquatic Lands Enhancement Account), and these funds could be appropriated by the State to partially fund some of the coordinating board’s ongoing activities.

50-Year Dredge Cost Estimates

(Years 11-50 shown here; bienniums with \$0 cost not shown; totals include the first decade, above)

	2021-23	2023-25	2027-29	2031-33	2033-35	2037-39	2041-43
Dredge North basin							
Dredge Inlet/boat basin							
Environmental Enhancements	0.2		0.2	0.2		0.2	0.2
Maintenance Dredge North basin	2.0		2.0	2.0		2.0	2.0
Dredge Mid basin							
Maintenance Dredge Inlet/boat basin		1.0			1.0		
Total (in millions)	2.2	1.0	2.2	2.2	1.0	2.2	2.2

	2043-45	2047-49	2051-53	2053-55	2057-59	2061-63	Total
Dredge North basin							4.5
Dredge Inlet/boat basin							1.4
Environmental Enhancements		0.2	0.2		0.2	0.2	3.4
Maintenance Dredge North basin		2.0	2.0		2.0	2.0	20.0
Dredge Mid basin							14.0
Maintenance Dredge Inlet/boat basin	1.0			1.0			4.0
Total (in millions)	1.0	2.2	2.2	1.0	2.2	2.2	47.3

Capitol Lake Project Cost Summary

STATE OF WASHINGTON AGENCY/INSTITUTION PROJECT COST SUMMARY		
Agency	Department of General Administration	
Project Name	Capitol Lake Maintenance - Phase I	
Project Number		

Contact Information	
Analysis Date	4/1/2010
Analysis By	CLIPA
Contact Phone Number	866-0251

Statistics	Primary	Secondary	Total
Gross Square Feet	0	0	0
Net Square Feet	0	0	0
Efficiency	0%	0%	0%
Escalated MACC Cost per Sq.Ft.	0	0	0
Building Type			
Is project a remodel?			
A/E Fee Class			
A/E Fee Percentage			

Schedule	Start Date	End Date
Predesign (mm-yyyy)	Jul-2011	Jan-2012
Design (mm-yyyy)	Jan-2012	Jun-2012
Construction (mm-yyyy)	Aug-2011	Dec-2011
Construction Duration (months)	4	

Cost Summary	
Project Phase	Escalated Cost
Project Total	\$4,473,000
Consultant Services	\$775,000
Pre-Schematic Design Services	\$212,000
A/E Basic Design Services	\$158,000
A/E Extra Services/Reimbursables	\$264,000
Other Services	\$71,000
Design Services Contingency	\$70,000

Construction	\$3,677,000
MACC - Primary	\$2,932,000
MACC - Secondary	\$0
GC/CM Risk Contingency	\$0
GC/CM or Design Build	\$0
Contingencies	\$443,000
Sales Tax	\$302,000
Other	\$21,000
Acquisition	\$0
Equipment	\$0
Equipment Tax	\$0
Artwork	\$0
Agency Project Administration	\$0
Other	\$21,000

Other Details	
Number of C100s Included in Summary	1
Alternative Public Works Project	
State Construction Inflation Rate	
Base Month	
Project Administration by	
Project Admin Impact to GA that is NOT included in Project Total	

Capitol Lake Project Cost Estimate Detail

STATE OF WASHINGTON AGENCY/INSTITUTION PROJECT COST ESTIMATE	FORM CTC Cost Est. Version 2.62 August 1, 2007
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AGENCY:	Department of General Administration	Analysis Date:	4/1/2010
PROJECT NAME:	Capitol Lake Maintenance - Phase I	Analysis By:	CLIPA
PROJECT NUMBER:		Contact Phone #:	360-866-0251
LOCATION:			

STATISTICS:	Primary	Secondary
Gross Square Feet		
Net Square Feet		
Efficiency	0%	0%
Estimated Cost per S.F.	0	0
Building Type:	Other Schedule C Projects	
Is project a remodel?	No	No
A/E Fee Class	C	
A/E Fee Percentage:	7.78%	0.00%

Project Schedule	Start Date	End Date
1. Pre-design (mm-yyyy):	Jul-2011	Jan-2012
2. Design (mm-yyyy):	Jan-2012	Jun-2012
3. Construction (mm-yyyy):	Aug-2011	Dec-2011
5. Construction Duration (in Months):	5	
State Construction Inflation Rate:	3.50%	
Base Month:	Apr-2010	

Project Cost Summary	
Primary MACC (escalated):	\$2,932,000
Secondary MACC (escalated):	\$0
Current Project Total:	\$4,261,188
Escalated Project Total:	\$4,473,000

Contingency Rate:	10.00%
Management Reserve:	5.00%
Tax Rate:	8.90%
Art Requirement Applies:	No
Project Admin by GA:	Yes
Higher Ed. Institution:	No
Alternative Public Works Project:	No

Includes Formula Overrides:	No
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ITEM	BASE MONTH AMOUNT	STANDARD FORMULA	ESCALATION FACTOR	ESCALATED COST
A. ACQUISITION COSTS				
1 Purchase/Lease Cost				
2 Appraisal and Closing Costs				
3 Right-of-Way Costs				
4 Offsite Mitigation				
5				
Total: Acquisition Costs	\$0		1.0000	\$0

B.	CONSULTANT SERVICES			
1	Pre-Schematic Design Services			
	a. Programming/Site Analysis			
	b. Environmental Analysis			
	c. Predesign Study	\$200,000		
	SubTotal: Pre-Schematic Design Services	\$200,000	1.0622	\$212,000
2	Construction Documents			
	a. A/E Basic Design Services - Up to Bidding (69%)	\$150,299	\$150,299	
	b. A/E Basic Design Services - Secondary (69%)	\$0	\$0	
	SubTotal: Construction Documents	\$150,299	1.0545	\$158,000
3	Extra Services			
	a. Civil Design (Above Basic Services)	\$100,000		
	b. Geotechnical Investigation	\$20,000		
	c. Commissioning			
	d. Site Survey	\$20,000		
	e. Testing	\$20,000		
	f. Energy Conservation Report			
	g. Voice/Data Consultant			
	h. VE Participation & Implementation			
	i. Constructability Review Participation			
	j. Environmental Mitigation Services (EIS)	\$20,000		
	k. Landscape Consultant	\$50,000		
	l. Biology Consultant	\$20,000		
	SubTotal: Extra Services	\$250,000	1.0545	\$264,000
4	Other Services			
	a. Bid/Construction/Closeout - 31% of basic services	\$67,526	\$67,526	
	b. Bid/Construction/Closeout - Secondary	\$0	\$0	
	c. HVAC Balancing			
	d. Commissioning and Training			
	SubTotal: Other Services	\$67,526	1.0544	\$71,000
5	Design Services Contingency	10.00%	\$66,783	\$66,783
	a.			
	SubTotal: Design Services Contingency		\$66,783	1.0544 \$70,000
Total: Consultant Services			\$734,608	\$775,000
C.	CONSTRUCTION CONTRACTS			
1	Site Work			
	a. G10 - Site Preparation			
	b. G20 - Site Improvements			
	c. G30 - Site Mechanical Utilities			
	d. G40 - Site Electrical Utilities			
	e. G60 - Other Site Construction			
	f. Mobilization & Demobilization	\$200,000		
	g. Dredging	\$2,500,000		
	SubTotal: Site Work	\$2,700,000	1.0470	\$2,827,000

2	Related Project Costs			
a.	Off site improvements			
b.	City Utilities Relocation			
c.	Parking Mitigation			
d.	Stormwater Retention/Detention			
e.	Wetland Mitigation	\$100,000		
	SubTotal: Related Project Costs	\$100,000	1.0470	\$105,000
3A	Facility Construction - Primary			
a.	A10 - Foundations			
b.	A20 - Basement Construction			
c.	B10 - Superstructure			
d.	B20 - Exterior Closure			
e.	B30 - Roofing			
f.	C10 - Interior Construction			
g.	C20 - Stairs			
h.	C30 - Interior Finishes			
i.	D10 - Conveying			
j.	D20 - Plumbing Systems			
k.	D30 - HVAC Systems			
l.	D40 - Fire Protection Systems			
m.	D50 - Electrical Systems			
n..	F10 - Special Construction			
o..	F20 - Selective Demolition			
p.	General Conditions			
	SubTotal: Facility Construction - Primary	\$0	1.0544	\$0
	Maximum Allowable Construction Cost (MACC) - Primary	\$2,800,000		\$2,932,000
3B	Facility Construction -Secondary (By Building System)			
a.	A10 - Foundations			
b.	A20 - Basement Construction			
c.	B10 - Superstructure			
d.	B20 - Exterior Closure			
e.	B30 - Roofing			
f.	C10 - Interior Construction			
g.	C20 - Stairs			
h.	C30 - Interior Finishes			
i.	D10 - Conveying			
j.	D20 - Plumbing Systems			
k.	D30 - HVAC Systems			
l.	D40 - Fire Protection Systems			
m.	D50 - Electrical Systems			
n..	F10 - Special Construction			
o..	F20 - Selective Demolition			
p.	General Conditions			
	SubTotal: Facility Construction -Secondary (By Building System)	\$0	1.0544	\$0

	Maximum Allowable Construction Cost (MACC) - Secondary		\$0		\$0
4	GC/CM Risk Contingency				
	SubTotal: GC/CM Risk Contingency		\$0	1.0544	\$0
4	GC/CM Risk Contingency - NOT APPLICABLE				
5	GC/CM or Design Build Costs				
	a. Preconstruction Services				
	b. Fee				
	c. Bid General Conditions				
	SubTotal: GC/CM or Design Build Costs		\$0	1.0544	\$0
5	GC/CM or Design Build Costs - NOT APPLICABLE				
6	Construction Contingencies				
	a. Management Reserve	5.00%	\$140,000	\$140,000	
	b. Allowance for Change Orders	10.00%	\$280,000	\$280,000	
	c.				
	SubTotal: Construction Contingencies		\$420,000	1.0544	\$443,000
7	Sales Tax	8.90%	\$286,580	\$286,580	
	a.				
	SubTotal: Sales Tax		\$286,580	1.0544	\$302,000
Total: Construction Contracts			\$3,506,580		\$3,677,000
D.	EQUIPMENT				
1	E10 - Equipment				
2	E20 - Furnishings				
3	F10 - Special Construction				
4					
	SubTotal: Equipment		\$0	1.0544	\$0
99	Sales Tax	8.90%	\$0	\$0	
100					
	SubTotal: Sales Tax		\$0	1.0544	\$0
Total: Equipment			\$0		\$0
E.	ARTWORK				
1	Project Artwork		N/A	N/A	
2	Higher Education Artwork		N/A	N/A	
Total: Artwork			\$0	1.0000	\$0

F. OTHER COSTS				
1	Mitigation Costs			
2	Hazardous Material Remediation/Removal			
3	Permits	\$20,000		
Total: Other Costs		\$20,000	1.0470	\$21,000
G. PROJECT MANAGEMENT				
1	Agency Project Management	\$0	\$0	
2				
Total: Project Management		\$0	1.0000	\$0
GRAND TOTAL		\$4,261,188		\$4,473,000
<p>NOTES Assumes 100,000 CY of material from North Basin to be dredged, with the marketing of the dredge spoils to other vendors or for use within the Capitol Lake/Deschutes watershed area.</p>				