Exhibit 5

SHORELINE RESTORATION PLAN

For the City of Mercer Island Shoreline Master Program

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SHORELINE RESTORATION PLAN

FOR CITY OF MERCER ISLAND
SHORELINE MASTER PROGRAM

1 INTRODUCTION

A jurisdiction's Shoreline Master Program applies to activities in the jurisdiction's shoreline zone. Activities that have adverse affects on the ecological functions and values of the shoreline must provide mitigation for those impacts. By law, the proponent of that activity is not required to return the subject shoreline to a condition that is better than the baseline level at the time the activity takes place. How then can the shoreline be improved over time in areas where the baseline condition is severely, or even marginally, degraded?

Section 173-26-201(2)(f) WAC of the Shoreline Master Program Guidelines[1] says:

> "master programs shall include goals and policies that provide for restoration of such impaired ecological functions. These master program provisions shall identify existing policies and programs that contribute to planned restoration goals and identify any additional policies and programs that local government will implement to achieve its goals. These master program elements regarding restoration should make real and meaningful use of established or funded nonregulatory policies and programs that contribute to restoration of ecological functions, and should appropriately consider the direct or indirect effects of other regulatory or nonregulatory programs under other local, state, and federal laws, as well as any restoration effects that may flow indirectly from shoreline development regulations and mitigation standards."

However, degraded shorelines are not just a result of pre-Shoreline Master Program activities, but also of unregulated activities and exempt development. The new Guidelines also require that "[l]ocal master programs shall include regulations ensuring that exempt development in the aggregate will not cause a net loss of ecological functions of the shoreline." While some actions within shoreline jurisdiction are exempt from a permit, the Shoreline Master Program should clearly state that those actions are

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[1] The Shoreline Master Program Guidelines were prepared by the Washington Department of Ecology and codified as WAC 173-26. The Guidelines translate the broad policies of the Shoreline Management Act (RCW 90.58.020) into standards for regulation of shoreline uses. See http://www.ecy.wa.gov/programs/sea/sma/guidelines/index.html for more background.

not exempt from compliance with the Shoreline Management Act or the local Shoreline Master Program. Because the shoreline environment is also affected by activities taking placed outside of a specific local master program's jurisdiction (e.g., outside of city limits, outside of the shoreline zone within the city), assembly of out-of-jurisdiction actions, programs and policies can be essential for understanding how the City fits into the larger watershed context. The latter is critical when establishing realistic goals and objectives for dynamic and highly inter-connected environments.

As directed by the Guidelines, the following discussions provides a summary of baseline shoreline conditions, lists restoration goals and objectives, and discusses existing or potential programs and projects that positively impact the shoreline environment. Finally, anticipated scheduling, funding, and monitoring of these various comprehensive restoration elements are provided. In total, implementation of the Shoreline Master Program (with mitigation of project-related impacts) in combination with this Restoration Plan (for restoration of lost ecological functions that occurred prior to a specific project) should result in a net improvement in the City of Mercer Island's shoreline environment in the long term.

In addition to meeting the requirements of the Guidelines, this Restoration Plan is also intended to support the City's or other non-governmental organizations' applications for grant funding, and to provide the interested public with contact information for the various entities working within the City to enhance the environment.

2 SHORELINE INVENTORY SUMMARY

2.1 Introduction

The City conducted a comprehensive inventory of its Lake Washington shoreline in 2008. The purpose of the shoreline inventory was to facilitate the City of Mercer Island's compliance with the State of Washington's Shoreline Management Act (SMA) and updated Shoreline Master Program Guidelines. The inventory describes existing physical and biological conditions in the Lake Washington shoreline zone within City limits, including recommendations for restoration of ecological functions where they are degraded. The full Final Shoreline Analysis Report is included as an appendix to the Shoreline Master Program, and is summarized below.

2.2 Shoreline Boundary

As defined by the Shoreline Management Act of 1971, shorelines include certain waters of the state plus their associated "shorelands." Shorelands are defined as:

> "those lands extending landward for 200 feet in all directions as measured on a horizontal plane from the ordinary high water mark; floodways and contiguous floodplain areas landward 200 feet from such floodways; and all wetlands and river deltas associated with the streams, lakes, and tidal waters which are subject to the provisions of this chapter…Any county or city may determine that portion of a one-hundred-year-floodplain[2] to be included in its master program as long as such portion includes, as a minimum, the floodway and the adjacent land extending landward two hundred feet therefrom (RCW 90.58.030)"

Shorelands in the City of Mercer Island include only areas within 200 feet of the ordinary high water mark, as established by the U.S. Army Corps of Engineers for Lake Washington, and any associated wetlands within shoreline jurisdiction. As part of the shoreline jurisdiction assessment, there were two wetlands identified in Luther Burbank Park that extend the shoreline jurisdiction beyond 200 feet from the Lake Washington ordinary high water mark (Figure 1). Lake Washington does not have a floodway or floodplain.

Figure 1: Mercer Island Shoreline Jurisdiction Including Associated Wetlands (inset)

[2] According to RCW 173-220-030, 100-year floodplain is "that land area susceptible to being inundated by stream derived waters with a one percent chance of being equaled or exceeded in any given year. The limit of this area shall be based upon flood ordinance regulation maps or a reasonable method which meets the objectives of the act;"

2.3 Inventory

The shoreline inventory is divided into five main sections: Introduction, Current Regulatory Framework Summary, Shoreline Inventory, Analysis of Ecological Functions and Ecosystem-wide Processes, Land Use Analysis and Shoreline Management Recommendations. The City's -shoreline jurisdiction is divided into two segments: Urban Residential, and Urban Park. These segments are based on existing land use and zoning, as well as the City's current environment designations.

2.3.1 Land Use and Physical Conditions

Existing Land Use

In general, the City of Mercer Island shoreline area is fully developed. The few areas not occupied by single or multi-family residential uses are either private recreation clubs, vacant lots, City parks or landings. With the possible exception of limited additional residential lands being acquired for public open space, land uses along the shoreline are not expected to change over the next 20 years, although re-builds, substantial remodels and some redevelopment of single-family residential are anticipated. The City's shoreline is predominately zoned single-family residential (R-8.4, R-9.6, R-12 and R-15). Residential and private club uses (Urban Residential designation) comprise 90.4 percent of the City's shoreline area, Luther Burbank Park (Urban Park designation) comprises 6 percent, and public recreation and open space (Urban Park designation) comprise the remaining 3.6 percent of the shoreline area. There are five City parks, one City boat launch, two private recreational clubs, and one private retirement facility on the waterfront. There are also 13 City-owned street ends ("landings") located within the shoreline area. The Mercerwood Shore Club and Mercer Island Beach Club are private waterfront recreation clubs that include clubhouses, picnic areas, swimming beaches, tennis and fitness facilities, boat moorage, and other amenities. Covenant Shores retirement center includes private boat moorage and other similar private recreational opportunities. There are 57 privately owned lots (roughly 6%) within the shoreline jurisdiction that are considered vacant or undeveloped, 44 of which are along the shoreline. Of those 44 properties, only 10 have development potential.

Parks and Open Space/Public Access

There are a number of opportunities to access the Mercer Island waterfront, whether at public parks, landings or the City boat launch. Luther Burbank Park is the City's largest multi-use park and is considered the crown jewel of the park system (Figure 2). The park is 77 acres and includes a swimming beach, public boat

Figure 2: Luther Burbank Park

dock, public fishing pier, former Luther Burbank School brick dormitory, steam plant and dairy ruins, trails, off-leash dog area, and other groomed and wooded areas. Calkins Point, located on the north end of the park, has been slowly eroding away and has been identified by the City as a high-priority for shoreline restoration.

Other parks located along the shoreline include Clarke Beach (Figure 3), Groveland Beach, Slater Park, and Park on the Lid. These parks provide multiple opportunities for water-related recreational uses, including swimming, fishing, picnicking, and active and passive recreation. Mercer Island Boat Launch is located along the City's northeast shore and provides a Lakes-to-Locks Water Trail Launch and Landing Site.

Figure 3: Clark Beach Park

There are 13 street-end public rights-of-way into public spaces and parks that provide access to the waterfront. The landings, which vary in the level of development, include swimming and fishing areas, boat launch facilities and docks. A few of the landings remain undeveloped and provide opportunities for future restoration or improvements.

Shoreline Modifications

The Mercer Island shoreline is heavily modified with close to 78 percent of the shoreline armored at or near the ordinary high water mark and a pier density of approximately 47.5 overwater structures per mile. This compares to 71 percent armored and 36 piers per mile for the entire Lake Washington shoreline. Thus, for Mercer Island, both pier density and shoreline armoring are slightly higher than the lake-wide figures. Many of the piers have one or more boatlifts.

As expected, the Urban Residential segment has the most altered shoreline, with 82 percent armored with either vertical or boulder bulkheads. The Urban Park segment is 35 percent armored. It is not uncommon around Lake Washington for some historic fills to be associated with the original bulkhead construction, usually to create a more level or larger yard. Most of these shoreline fills occurred at the time that the lake elevation was lowered during construction of the Hiram Chittenden Locks.

Also as expected, the highest amount of overwater cover per lineal foot of shoreline can be found in the Urban Residential segment. This can be attributed to the presence of a

number of residential homes within this segment, as well as two beach clubs which have marinas.
The full shoreline inventory includes a more in-depth of discussion of the above topics, as well as information about transportation, stormwater and wastewater utilities, impervious surfaces, and historical/archaeological sites, among others.

2.3.2 Biological Resources and Critical Areas

With the exception of some portions of the shoreline along Luther Burbank Park (Urban Park), the shoreline zone itself is generally deficient in high-quality biological resources and critical areas, primarily because of the extensive residential development and its associated shoreline modifications. There are a number of City parks along the shoreline, but a majority of these are mostly well manicured and include extensive shoreline armoring or pier and dock structures. The highest-functioning shoreline area is Luther Burbank Park, which contains a majority of the City's last unaltered shoreline. There are also a few City-owned landings which are undeveloped, but these are surrounded by residential development and do not cover an extensive area of the shoreline area. Virtually all of the Mercer Island shoreline is encumbered by geologically hazard areas, including seismic, erosion and landslide areas. According to City data, there are two wetlands inventoried within shoreline jurisdiction, both of which are located in Luther Burbank Park. There are a number of streams that discharge into Lake Washington, including 39 perennial streams, 13 of which have been identified as having potential for fish use near their mouth to Lake Washington. These streams are used by Chinook, coho, and sockeye salmon, as well as cutthroat trout. Many of the smaller tributaries to Lake Washington originate as hillside seeps or springs and flow seasonally or during periods of heavy rains. Many of these smaller systems are piped at some point and discharge directly to Lake Washington via a closed system. These streams have been impacted extensively by basin development, resulting in increased peak flows, unstable and eroding banks, loss of riparian vegetation, and fish and debris passage barriers. These changes have altered their contributions of sediment, organic debris, and invertebrates into Lake Washington.

WDFW mapping of Priority Habitat and Species (WDFW 2008) also indicates the presence of other Fish and Wildlife Habitat Conservation Areas within and adjacent to the shoreline zone. These include historic and current bald eagle nest locations, wetlands, and urban natural open space (parks and other green spaces). Segments B and C, Urban Park and Urban Residential respectively, generally do not contain any significant fish or other wildlife habitats other than Lake Washington. Extensive residential and park development, which includes landscaping and shoreline modifications, has removed much of the potential for riparian habitat.

3 RESTORATION GOALS AND OBJECTIVES

According to the Lake Washington/Cedar/Sammamish Watershed (WRIA) Near-Term Action Agenda For Salmon Habitat Conservation, Lake Washington suffers from "Altered trophic interactions (predation, competition), degradation of riparian shoreline conditions, altered hydrology, invasive exotic plants, poor water quality (phosphorus, alkalinity, pH), [and] poor sediment quality" (WRIA 8 Steering Committee 2002). Mercer Island's Final Shoreline Analysis Report (The Watershed Company 2009) provides supporting information that validates these claims specifically in the City's shoreline jurisdiction. The WRIA 8 Action Agenda established four "ecosystem objectives," which are intended to guide development and prioritization of restoration actions and strategies. The objectives are as follows:

- "Maintain, restore, or enhance watershed processes that create habitat characteristics favorable to salmon.
- Maintain or enhance habitat required by salmon during all life stages and maintain functional corridors linking these habitats.
- Maintain a well-dispersed network of high-quality refuge habitats to serve as centers of population expansion.
- Maintain connectivity between high-quality habitats to allow for population expansion into recovered habitat as degraded systems recover."

The WRIA 8 restoration objectives, in combination with the results of the City's Final Shoreline Analysis Report, the direction of Ecology's Shoreline Master Program Guidelines, and the City's commitment (Appendix A) to support the Final Lake Washington/Cedar/Sammamish Watershed (WRIA 8) Chinook Salmon Conservation Plan, are the foundation for the following goals and objectives of the City of Mercer Island's restoration strategy. Although the WRIA 8 Action Agenda and the Final Lake Washington/Cedar/Sammamish Watershed (WRIA 8) Chinook Salmon Conservation Plan are salmon-centered, pursuit of ecosystem-wide processes and ecological functions performance that favors salmon generally captures those processes and functions that benefit all fish and wildlife.

Goal 1 – Maintain, restore or enhance watershed processes, including sediment, water, wood, light and nutrient delivery, movement and loss.

Goal 2 – Maintain or enhance fish and wildlife habitat during all life stages and maintain functional corridors linking these habitats.

Goal 3 – Contribute to conservation and recovery of chinook salmon and other anadromous fish, focusing on preserving, protecting and restoring habitat with the intent to recover listed species, including sustainable, genetically diverse, harvestable populations of naturally spawning chinook salmon.

System-wide restoration objectives

- Continue to work collaboratively with other jurisdictions and stakeholders in WRIA 8 to implement the Final Lake Washington/Cedar/Sammamish Watershed (WRIA 8) Chinook Salmon Conservation Plan.
- Use the scientific foundation and the conservation strategy as the basis for local actions recommended in the Chinook Salmon Conservation Plan and as one source of best available science for future projects, ordinances, and other appropriate local government activities.
- Use the comprehensive list of actions, and other actions consistent with the Chinook Salmon Conservation Plan, as a source of potential site-specific projects and land use and public outreach recommendations.
- Use the start-list to guide priorities for regional funding in the first ten years of Chinook Salmon Conservation Plan implementation, and implementing start-list actions through local capital improvement projects, ordinances, and other activities.
- Seek funding for various restoration actions and programs from local sources and by working with other WRIA 8 jurisdictions and stakeholders to seek federal, state, grant and other funding opportunities.
- Develop a public education plan to inform private property owners in the shoreline zone and in the remainder of the City about the effects of land management practices and other unregulated activities (such as vegetation removal, pesticide/herbicide use, car washing) on fish and wildlife habitats.

Lake Washington restoration objectives

- Improve Lake Washington and Lake Washington tributary stream health by managing the quality and quantity of stormwater runoff, consistent at a minimum with the latest Washington Department of Ecology Stormwater Management Manual for Western Washington. Make any additional efforts to meet and maintain state and county water quality standards in Lake Washington tributary streams.
- Improve Lake Washington tributary stream health by eliminating man-made barriers to anadromous fish passage, preventing the creation of new barriers, and providing for transport of water, sediment and organic matter at all stream crossings.
- Improve Lake Washington and Lake Washington tributary stream health by identifying hardened and eroding lakeshores and streambanks, and correcting to the extent feasible with bioengineered stabilization solutions.
- Improve Lake Washington and Lake Washington tributary stream health by increasing large woody debris recruitment potential through plantings of

trees in the riparian corridors, particularly conifers. Where feasible, install large woody debris to meet short-term needs.

- Increase quality, width and diversity of native vegetation in protected corridors adjacent to stream and lake habitats to provide safe migration pathways for fish and wildlife, food, nest sites, shade, perches, and organic debris. Strive to control non-indigenous plants or weeds that are proven harmful to native vegetation or habitats.
- Reconnect and enhance small creek mouths as juvenile rearing areas.
- Habitat in small Lake Washington tributaries, such as those in the City of Mercer Island, should be restored for coho so that production of cutthroat trout, which prey on juvenile chinook salmon in Lake Washington, is reduced.
- Decrease the amount and impact of overwater and in-water structures through minimization of structure size and use of innovative materials such as grated decking.
- Participate in lake-wide efforts to reduce populations of non-native aquatic vegetation.

4 List of Existing and Ongoing Projects and Programs

The following series of existing projects and programs are generally organized from the larger watershed scale to the City-scale, including City projects and programs and finally non-profit organizations that are also active in the Mercer Island area.

4.1 Water Resource Inventory Area (WRIA) 8 Participation

Mercer Island has taken advantage of outreach and education offered by WRIA 8 staff on salmon-friendly shoreline landscape design. Mercer Island continues to be involved in the Forum at both the elected official and staff level. The City was one of 27 members of the WRIA 8 Forum, which participated in financing and developing the Final Lake Washington/Cedar/Sammamish Watershed (WRIA 8) Chinook Salmon Conservation Plan. The Chinook Salmon Conservation Plan includes the City of Mercer Island's implementation commitment in the form of City Council Resolution 1347, approved September 6, 2005 (Appendix A).

The City's preparation of the Shoreline Analysis Report Including Shoreline Inventory and Characterization of the City of Mercer Island's Lake Washington Shoreline (The Watershed Company 2009) and this Shoreline Restoration Plan are important steps

toward furthering the goals and objectives of the WRIA 8 Chinook Salmon Conservation Plan. The City's Shoreline Master Program update products rely heavily on the science included in the WRIA 8 products, and incorporate recommended actions from the WRIA 8 products (Table 1).

To review, the WRIA 8 Steering Committee's mission and goal statements state that the Plan shall: 1) recognize that local governments are key implementing entities for the plan, because of their responsibilities for land use, 2) direct most future population growth to already urbanized areas, because new development has greater negative effects on hydrology and ecological health of streams in rural than in urban areas, 3) create incentives for behavior that would support Plan goals, and 4) be coordinated with the Growth Management Act, local and regional responses to the Clean Water Act, other environmental laws and past/current planning efforts.

The Plan presents an Action Start-List that attempts to compile the land use, site-specific habitat protection and restoration projects, and public outreach and education recommendations into a single strategy list which focuses watershed priorities yet also provides a manageable number of actions. Conservation priority actions identified for WRIA 8 chinook salmon habitat within Lake Washington included in the Plan are as follows:

- Reduce predation on juvenile migrants in Lake Washington by providing increased rearing and refuge opportunities.
- Restore shallow water habitats and creek mouths for juvenile rearing and migration.

Table 1. The *Final Lake Washington/Cedar/Sammamish Watershed (WRIA 8) Chinook Salmon Conservation Plan* Action Start-List for Lake Washington and Status of Implementation in the City of Mercer Island

Action Item	**Mercer Island Implementation**
Reduce predation to outmigrating juvenile chinook by: reducing bank hardening, restoring overhanging riparian vegetation, replacing bulkhead and rip-rap with sandy beaches with gentle slopes, and use of mesh dock surfaces and/or community docks.	
Encourage salmon friendly shoreline design during new construction or redevelopment by offering incentives and regulatory flexibility to improve bulkhead and dock design and revegetate shorelines.	The proposed SMP includes provisions that ensure salmon friendly shoreline design for new construction and redevelopment, including requirements for grated decking and shoreline vegetation… The City has done two projects demonstrating these techniques at public Right of Way street ends on the

Action Item	Mercer Island Implementation
	shoreline. The recently completed shoreline restoration at Luther Burbank Park also demonstrates salmon friendly shoreline design.
Increase enforcement and address nonconforming structures over long run by requiring that major redevelopment projects meet current standards.	Code enforcement is responsible for enforcing regulations which address public health and safety issues, including regulations related to rubbish, garbage, specific nuisances, removal of vegetation, zoning, housing, dangerous buildings, and inoperable and unlicensed vehicles on private property. Enforcement actions are taken both proactively and in response to requests for action received from citizens. The City has not recently updated its code enforcement.
Discourage construction of new bulkheads; offer incentives (e.g., provide expertise, expedite permitting) for voluntary removal of bulkheads, beach improvement, riparian revegetation.	The proposed SMP includes provisions that discourage construction of new bulkheads by limiting new bulkheads to only those properties that can show a demonstrated need through a geotechnical analysis~~…~~.
Support joint effort by NOAA Fisheries and other agencies to develop dock/pier specifications to streamline federal/state/local permitting; encourage similar effort for bulkhead specifications.	The City has been coordinating on a regular basis with state and federal agencies to help develop consistent pier and bulkhead design standards, including coordination with adjacent jurisdictions.
Promote value of light-permeable docks, smaller piling sizes, and community docks to both salmon and landowners through direct mailings to lakeshore landowners or registered boat owners sent with property tax notice or boat registration tab renewal.	The City has hosted workshops for lakeshore owners which has highlighted the value of eco-friendly pier construction. This includes King County Lakeshore Living and Greenshorelines workshops.
Develop workshop series specifically for lakeshore property owners on lakeside living: natural yard care, alternatives to vertical wall bulkheads, fish friendly dock design, best management practices for aquatic weed control, porous paving, and environmentally friendly methods of maintaining boats, docks, and decks.	King County has led this effort. As mentioned above, the City has hosted workshops on this topic in the past (Lakeshore Living and Greenshorelines). This work is expected to continue in the near future.
Protect and restore water quality in tributaries and along shoreline. Restore coho runs in smaller tributaries as control mechanism to reduce the cutthroat population. Reconnect and enhance small creek mouths as juvenile rearing areas.	

Action Item	Mercer Island Implementation
Address water quality and high flow impacts from creeks and shoreline development through NPDES Phase 1 and Phase 2 permit updates, consistent with Washington Department of Ecology's 2001 Stormwater Management Manual, including low impact development techniques, on-site stormwater detention for new and redeveloped projects, and control of point sources that discharge directly into the lakes.	The City currently implements Ecology's 2005 *Stormwater Management Manual for Western Washington* through its NPDES Phase 2 permit. The NPDES Phase II permit is required to cover the City's stormwater discharges into regulated lakes and streams. Under the conditions of the permit, the City must protect and improve water quality through public education and outreach, detection and elimination of illicit non-stormwater discharges (e.g., spills, illegal dumping, wastewater), management and regulation of construction site runoff, management and regulation of runoff from new development and redevelopment, and pollution prevention and maintenance for municipal operations.
Encourage low impact development through regulations, incentives, education/training, and demonstration projects.	The Comprehensive Plan and the proposed SMP contain provisions which promote LID, including allowance of storm water strategies that minimize the creation of impervious surfaces, and measures to minimize the disturbance of native soils and vegetation. The City has already identified a short list of good candidates for LID demonstration projects at City facilities that will be completed in the future.
Protect and restore water quality and other ecological functions in tributaries to reduce effects of urbanization and reduce conditions which encourage cutthroat. Protect and restore forest cover, riparian buffers, wetlands, and creek mouths by revising and enforcing critical areas ordinances and Shoreline Master Programs, incentives, and flexible development tools.	The City updated the Critical Areas Ordinance in 2005. Management of the City's critical areas using these regulations should help insure that ecological functions and values are not degraded, and impacts to critical areas are mitigated. The City also coordinates ongoing Maintenance activities, specifically with drainage basins, with open spaces improvements on adjoining properties. The City currently implements the 2004 Open Space Vegetation Plan (City of Mercer Island 2004) which promotes

Action Item	Mercer Island Implementation
	funding to support eradication and control of invasive and non-native plants.
Promote through design competitions and media coverage the use of "rain gardens" and other low impact development practices that mimic natural hydrology.	The City actively promotes rain garden and LID education through local news media and support for ongoing workshops.

4.2 Comprehensive Plan Policies

The City updated its Comprehensive Plan on July 5, 2005. The updated Comprehensive Plan, specifically the Conservation Element of the Shoreline Goals and Policies, contains a number of general and specific goals and policies that direct the City to permit and condition development in such a way that the natural environment is preserved and enhanced. The specific goals and policies include:

Goal: The resources and amenities of Lake Washington are to be protected and preserved for use and enjoyment by present and future generations.

Policy 1: Existing natural resources should be conserved, consistent with private property rights.

Policy 2: Existing and future activities on Lake Washington and its shoreline should be designed to minimize adverse effects on the natural systems.

Policy 3: Uses or activities within all drainage basins related to Lake Washington should be considered as an integral part of shoreline planning.

Policy 4: Shoreline areas having historical, archaeological, cultural, educational or scientific value should be protected and restored.

Techniques suggested by the various policies to protect the natural environment include requiring setbacks from sensitive areas, preserving habitats for sensitive species, preventing adverse alterations to water quality and quantity, promoting low impact development, preserving existing native vegetation, educating the public, and mitigating necessary sensitive area impacts, among others.

4.3 Critical Areas Regulations

The City of Mercer Island critical areas regulations are found in Mercer Island City Code Chapter 19.07 Environment. The City completed its last critical areas regulations update

on 2005. The updated regulations are based on best available science, and provide protection to critical areas in the City, particularly for streams and wetlands. All activities which require a substantial development permit, conditional use or variance under the SMP are reviewed under the City's CAO for consistency. As stated above, if there is a conflict between the CAO and SMP, the regulations that offer the greatest environmental protection apply.

Some of the basic components of the critical areas regulations include a four-tiered watercourse typing system with standard buffers ranging between 25 and 75 feet, and Ecology's four-tiered wetland rating system with standard buffers ranging from 35 to 100 feet. Management of the City's critical areas using these regulations should help insure that ecological functions and values are not degraded, and impacts to critical areas are mitigated. These critical areas regulations are one important tool that will help the City meet its restoration goals.

4.4 Stormwater Management and Planning

Although much of the City of Mercer Island's Storm and Surface Water Utility's jurisdiction is outside of the shoreline zone, all of the regulated surface waters, both natural and piped, are discharged ultimately into Lake Washington and thus affect shoreline conditions. According to the City's GIS data, there are 208 known stormwater outfalls, 187 of which are located within the shoreline jurisdiction area (see Figures 5.1 - 5.3). The City's Utilities section of the Comprehensive Plan contains the following stormwater policies:

4.1 The City shall continue to implement programs and projects designed to meet the goals and requirements of the Puget Sound Water Quality Management Plan.

4.2 The City shall actively promote and support education efforts focusing on all facets of stormwater management.

4.3 The City shall maintain and enforce land-use plans and ordinances requiring stormwater controls for new development and re-development. The ordinances shall be based on standards developed by the state Department of Ecology and shall be consistent with the policies in the Land-Use Element of this plan and the goals and policies of the City's Development Services Group.

The City received its National Pollutant Discharge Elimination System (NPDES) Phase II Municipal Stormwater Permit in January 2007 from Ecology. The NPDES Phase II permit is required to cover the City's stormwater discharges into regulated lakes and streams. Under the conditions of the permit, the City must protect and improve water quality through public education and outreach, detection and elimination of illicit non-stormwater discharges (e.g., spills, illegal dumping, wastewater), management and regulation of construction site runoff, management and regulation of runoff from new

development and redevelopment, and pollution prevention and maintenance for municipal operations (City of Mercer Island website).

In 2007, the Department of Ecology published information about toxics levels in fish, including fish sampled in Lake Washington (Department of Ecology 2007). Lake Washington ranked second only to the Wenatchee River near Leavenworth for a site contaminant score. Although this report does not identify specific point sources, it represents a clear need to better understand contaminant sources and control.

The City's 2004 Open Space Vegetation Plan (City of Mercer Island 2004) was prioritized by multiple factors including storm water buffering and erosion control. It directs work to sites where it would most likely improve storm water buffering and erosion control.

4.5 Public Education

The City of Mercer Island's Comprehensive Plan identifies various policy statements based on the goal of environmental public involvement (excerpted below). These items help guide City staff and local citizen groups in developing mechanisms to educate the public and broaden the interest in protecting and enhancing local environmental resources.

4.5.1 Land Use Element

Natural Environment Policies

Goal 10: The protection of the natural environment will continue to be a priority in all Island development. Protection of the environment and private property rights will be consistent with all state and federal laws.

Policy 10.1 The City of Mercer Island shall protect environmentally sensitive lands such as watercourses, geologic hazard areas, steep slopes, shorelines, wildlife habitat conservation areas, and wetlands. Such protection should continue through the implementation and enforcement of critical areas and shoreline regulations.

Policy 10.2 Land use actions, storm water regulations and basin planning should reflect intent to maintain and improve the ecological health of watercourses and Lake Washington water quality.

Policy 10.3 New development should be designed to avoid increasing risks to people and property associated with natural hazards.

Policy 10.4 The ecological functions of watercourses, wetlands, and habitat conservation areas should be maintained and protected from the potential impacts associated with development.

Policy 10.5 The City shall consider best available science during the development and implementation of critical areas regulations. Regulations will be updated periodically to incorporate new information and, at a minimum, every seven years as required by the Growth Management Act.

4.5.2 Utilities Element

Water Quality Policies

Policy 2.8 The City shall aggressively promote and support water conservation on Mercer Island and shall participate in regional water conservation activities. The goal of the City's efforts shall be a significant and lasting reduction in Mercer Island's peak water consumption. In 1999 the City decided to participate in SPU's 1% Water Conservation Initiative, and continues to receive information and assistance in reducing water consumption in City facilities and in the community.

Stormwater Policies

Policy 4.2 The City shall actively promote and support education efforts focusing on all facets of stormwater management.

4.5.3 Shoreline Goals and Policies

Conservation Element

Policy 4.a. Public and private cooperation should be encouraged in site preservation and protection.

As part of the City of Mercer Island's efforts to abide by these goals and policies, the City supports several volunteer efforts, such as Mountains to Sound Greenway sponsored events, Open Space Conservancy Trust, Forest Stewardship, Forest Stewardship training, Adopt-a-Park and EarthCorps.

4.6 Open Space Conservancy Trust

The Open Space Conservancy Trust, established by Mercer Island City Council in 1992, "was created for the express purpose of receiving and holding such real property, as transferred for open space purposes; for protecting, maintaining and preserving the

Open Space Properties; and insuring that the development and use of the Open Space Properties are both consistent and compatible with the intent and purpose of the Trust and the guidelines and polices enacted." The trust is led by a seven member volunteer board consisting of six citizens appointed by the Mayor and one City Council member. The trust currently holds Pioneer Park as its sole property.

Contact Information: http://www.ci.mercer-island.wa.us/ccbindex.asp?ccbid=12

4.7 Mountains to Sound Greenway Trust

Mountains to Sound (MTS) Greenway Trust, a nonprofit organization founded in 1991, assists local, state, and federal agencies to acquire open space lands for permanent protection in order to create a 100-mile connected green corridor along Interstate 90.

Within the City of Mercer Island, MTS organizes and leads volunteers to improve City parks by removing invasive plants (primarily ivy) and planting native trees and shrubs. Mercer Island Parks and Recreation has teamed up with MTS and a number of other groups and organizations to host several volunteer events throughout the year.

Contact Information: http://www.miparks.org/, http://www.mtsgreenway.org/

4.8 Forest Stewardship and Adopt-A-Park Programs

Citizens of Mercer Island donate countless hours to maintain the City's open spaces and parks through picking up litter, cutting ivy, planting and trail maintenance and repair. Forest Stewardship provides opportunities for citizens to be active with City-sponsored projects or work individually with other volunteers. Forest Stewardship training provides the skills to become Forest Stewards who are qualified to run volunteer projects on the island on behalf of the Parks and Recreation Department.

The City's Adopt-a-Park program allows local schools or services groups to adopt a City park. The program benefits schoolchildren, who learn valuable stewardship skills, and the public who benefit from the restoration efforts.

Contact Information: miparks@mercergov.org, http://www.ci.mercer-island.wa.us/Page.asp?NavID=1515

4.9 EarthCorps

EarthCorps is a non-profit organization that provides environmental restoration service programs for young adults. These one-year programs provide opportunities to learn conservation and develop skills in leading volunteers. EarthCorps works with Mercer Island Parks and Recreation to organize and lead restoration projects, such as removing invasive plants and planting native species.

Contact Information: info@earthcorps.org, http://www.earthcorps.org/volunteer.php

5 List of Additional Projects and Programs to Achieve Local Restoration Goals

The following series of additional projects and programs are generally organized from the larger watershed scale to the City-scale, including City projects and programs and finally non-profit organizations that are also active in the Mercer Island area.

5.1 Unfunded WRIA 8 Projects

The 2005 Final Lake Washington/Cedar/Sammamish Watershed (WRIA 8) Chinook Salmon Conservation Plan does not identify any specific projects along the Mercer Island shoreline, but does include the following general recommendations to reduce predation on outmigrating juvenile chinook salmon in its "Action Start-List for Migratory Areas":

- Encourage salmon friendly shoreline design during new construction or redevelopment by offering incentives and regulatory flexibility to improve bulkhead and dock design and revegetate shorelines. Increase enforcement and address nonconforming structures over long run by requiring that major redevelopment projects meet current standards.
- Discourage construction of new bulkheads; offer incentives (e.g., provide expertise, expedite permitting) for voluntary removal of bulkheads, beach improvement, riparian revegetation.
- Support joint effort by NOAA Fisheries and other agencies to develop dock/pier specifications to streamline federal/state/local permitting; encourage similar effort for bulkhead specifications.
- Promote value of light-permeable docks, smaller piling sizes, and community docks to both salmon and landowners through direct mailings to lakeshore landowners or registered boat owners sent with property tax notice or boat registration tab renewal. Offer financial incentives for community docks in terms of reduced permit fees, loan fees/percentage rates, taxes, and permitting time, in addition to construction cost savings.
- Develop workshop series specifically for lakeshore property owners on lakeside living: natural yard care, alternatives to vertical wall bulkheads, fish friendly dock design, best management practices for aquatic weed control, porous paving, and environmentally friendly methods of maintaining boats, docks, and decks. Related efforts include creation of a website to convey workshop material, an awareness campaign, "Build a Beach," to illuminate impact of bulkheads on development of sandy beaches.

- Restore shoreline in Lake Washington Section 1: work with private property owners to restore shoreline in Section 1. Use interpretive signage where possible to explain restoration efforts.

5.2 Recommended Projects - Public

The following is developed from a list of opportunity areas identified within the Final Shoreline Analysis Report (The Watershed Company 2009) and is intended to contribute to improvement of impaired functions on public property. The list of recommended projects was created after reviewing the City's CIP list and assessing field conditions during the shoreline inventory and characterization phase.

Luther Burbank Park

Two restoration projects listed in the City's CIP include:

- Luther Burbank Shoreline Restoration (Summer 2008): removing non-native plant species, replant native vegetation, create recreation access beaches, develop habitat and maintain trail opportunities, stabilize soft banks.

- Luther Burbank Off-Leash Area (OLA) (2008): design and construct minor drainage, surfacing, shoreline, landscaping and fencing improvements in OLA.

Restoration opportunities not included in the City's CIP include:

- In October 2005, Anchor Environmental, LLC. prepared a Shoreline Habitat Inventory that identified a number of restoration opportunities along the shoreline. Many of these have been completed or are included in the City's CIP. However, the inventory contains several items not included in the CIP, which represent future opportunities. These include restoration of several stretches (18, 20, 21) along the shoreline. Restoration would include placement of beach nourishment, removal of invasive plants, and planting of native plants to increase overhanging vegetation.

Street-Ends (Landings) and Residential Shoreline Properties

There are two projects listed in the City's 2007-2008 6-Year Capital Improvement Program. Both projects are currently planned for implementation in 2013.

- Groveland Beach Park: Remove invasive vegetation, replace worn playground elements, and prepare shoreline improvements.

- Clarke Beach Park: Removal of up to 300 linear feet of concrete retaining wall/bulkhead/barrier at Clarke Beaches.

- Many of the parks, street-ends and residential shoreline properties along the shoreline have the potential for improvement of ecological functions through: 1)

reduction or modification of shoreline armoring, 2) reduction of overwater cover and in-water structures (grated pier decking, pier size reduction, pile size and quantity reduction, moorage cover removal), 3) improvements to nearshore native vegetative cover, and/or 4) reductions in impervious surface coverage.

Open Space – Vegetation Management

Many parks located on Mercer Island are heavily invaded by non-native invasive species that will eventually damage and destroy forest canopies. Opportunities exist to provide vegetation and property management in existing open space areas. This will improve shoreline and upland habitat areas within the City.

5.3 Recommended Projects - Private

Generally, restoration opportunities which have been identified are focused on City property, including parks, open spaces, and street-ends. Many other restoration opportunities exist throughout the City on private property. These opportunities would include many of the same issues as listed above, but would likely occur only through voluntary means or through re-development proposals.

General: Many shoreline properties have the potential for improvement of ecological functions through: 1) reduction or modification of shoreline armoring, 2) reduction of overwater cover and in-water structures (grated pier decking, pier size reduction, pile size and quantity reduction, moorage cover removal), 3) improvements to nearshore native vegetative cover, and/or 4) reductions in impervious surface coverage. Similar opportunities would also apply to undeveloped lots which may be used as community lots for upland properties or local street-ends and utility corridors. Other opportunities may exist to improve either fish habitat or fish passage for those properties which have streams discharging to Lake Washington.
An example of how shoreline armoring might be reduced on some lots along the City's residential areas is depicted below (Figure 4). This example displays before and after images of a lot in which the existing bulkhead is partially pulled back to create a shallow cove beach combined with natural materials. This example combines the effort to improve habitat conditions with improved access and aesthetics.

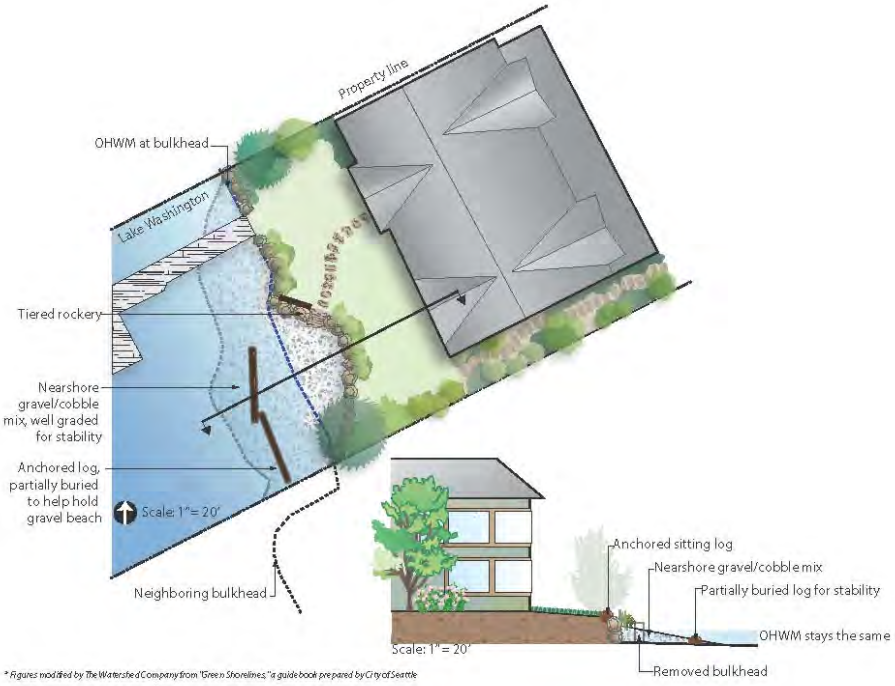
Restoration of Multiple Contiguous Properties: Through grant funding sources, restoration opportunities may be available to multiple contiguous shoreline properties, including residential lots that are interested in improving shoreline function. Restoring shoreline properties that are connected to one another would provide significantly more benefits than a more piecemeal approach. Therefore, priority should be given to restoration projects which involve multiple lots (such as accelerated permit processes).

5.4 Public Education/Outreach

The Final Lake Washington/Cedar/Sammamish Watershed (WRIA 8) Chinook Salmon Conservation Plan includes a table outlining 53 "Outreach and Education Actions" with target audiences for each action ranging from the general public, to shoreline property

owners in general, to lakeshore property owners specifically, to businesses, to youth, and others. The complete list of WRIA 8 "Outreach and Education Actions" is included as Appendix B.

Figure 4: Partial bulkhead removal example project



6 Proposed Implementation Targets and Monitoring Methods

As previously noted, the City's shoreline zone is occupied by single- and multi-family residences, and public recreation/open spaces. Therefore, efforts should be made to improve shoreline ecological function through the promotion of restoration and healthy practices at all levels, from large-scale marina users to single-family property owners. The City of Mercer Island already has a very active environmental community with a restoration and education focus. Continued improvement of shoreline ecological functions on the shoreline requires a more comprehensive watershed approach, which combines upland and shoreline projects and programs.

The following table (Table 2) outlines a possible schedule and funding sources for implementation of a variety of efforts that could improve shoreline ecological function, and are described in previous sections of this report

Table 2. Implementation Schedule and Funding for Restoration Projects, Programs and Plans.

Restoration Project/Program	Schedule	Funding Source or Commitment
4.1 WRIA 8 Participation	Ongoing	The City is an active member of the WRIA 8 Forum. Membership at this time entails a commitment of staff and elected official time.
4.2 Comprehensive Plan Policies	Ongoing	The City makes a substantial commitment of staff time in the course of project and program reviews to determine consistency and compliance with the recently updated Comprehensive Plan. The next Comprehensive Plan update will occur in 2010.
4.3 Critical Areas Regulations	Ongoing	The City makes a substantial commitment of staff time in the course of project and program reviews to determine consistency and compliance with their recently updated Critical Areas Regulations.
4.4 Stormwater Planning	Ongoing	Currently, staff time and materials are the only City resource commitments. The City currently follows its *2008 Stormwater Management Program* which implements the City's Phase II NPDES permit and reports annually to Ecology. The City is also involved in the implementation of the 2005 *Surface Water Master Plan*, which goals includes flood reduction, water quality improvements and aquatic habitat improvements. The City also is in full compliance with NPDES permit requirements for Phase II cities.
4.5 Public Education	Ongoing	Currently, staff time and materials are provided in

Restoration Project/Program	Schedule	Funding Source or Commitment
		developing public education and outreach efforts, which are highlighted in the Comprehensive Plan policy statement based on the goal of natural resource protection. These items help guide City staff and local citizen groups in developing mechanisms to educate the public and broaden the interest in protecting and enhancing local environmental resources.
4.6 Open Space Conservancy Trust	Ongoing	Currently, staff time and materials to support these groups are part of the City's resource commitments. The Mountains to Sound Greenway Trust also has a contractual agreement with the City for Volunteer Management Services. These groups consist of volunteers appointed by the Mayor.
4.7 Mountains to Sound Greenway Trust		
4.8 Forest Stewardship and Adopt-A-Park	Ongoing	Currently, staff time and materials to support these groups are the only City resource commitments. These groups consist of volunteers and are supported by the City's Parks and Recreation Department.
4.9 EarthCorps	Ongoing	Currently, staff time and materials to support this group is part of the City's resource commitments. EarthCorps also has a contractual agreement with the City for Volunteer Management Services. These groups consist of volunteers and are supported by the City's Parks and Recreation Department.
5.1 Unfunded WRIA 8 Projects	As funds and opportunity allow	The City Council passed a resolution in 2005 expressing its approval and support for the Lake Washington/Cedar/Sammamish Watershed Chinook Salmon Conservation Plan. Projects will be funded by the City, partnering agencies and non-profit organizations, and grants as projects and funding opportunities arise.
5.2 Recommended Projects - Public	As funds and opportunity allow	Projects identified in this section would likely be implemented either when grant funds are obtained, when partnerships are formed between the City and other agencies or non-profit groups, or as may be required by the critical areas regulations and the Shoreline Master Program during project-level reviews by the City.
5.3 Recommended Projects - Private		
5.4 Public Education/ Outreach	As funds and opportunity allow	On-going and future education efforts should be coordinated with the City and partnering agencies, including funding sources (grant funding, monetary donations, volunteer hours)

City planning staff will track all land use and development activity, including exemptions, within shoreline jurisdiction, and will incorporate actions and programs of the Parks and Utilities departments as well. A report will be assembled that provides basic project information, including location, permit type issued, project description, impacts, mitigation (if any), and monitoring outcomes as appropriate. Examples of data categories might include square feet of non-native vegetation removed, square feet of native vegetation planted or maintained, reductions in chemical usage to maintain turf, linear feet of eroding bank stabilized through plantings, linear feet of shoreline armoring removed, or number of fish passage barriers corrected. The report would also update Tables 1 and 4 above, and outline implementation of various programs and restoration actions (by the City or other groups) that relate to watershed health.

The staff report will be assembled to coincide with Comprehensive Plan updates and will be used, in light of the goals and objectives of the Shoreline Master Program, to determine whether implementation of the SMP is meeting the basic goal of no net loss of ecological functions relative to the baseline condition established in the Shoreline Analysis Report (The Watershed Company 2009). In the long term, the City should be able to demonstrate a net improvement in the City of Mercer Island's shoreline environment.

Based on the results of this assessment, the City may make recommendations for changes to the SMP

7 Restoration Priorities

The process of prioritizing actions that are geared toward restoration of Mercer Island's shoreline areas involves balancing ecological goals with a variety of site-specific constraints. Briefly restated, the City's environmental protection and restoration goals include 1) protecting watershed processes, 2) protecting fish and wildlife habitat, and 3) contributing to chinook conservation efforts. Constraints that are specific to Mercer Island include a highly developed residential shoreline along Lake Washington with several large areas of public open space/access. While some areas may already offer fairly good ecological functions (e.g. portions of Luther Burbank Park shoreline), they tend to include some additional opportunities to further enhance ecological functions. These goals and constraints were used to develop a hierarchy of restoration actions to rank different types of projects or programs associated with shoreline restoration. Programmatic actions, like continuing WRIA 8 involvement and conducting outreach programs to local residents, tend to receive relatively high priority opposed to restoration actions involving private landowners. Other factors that influenced the hierarchy are based on scientific recommendations specific to WRIA 8, potential funding sources, and the projected level of public benefit. Restoration projects on public property, such as those identified in Section 5.2, have received a high priority ranking

due to their availability to be funded by a variety of sources, such as CIP program, Parks Department, local grants, and non-profit groups.

Although restoration project/program scheduling is summarized in the previous section (Table 2), the actual order of implementation may not always correspond with the priority level assigned to that project/program. This discrepancy is caused by a variety of obstacles that interfere with efforts to implement projects in the exact order of their perceived priority. Some projects, such as those associated with riparian planting, are relatively inexpensive and easy to permit and should be implemented over the short and intermediate term despite the perception of lower priority than projects involving extensive shoreline restoration or large-scale capital improvement projects. Straightforward projects with available funding should be initiated immediately for the worthwhile benefits they provide and to preserve a sense of momentum while permitting, design, site access authorization, and funding for the larger, more complicated, and more expensive projects are under way.

7.1 Priority 1 – Continue Water Resource Inventory Area (WRIA) 8 Participation

Of basic importance is the continuation of ongoing, programmatic, basin-wide programs and initiatives such as the WRIA 8 Forum. Continue to work collaboratively with other jurisdictions and stakeholders in WRIA 8 to implement the Final Lake Washington/Cedar/Sammamish Watershed (WRIA 8) Chinook Salmon Conservation Plan. This process provides an opportunity for the City to keep in touch with its role on a basin-wide scale and to influence habitat conditions beyond its borders, which, in turn, come back to influence water quality and quantity and habitat issues within the City.

7.2 Priority 2 – Public Education and Involvement

Public education and involvement has a high priority in the City of Mercer Island due to the predominance of residential development along the shoreline. Recent outreach efforts by other jurisdictions, such as the handbook Green Shorelines: Bulkhead Alternatives for a Healthier Lake Washington (City of Seattle 2008), have begun to change the perception of shoreline aesthetics, use, and ecological health. This and other outreach efforts (i.e. workshops, websites, example projects) are clear motivating and contributing factors for restoration activities on private property.

While many opportunities for shoreline restoration exist within City parks (see Section 5.2), multiple other opportunities also exist along community-owned properties and private marinas. Whether the focus is on single-family residential, community-owned, or marina properties, providing education opportunities and involving the public is key to success, and would possibly entail coordinating the development of a long-term Public Education and Outreach Plan (Section 5.2). This could also include focusing on gaining public support for restoration along City parks.

Specific projects from the Action Start List include developing a workshop series and website that is tailored to lakeshore property owners, and that promotes natural yard care, alternatives to vertical bulkheads, fish-friendly dock design, best management practices for aquatic weed control, porous paving, and environmentally friendly methods of maintaining boats, docks, and decks. Collaborative efforts with other jurisdictions (i.e City of Seattle) could be completed to meet the Action Start List goals. Additionally, design competitions and media coverage could be used to promote the use of "rain gardens" and other low impact development practices that mimic natural hydrology. A home/garden tour or "Street of Dreams" type event might serve to showcase these landscape/engineering treatments.

7.3 Priority 3 – Reduce Shoreline Armoring along Lake Washington, Create or Enhance Natural Shoreline Conditions

The preponderance of shoreline armoring and its association with impaired habitat conditions, specifically for juvenile chinook salmon, has been identified as one of the key limiting factors along Lake Washington (Kerwin 2001). Nearly 78 percent of the shoreline within the City of Mercer Island is armored at or below the ordinary high water mark (The Watershed Company 2009). While there are no specifically identified projects in the Final Lake Washington/ Cedar/ Sammamish Watershed (WRIA 8) Chinook Salmon Conservation Plan that are located within Mercer Island, there are many opportunities listed in this Restoration Plan which focus on the potential reduction in shoreline armoring and subsequent restoration and enhancement of shoreline ecological functions.

However, emphasis should also be given to future project proposals that involve or have the potential to restore privately-owned shoreline areas to more natural conditions. The City should explore ways in which to assist local property owners, whether through financial assistance, permit expedition, or guidance, to team together with restoration of multiple contiguous lots.

Recommendations from the Action Start List reflect this focus and encourage salmon friendly shoreline design during new construction or redevelopment by offering incentives and regulatory flexibility to improve bulkhead and dock design and revegetate shorelines. Other recommendations from the List that support this priority include: 1) increasing enforcement that addresses nonconforming structures over the long run by requiring that major redevelopment projects meet current standards; 2) discouraging construction of new bulkheads and offer incentives (e.g., provide expertise, expedite permitting) for voluntary removal of bulkheads, beach improvement, riparian revegetation; 3) utilizing interpretive signage where possible to explain restoration efforts.

7.4 Priority 4 – Reduction of In-water and Over-water Structures

Similar to Priority 3 listed above, in-water and over-water structures, particularly piers, docks, and covered moorages, have been identified as one of the key limiting factors in Lake Washington (Kerwin 2001). Pier density along the City's shoreline is 48 piers per mile – slightly higher than the lake-wide average of 36 piers per mile (Toft 2001), but in-line with other jurisdictions around Lake Washington. The density of residential development along the City's lakeshore is the main reason for the slightly higher-than-average pier density. While the pier density along residential shorelines is much higher than what is typically found along City-owned park property, the overall footprint of each public pier is generally much greater than is found along single-family residential sites. Opportunities exist for reduction in pier size and overall shading impacts through pier modifications on public sites.

Although no specific privately-owned project sites to reduce in-water and over-water structures within residential areas are identified here, future project proposals involving reductions in the size and/or quantity of such structures should be emphasized. Such future projects may involve joint-use pier proposals or pier reconstruction and may be allowed an expedited permit process.

Action Start List Recommendations in support of Priority 4 include: 1) supporting the joint effort by NOAA Fisheries and other agencies to develop dock/pier specifications that streamline federal/state/local permitting; 2) promoting the value of light-permeable docks, smaller piling sizes, and community docks to both salmon and landowners through direct mailings to lakeshore landowners or registered boat owners sent with property tax notice or boat registration tab renewal; and 3) offering financial incentives for community docks in terms of reduced permit fees, loan fees/percentage rates, taxes, and permitting time, in addition to construction cost savings. Similarly, the WRIA 8 Salmon Conservation Plan identified a future project (C302) to explore opportunities to reduce the number of docks by working with private property owners.

7.5 Priority 5 – Restore Mouths of Tributary Streams, Reduce Sediment and Pollutant Delivery to Lake Washington

Although most of the watercourses and their basins located within the City are outside of shoreline jurisdiction, their impacts to shoreline areas should not be discounted. Several of these streams have the potential to provide fish and wildlife habitat. For juvenile chinook, once they enter Lake Washington, they often congregate near the mouths of tributary streams, and prefer low gradient, shallow-water habitats with small substrates (Tabor and Piaskowski 2002; Tabor et al. 2004; Tabor et al. 2006). Chinook fry entering Lake Washington early in the emigration period (February and March) are still relatively small, typically do not disperse far from the mouth of their natal stream, and are largely dependent upon shallow-water habitats in the littoral zone with overhanging

vegetation and complex cover (Tabor and Piaskowski 2002; Tabor et al 2004). The mouths of creeks entering Lake Washington (whether they support salmon spawning or not), as well as undeveloped lakeshore riparian habitats associated with these confluence areas, attract juvenile chinook salmon and provide important rearing habitat during this critical life stage (Tabor et al. 2004; Tabor et al. 2006).

Later in the emigration period (May and June), most chinook juveniles have grown to fingerling size and begin utilizing limnetic areas of the Lake more heavily (Koehler et al. 2006). As the juvenile chinook salmon mature to fingerlings and move offshore, their distribution extends throughout Lake Washington. Although early emigrating chinook fry from the Cedar River and North Lake Washington tributaries (primary production areas) initially do not disperse around all of Mercer Island, some salmon fry from the Cedar River are known to depend on nearshore habitats along the southern shore of Mercer Island. Later in the spring (May and June), however, juvenile chinook are known to be well distributed throughout both limnetic and littoral areas of Lake Washington, and certainly utilize the shoreline habitats along Mercer Island.

Action Start List Recommendations in support of Priority 5 include: 1) addressing water quality and high flow impacts from creeks and shoreline development through NPDES Phase 1 and Phase 2 permit updates, consistent with Washington Department of Ecology's 2001 Stormwater Management Manual, including low impact development techniques, on-site stormwater detention for new and redeveloped projects, and control of point sources that discharge directly into the lakes; and 2) Protecting and restoring water quality and other ecological functions in tributaries to reduce effects of urbanization. This involves protecting and restoring forest cover, riparian buffers, wetlands, and creek mouths by revising and enforcing critical areas ordinances and Shoreline Master Programs, incentives, and flexible development tools.

7.6 Priority 6 –Improve Water Quality and Reduce Sediment and Pollutant Delivery

Although most of the City's watercourses and their basins are located outside of shoreline jurisdiction, their impacts to shoreline areas should not be discounted. Several of these watercourses have the potential to provide fish habitat in their lower sections and wildlife habitat throughout. They are also a common receiving body for non-point source pollution, which in turn delivers those contaminants ultimately to Lake Washington. Mercer Island started a Water Quality Monitoring effort in 2001 with technical assistance from the King County Water and Land Resources Division that analyzes a variety of water quality factors affecting Lake Washington.

Many actions provided in the WRIA 8 Salmon Conservation Plan focus on addressing water quality and stormwater controls, including:

- Implement Phase 2 NPDES permit requirements

- Address stormwater impacts from transportation projects involving new or expanded roadways
- Encourage low impact development through regulations, incentives, education and training, and demonstration projects
- Improve Enforcement of Existing Land Use and Other Regulations

These recommendations emphasize the use of low impact development techniques, on-site stormwater detention for new and redeveloped projects, and control of point sources that discharge directly into surface waters. They involve protecting and restoring vegetative cover, riparian buffers, wetlands, and creek mouths by revising and enforcing critical areas ordinances and Shoreline Master Programs, incentives, and flexible development tools.

7.7 Priority 7 – Improve Riparian Vegetation, Reduce Impervious Coverage

Similar to the priority listed above to improve water quality and reduce sediment and pollutant delivery, improved riparian vegetation and reduction in impervious surfaces are emphasized throughout the WRIA 8 Salmon Conservation Plan. These factors correspond directly to the emphasis to increase use of Low Impact Development techniques. Actions which involve improvements to riparian vegetation and reductions in impervious surface coverage are likely to take place on both public and private development. The City's Parks and Recreation Department is committed to providing improved shoreline landscapes by incorporating areas of native riparian vegetation. Private development should be encouraged to utilize low impact development techniques such as the planting of native trees and use of porous paving.

7.8 Priority 8 – Reduce Aquatic Non-Native Invasive Weeds

While not specifically listed in the WRIA 8 Salmon Conservation Plan, reduction of aquatic invasive weeds from Lake Washington, particularly Eurasian watermilfoil and white water lily, is of particular concern across many jurisdictions with Lake Washington shoreline. Not only are aquatic weeds a problem for boats and swimmers, but they also tend to reduce dissolved oxygen to lethal levels for fish, hampering foraging opportunities. Long-term control of aquatic non-native invasive plants in Lake Washington will be very difficult to achieve without coordinated inter-jurisdictional collaboration.

7.9 Priority 9 – Acquisition of Shoreline Property for Preservation, Restoration, or Enhancement Purposes

The City should explore opportunities to protect natural areas or other areas with high ecological value or restoration potential via property acquisition. Mechanisms to purchase property would likely include collaboration with other stakeholder groups

including representatives from local government, businesses and the general public in order to develop a prioritized list of actions. Properties throughout the more developed shoreline areas within the City may be available for acquisition both for preservation but also to act as a showcase for restoration potential.

7.10 Priority 10 – City Zoning, Regulatory, and Planning Policies

City Zoning, Regulatory, and Planning Policies are listed as being of lower priority in this case simply because they have been the subject of a thorough review and have recently been updated accordingly. Notably, the City's Critical Areas Ordinance was updated (November 2005) consistent with the Best Available Science for critical areas, including those within the shoreline area. However, as noted in the WRIA Implementation Monitoring Report (WRIA 8 2008a), both Shoreline Master Programs and Critical Areas Ordinances are highly linked to the implementation of plan recommendations. For the time being, it is considered more important to capitalize on this Restoration Plan by focusing on implementing projects consistent with the updated SMP policies. Unimplemented or unused policies, by themselves, will not improve habitat. As time goes by, further review and potential updating of these policies may increase in priority. Policy-related items in this category as listed in previous sections include Comprehensive Plan Policies (Section 4.2), Critical Areas Regulations (Section 4.3), and Stormwater Planning (Section 4.4).

The City received its final NPDES Phase II permit in February 2007 from Ecology. The NPDES Phase II permit is required to cover the City's stormwater discharges into regulated lakes and streams. Under the conditions of the permit, the City must protect and improve water quality through public education and outreach, detection and elimination of illicit non-stormwater discharges (e.g., spills, illegal dumping, wastewater), management and regulation of construction site runoff, management and regulation of runoff from new development and redevelopment, and pollution prevention and maintenance for municipal operations.

The City conducts all of the above at some level already, but significant additional effort may be needed to document activities and to alter or upgrade programs. The City has various programs to control stormwater pollution through maintenance of public facilities, inspection of private facilities, water quality treatment requirements for new development, source control work with businesses and residents, and spill control and response. Monitoring may be required as part of an illicit discharge detection and elimination program, for certain construction sites, or in waterbodies with a Total Maximum Daily Load (TMDL) Plan for particular pollutants. General water quality monitoring concerns include: a) stormwater quality; b) effectiveness of best management practices; and c) effectiveness of the stormwater management program.

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9 LIST OF ACRONYMS AND ABBREVIATIONS

AASF……Adopt-A-Stream Foundation

cfs…… cubic feet per second

CIP ..... Capital Investment Program

GMA ..... Growth Management Act

NGPA ..... Native Growth Protection Area

NGPE..... Native Growth Protection Easement

OHWM..... ordinary high water mark

WDFW..... Washington Department of Fish and Wildlife

APPENDIX A

CITY OF MERCER ISLAND RESOLUTION 1347 RATIFYING THE WRIA 8 CHINOOK SALMON CONSERVATION PLAN

CITY OF MERCER ISLAND
RESOLUTION NO. 1347

A RESOLUTION RATIFYING THE WATER RESOURCE INVENTORY AREA (WRIA) 8 CHINOOK SALMON CONSERVATION PLAN

WHEREAS, in March 1999, the National Oceanic and Atmospheric Administration (NOAA) Fisheries listed the Puget Sound Chinook salmon evolutionary significant unit as a threatened species under the Endangered Species Act (ESA); and

WHEREAS, in November 1999, the United States Fish and Wildlife Service (USFWS) listed the Puget Sound bull trout distinct population segment as a threatened species under the ESA; and

WHEREAS, under the ESA, it is illegal to take a listed species, and the ESA defines the term "take" to include actions that could harm listed species or their habitat; and

WHEREAS, under the ESA, Section 4(f), NOAA Fisheries (for Chinook salmon) and USFWS (for bull trout) are required to develop and implement recovery plans to address the recovery of the species; and

WHEREAS, an essential ingredient for the development and implementation of an effective recovery program is coordination and cooperation among federal, state, and local agencies, tribes, businesses, researchers, non-governmental organizations, landowners, citizens, and other stakeholders as required; and

WHEREAS, Shared Strategy for Puget Sound, a regional non-profit organization, has assumed a lead role in the Puget Sound response to developing a recovery plan for submittal to NOAA Fisheries and the USFWS; and

WHEREAS, local jurisdictions have authority over some habitat-based aspects of Chinook survival through land use and other policies and programs; and the state and tribes, who are the legal co-managers of the fishery resource, are responsible for addressing harvest and hatchery management in WRIA 8; and

WHEREAS, in WRIA 8, habitat actions to significantly increase Chinook productivity trends will be helpful, in conjunction with other recovery efforts, to avoid extinction in the near term and restore WRIA 8 Chinook to viability in the long term; and

WHEREAS, Mercer Island supports cooperation at the WRIA level to set common priorities for actions among partners, efficient use of resources and investments, and distribution of responsibility for actions and expenditures;

WHEREAS, 27 local governments in WRIA 8 jointly funded development of *The WRIA 8 Steering Committee Proposed Lake Washington/Cedar/Sammamish Watershed Chinook*

Salmon Conservation Plan (the Plan), published February 25, 2005 following public input and review; and

WHEREAS, while the Plan recognizes that salmon recovery is a long-term effort, it focuses on the next 10 years and includes a scientific framework, a start-list of priority actions and comprehensive action lists, an adaptive management approach, and a funding strategy; and

WHEREAS, Mercer Island has consistently implemented habitat restoration and protection projects, and addressed salmon habitat through its land use and public outreach policies and programs over the past five years; and

WHEREAS, it is important to provide jurisdictions, the private sector and the public with certainty and predictability regarding the course of salmon recovery actions that the region will be taking in the Lake Washington/Cedar/Sammamish Watershed, including the Puget Sound nearshore; and

WHEREAS, if insufficient action is taken at the local and regional level, it is possible that the federal government could list Puget Sound Chinook salmon as an endangered species, thereby decreasing local flexibility.

NOW, THEREFORE, BE IT RESOLVED BY THE MERCER ISLAND CITY COUNCIL AS FOLLOWS:

Section A: The Mercer Island City Council hereby ratifies *The WRIA 8 Steering Committee Proposed Lake Washington/Cedar/Sammamish Watershed Chinook Salmon Conservation Plan,* dated February 25, 2005, a copy of which is on file with the Mercer Island City Clerk (the Plan). Ratification is intended to convey the city's approval of the Plan.

Section B: Mercer Island recognizes that negotiation of commitments and assurances/conditions with appropriate federal and state agencies will be an iterative process. Full implementation of this Plan is dependent on the following:

1. NOAA Fisheries will adopt the Plan, as an operative element of its ESA Section 4(f) recovery plan for Puget Sound Chinook salmon.

2. NOAA Fisheries and USFWS will:
   a) take no direct enforcement actions against Mercer Island under the ESA for implementation of actions recommended in or consistent with the Plan,
   b) endorse the Plan and its actions, and defend Mercer Island against legal challenges by third parties, and
   c) reduce the regulatory burden for Mercer Island activities recommended in or consistent with the Plan that require an ESA Section 7 consultation.

1)

3. Federal and state governments will:
   a) provide funding and other monetary incentives to support Plan actions and monitoring activities,
   b) streamline permitting for projects implemented primarily to restore salmonid habitat or where the actions are mitigation that further Plan implementation,
   c) offer programmatic permitting for local jurisdiction actions that are consistent with the Plan,
   d) accept the science that is the foundation of the Plan and support the monitoring and evaluation framework,
   e) incorporate actions and guidance from the Plan in future federal and state transportation and infrastructure planning and improvement projects, and
   f) direct mitigation resources toward Plan priorities.

Section C: This resolution does not obligate the Mercer Island City Council to future appropriations beyond current authority set forth in its 2005-2006 biennial budget. All future appropriations are subject to review and approval by the then seated City Council.

ADOPTED BY THE CITY COUNCIL OF THE CITY OF MERCER ISLAND, WASHINGTON AT ITS REGULAR MEETING ON THE 6TH DAY OF SEPTEMBER 2005.

Bryan Cairns, Deputy Mayor

ATTEST:

Allison Spietz, City Clerk

APPENDIX B

PROPOSED OUTREACH AND EDUCATION ACTIONS

Draft Proposed Outreach & Education Actions for the Cedar Population (Tier 1 and 2 Subareas) (by WRIA 8 Public Outreach Committee)

Proj #	Habitat Condition	Desired Outcome	Target Audience	Proposed Action	Priority	Proven Track Record/ Model	Level of Financial Commit.
C701	Riparian vegetation displaced by lawn, invasives, or exotics; water quality compromised by garden chemicals, metals, sediment.; higher water use at times when flows lowest.	Protect & restore riparian vegetation to provide sources of large woody debris/pools/riffles; protect& restore water quality, maintain instream flows	Shoreline property owners and general public	Update and distribute streamside living materials such as *Streamside Savvy*, *Salmon Friendly Gardening Practices, or Going Native*. Distribute to all shoreline property owners and make available at City Hall, libraries, and retail establishments such as home & garden centers.	High	Ongoing or have been distributed in past.	Low-Medium
C702	Riparian vegetation displaced by lawn, invasives, or exotics; water quality compromised by landscape practices; higher water use at times when flows lowest.	Protect & restore riparian vegetation to provide sources of large woody debris/pools; protect& restore water quality, maintain instream flows	Shoreline property owners	Offer shoreline property owners a workshop in streamside living. Include tips on landscape design/maintenance appropriate for riverside properties and shoreline stabilization (alternatives to vertical wall bulkhead design). Feature designers and contractors who have both experience and recognition in salmon friendly design.	High	Seattle Public Utilities and Snohomish County Streamside Stewardship Courses, Issaquah's Creekside Living workshops	Low
C703	Smaller parcels lost to development or possible habitat degradation without financial incentives to conserve that are offered to owners of larger parcels	Protect good salmon habitat that could provide source of shelter, pools, riffles, food	Shoreline property owners	Expand use tax credit incentives to encourage protection of smaller properties not currently eligible for existing programs.	High	Public Benefits Rating System, Open Space Current Use Tax (CUT)	Variable (Low budget
C704	Channel confinement from bulkheads, levees, and armoring; loss of riparian vegetation	Soften shorelines, restore floodplain connectivity and channel complexity	Shoreline property owners	Reduce permit fees for shoreline stabilization if design is salmon friendly (employing alternatives to dikes, levees, revetments, and vertical wall bulkheads). Also reduce permit fees (where applicable) for streamside restoration and removal & replacement of non-native vegetation.	High		Low

Proj #	Habitat Condition	Desired Outcome	Target Audience	Proposed Action	Priority	Proven Track Record/ Model	Level of Financial Commit.
C705	Riparian vegetation displaced by lawn, invasives, or exotics; water quality compromised by garden chemicals, metals, sediment. Higher water use at times when flows lowest.	Protect & restore riparian vegetation; protect& restore water quality, maintain instream flows, stabilize slopes with native riparian vegetation. Increase likelihood of achieving these goals by bringing on board industry with a large influence over the landscapes within watershed.	Landscape Contractors	Offer educational opportunities to landscape designers/contractors on riparian design/naturescaping, local plant sourcing, proper installation techniques, invasive species, efficient watering techniques and use of compost to build healthy soils, control erosion and reduce need for supplemental irrigation. Augment training to accommodate English as Second Language participants.	High	Washington Assoc. of Landscape Professionals (WALP) trainings	Low - Medium (industry supported)
C706	Reduced forest cover; increased impervious areas/lack of infiltration/ground water recharge	Protect forest cover, reduce impervious surface area, increase infiltration back into soil and ground water recharge, decrease water use.	Design & Building Profession-als	Provide education to architects, landscape architects, engineers, and developers on sustainable building/design practices. Work with professional associations to highlight building practices that maintain watershed health. Include Low Impact Development, importance of maintaining canopy cover and limiting impervious surfaces.	High	City of Seattle Business & Industry Venture, King County Green Building, LEEDS, Construction Works and other Solid Waste Division outreach programs	Low – Medium
C707	Reduced forest cover; increased impervious areas/lack of infiltration/ground water recharge	Control stormwater runoff to more closely mimic natural hydrology, reduce paving and impervious areas, increase infiltration, protect forest cover	Design & Building Profession-als	Use recognition as a means to encourage more salmon sustainable designs and construction. In addition to professional association awards, expand recognition to include merit awards celebrated by popular magazines read by a broader sector of the general public. Promote through design competitions and media coverage the use of “rain gardens” and other low impact development practices that mimic natural hydrology. Combine a home/garden tour or “Street of Dreams” type event featuring these landscape	High	AIA, ASLA, Sunset Magazine, and Seattle Times Home and Garden awards, King County EnviroStars	

Proj #	Habitat Condition	Desired Outcome	Target Audience	Proposed Action	Priority	Proven Track Record/ Model	Level of Financial Commit.
				/engineering treatments			
C708	Insufficient flow	Maintain instream flows	High-end water users, general public	Extend availability of water conservation incentive programs (such as rebates for efficient toilets, appliances, free indoor conservation kits, or free landscape irrigation audits) to decrease household and commercial water consumption.	High	Smart & Healthy Landscapes, Water Cents	Low
C709	Water quality compromised by garden chemicals, metals, sediment. Higher water use at times when flows lowest.	Protect water quality from degradation by pesticides and soil erosion, maintain instream flows by reducing water used for irrigation, increase organic content in soils to increase water holding capacity	General public	Target Natural Yardcare Neighborhoods Program to include more communities in the Cedar sub-basin. Expand curricula to offer more landscaping guidelines specific to shoreline residences.	High	Ongoing program	Medium - High
C710	Water quality degraded by cleaners, oils, grit, and paint; stream flows reduced by excessive water use	Protect and restore water quality and maintain flows	General Public	Coordinate with local business community to encourage the use of commercial car washes. (Water quality and salmon conservation could provide a new marketing angle; car dealerships could offer car wash coupons as bonus with car purchase.). Require that car kits be used for all parking lot fund raiser car washes, or offer carwash coupons or as more eco-friendly alternative funding source.	High	Puget Sound CarWash Association Coupon Program.	Variable - Low
C711	All conditions listed above Water quality degraded by toxics and garden chemicals; channel confinement; loss of riparian buffer; use of large woody debris, pools, riffles, reduced channel complexity; riparian vegetation displaced by lawn; high water use when flows lowest.	Increase public watershed literacy awareness of effects on water quality and habitat conditions.	General Public, but in particular, residents of Cedar sub-basin who may not be aware of existence of salmon right within urban area	Support and encourage efforts of Cedar River Naturalist Program to promote voluntary stewardship by focusing on education, monitoring, and maintenance of restoration sites (e.g. Cavanaugh Pond). Continue and expand messaging about how everyday personal actions affect salmon, the Cedar River, and entire watershed.	High	Ongoing program with successful track record since l998	Low-Medium

Proj #	Habitat Condition	Desired Outcome	Target Audience	Proposed Action	Priority	Proven Track Record/ Model	Level of Financial Commit.
C712	Water quality degraded by toxics	Keep toxics out of water by providing safer alternative	General Public	Increase outreach about availability and locations of Hazardous Waste Collection sites and special collection events.	High	King County Local Hazardous Waste Management Program	Low (cheaper than dealing with illegal dumping)
C713	Water quality degraded by toxics, pesticides, metals, increased nutrient loads, sediments, loss of riparian buffer	Protect and restore water quality	General Public	Publicize emergency call numbers for public to report water quality and quantity problems, non-permitted vegetation clearing, non-permitted in-stream grading, and wood removal incidents.	High	Seattle Public Utilities Surface Water Pollution Prevention Hotline and website	Low
C714	Riparian vegetation displaced by lawn, invasives, and exotics, providing little food value, no source of LWD, or soil stability (sedimentation of gravel beds). Increased water use when flows lowest; increased use of pesticides on less resistant exotics	Restore native riparian vegetation to provide cover and terrestrial food source, reduce soil erosion and sedimentation in gravel beds, protect and restore water quality, maintain instream flows	Shoreline Property Owners and Community	Increase number of native plant salvages. Integrate these salvage opportunities into naturscaping classes; class participants can take home native plants for immediate use both within and surrounding sensitive areas.	High	King and Snohomish County Native Plant Salvage Programs, WSU Cooperative Extension Native Plant Salvage Project partnership with Puget Sound Action Team, Thruston & Mason Counties.	Low
C715	Channel confinement and loss of channel complexity from bulkheads, levees, and armoring; loss of riparian vegetation	Reduce channel confinement, restore riparian vegetation, and floodplain connectivity and channel complexity	Shoreline property owners, general Public	Demonstration Project. Locate property owner in publicly accessible (or viewable) area willing to remove bulkhead, levee, or stream bank armoring and replace it with more ecologically friendly design. Publicize efforts through various means. Demonstration project should contain elements that can be done by average shoreline property owner. Provide information on costs and advantages of alternate treatments.	High – Medium-		Variable
C716	Lack of large woody debris	Overcome public fear and resistance to providing and	Shoreline property owners,	Increase public awareness about the value of large woody debris and native vegetation for flood protection, salmon habitat, and healthy streams. Convey through	High-Medium	Existing King County and US Forest	Low

Proj #	Habitat Condition	Desired Outcome	Target Audience	Proposed Action	Priority	Proven Track Record/ Model	Level of Financial Commit.
		maintaining woody debris along shorelines and subsequent source of cover, pools, riffles	general public	media (local newspapers, community newsletters); signage along publicly accessible "model" shoreline; and brochures such as King *County's Large Woody Debris and River Safety* and US Forest *Service Large Woody Material: The Backbone of a Stream*. Distribute to all shoreline property owners and to more of general public, especially recreational boaters. Brochures on LWD and boater safety could be made available at appropriate locations such as: the Renton Community Center (where some tubers put in or pull out), the Henry Moses Pool and Water Park, the Renton Public Library (also on the river), and retail locations where inner-tubes, canoes, and kayaks are sold or rented. *Where there is right-of-way or permission from private owners, consider installing kid-friendly signage which addresses the potential dangers that LWD can pose to boaters – along with the value it provides to salmon and the health of the river.. Where possible, locate signs at popular "put-in" and " take-out" spots along the river.*		Service brochures	
C717	All conditions listed above.	Reduce channel confinement, restore riparian vegetation, and floodplain connectivity and channel complexity	Shoreline property owners	Explore possibility of adding a disclosure to Real Estate Sales Agreement describing shorelines as sensitive areas, subject to rules and regulations of City and County. Look to model set by King County.	High – Medium	King County Dept. of Development and Environmental Services	Medium
C718	Water quality compromised by toxics, pesticides, metal fines, and nutrient overloads	Protect and restore water quality.	General Public	Work with auto parts retailers and gas stations to increase potential for collection of used motor oil/transmission fluids. Distribute Water Quality poster series which depicts impacts of everyday practices: washing car, driving car without maintenance, leaving pet wastes unattended, and improperly using lawn chemicals. Promote	High-Medium	Yes, King County Local Hazardous Waste Management *EnviroStars* program	Medium

Proj #	Habitat Condition	Desired Outcome	Target Audience	Proposed Action	Priority	Proven Track Record/ Model	Level of Financial Commit.
				stormwater best management practices related to parking lot cleaning, storm drain maintenance, and road cleaning. Make printed material available in other languages.		Water Quality Consortium, Businesses for Clean Water	
C719	Channel confinement reduced channel complexity, loss of riparian vegetation	Increase public watershed literacy awareness of effects on water quality and habitat conditions,	Community	Increase citizen involvement in voluntary stewardship programs, focusing on restoration projects to meet the needs of the conservation plan through restoration, education, monitoring and restoration site maintenance	High – Medium	Various: Cedar River Naturalists, Sammamish ReLeaf, Stream Team; Water Tenders	Medium
C720	Water quality degraded by sediment, diminished ground water recharge, flashiness of floods and resultant bed scour	Protect and restore forest cover, increase infiltration, decrease intensity of flood conditions, protect water quality from sediment	General public	Increase outreach efforts about the benefits of trees and basin-wide forest coverage to protect water quality. Clarify issues about hazard trees. Offer seedlings (perhaps provided by a timber company) to replant after potentially hazardous trees are removed. Enlist the help of nurseries/home & garden centers on this education campaign. (Potential new Fathers' Day gift idea: Buy and plant a tree each year for a dad who loves salmon).	High in rural areas; Medium in urban/suburban areas.	Yes, Sammamish ReLeaf; Mountains-to-Sound Greenway; City tree ordinances.	Variable - Medium
C721	All conditions listed.	Protect forest cover, wetlands, headwaters, critical salmon habitat; increase public support for land acquisition and restoration projects, as well as landuse policies.	Shoreline property owners, general public	Identify and encourage shoreline neighborhood and community stewardship associations to foster the ethic of voluntary stewardship. Use these groups to build a bridge between property owners, agencies, and locals governments. Promote watershed health through grassroots messaging. Increased potential for media coverage when efforts initiated at community level.	Medium	Friends of Rock Creek Valley, Friends of Cedar River Watershed, Cedar River Council, Lake Forest Park Stewardship Foundation,	Low
C722	Loss of forest cover, organic content in soils, increase in impervious areas and increased run-off, degraded water quality flashiness during flood conditions.	Protect forest cover, reduce impervious area and runoff, increase infiltration, protect and restore water quality, maintain instream flows	Design/ Build Industry	Create a campaign that tracks demand among community residents for purchasing green homes and remodeling with green building strategies.	Medium	Green Car Program	Low
C723	Degraded water	Cultivate ethic of	Youth	Link education and community service stewardship	Medium	Environmental	Low

Proj #	Habitat Condition	Desired Outcome	Target Audience	Proposed Action	Priority	Proven Track Record/ Model	Level of Financial Commit.
	quality, instream flows, habitat quality	environmental stewardship; increase watershed awareness and links between manmade habitat and environmental health.		projects. Expand to community outreach to community/technical colleges & universities.		Portal Seattle, Mercer Slough Interns, N. Shore Utility Tour, Water Tenders.	
C724	Riparian vegetation displaced by lawn, invasives, or exotics, providing little food value, source of large woody debris, or soil stability. Water quality compromised by garden chemicals, metals, sediment. Higher water use at times when flows lowest.	Replace lawn and other lower ecological value plantings with riparian buffers and native plants	General public	Encourage neighborhood garden tours of salmon friendly gardens. Help residents visualize alternatives to traditional (and often less eco-friendly) landscape treatments. Offer neighbors assistance with publicity, signage, and volunteer docents. Coordinate with neighborhood garden clubs.	Medium	Existing neighborhood garden tours. Volunteer docents by King County Master Recycler Composters and WSU Master Gardeners.	Low
C725	All conditions discussed above.	Increase awareness about effects of habitat on salmon and watershed health; increase support for land acquisition and restoration efforts as well as landuse policies; inspire shoreline property owners to make changes on their own property.	General public, but in particular Shoreline property owners	Create local informational TV spots that could run on the government cable channels. Focus on those habitat conditions threatening salmon that are affected by our daily personal practices, landscape design and management practices. Showcase good designs to provide models to emulate.	Medium – Low	Salmon Information TV, C-TV,	Variable
C726	All conditions discussed above.	Encourage Design/Build industry professionals to offer more salmon friendly/eco-friendly	Design & Building Profession-als	Use recognition as a means to encourage more salmon sustainable designs and construction. Coordinate with professional association awards in addition to popular magazine merit awards. Continue to recognize businesses that carry out procedures or use products	Medium – Low	American Institute of Architects, American Society of	Low

Proj #	Habitat Condition	Desired Outcome	Target Audience	Proposed Action	Priority	Proven Track Record/ Model	Level of Financial Commit.
		design solutions.		that protect watershed health.		Landscape Architects, Sunset Magazine, and Seattle Times Home and Garden awards, King County Enviro. Stars.	
C727	All conditions discussed above	Increase watershed literacy and understanding of effects of habitat on salmon	Business Community and General Public	Coordinate with businesses along Cedar that can help with outreach goals. For example, Ivar's Seafoods could promote key messages about salmon conservation on their menus or though game cards. This seafood chain also has other restaurants located within WRIA 8 so it could be cost effective for them to do such a promotion.	Medium	Yes	Low
C728	Water quality degraded by toxics and metal fines.	Reinforce to students and the community the relationship between what goes down storm drain and watershed health via an affordable and easily implemented program.	General Public	Expand storm-drain stenciling program locally and basin-wide. Track locations and dates in a Cedar Basin database.	Medium - Low	Yes	Low
C729	Channel confinement, loss of riparian buffer: sources of large woody debris, pools, riffles; reduced channel complexity,	Inspire shoreline property owners to make changes on their own property by providing good examples; increase public support for land acquisition and restoration efforts as well as landuse policies.	Shoreline property owners and general public	Use government cable channels to follow progress of the site specific restoration projects. Use of video to document projects before, during, and after restoration. Distribute resulting programs to libraries, schools, and communities groups.	Low	Salmon Information TV	Variable
C730	All conditions discussed above.	Improve watershed awareness and	Youth	Focus environmental/science curricula on local watershed issues, with particular emphasis on key	Low-Future	Yes	Medium

Proj #	Habitat Condition	Desired Outcome	Target Audience	Proposed Action	Priority	Proven Track Record/ Model	Level of Financial Commit.
		possibly prevent future habitat degradation by instilling a better understanding of interrelationship between habitat, daily actions, and watershed health.		factors limiting the Cedar Chinook population.			

Draft Proposed Outreach & Education Actions for Lake Washington
(by WRIA 8 Public Outreach Committee)

Proj #	Habitat Condition	Desired Outcome	Target Audience	Proposed Action	Priority	Proven Track Record/Model	Level of Financial Commit.
C729	Shoreline hardening, riparian vegetation displaced by lawn, invasives, or exotics with low ecological value, overwater structures creating sharp light contrast, water quality degraded by effects of landscape practices	Increase awareness that the lakeshore is also a nursery for juvenile salmon. It's possible to make "home improvements" that can benefit both property owner and salmon. [people pets, and planet]	Lakeshore property owners	Promote concept of living with the lake, instead of just on it through public messaging. Foster idea of sharing the shoreline with other species that inhabit the lakeshore. Carry out through workshops, literature, and development of education and marketing campaigns	High	Lakeside Living Workshop Series; King County Lake Stewardship Program	Variable
C730	Shoreline hardening, riparian vegetation displaced by lawn, invasives, or exotics with low ecological value, overwater structures creating sharp light contrast, water quality degraded by effects of landscape practices	Reduce conditions favored by predator species; protect & restore water quality.	Lakeshore property owners	Offer lakeshore property owners a series of workshops on lakeshore living: natural yard care; reduction of lawn size, shoreline buffer planting design/noxious weed management; alternatives to vertical wall bulkheads; salmon friendly dock design; aquatic weed management; environmentally friendly methods of maintaining boats, docks, decks; porous paving options	High	WRIA 8/KCD Lakeside Living Lakeshore Property Owner Workshops, Seattle Public Utilities and Snohomish County Creek Stewardship Programs, City of Issaquah's Creekside Living Program, Natural Yard Care Neighborhoods	Medium-High

Proj #	Habitat Condition	Desired Outcome	Target Audience	Proposed Action	Priority	Proven Track Record/Model	Level of Financial Commit.
C731	Forested parcels threatened by development, (even though difficult to build on); creek mouths degraded or unrecognizable (culverted); riparian vegetation replaced by invasives infested along shoreline	Protect and/or restore forest land, critical areas such as wetlands and shallow water rearing habitat. Promote watershed health through grassroots messaging.	Community, but especially lakeshore property owners.	Identify and encourage shoreline neighborhood and community stewardship associations. Use to foster the ethic of voluntary stewardship, set examples for other neighbors to follow, enlist community support to acquire and restore habitat, and to build a bridge between property owners, agencies, and local governments. Increase potential for media coverage when efforts initiated at community level.	High	Lake Forest Park Stewardship Foundation, Save Lake Sammamish, Denny Creek Neighborhood Association	Low
C732	Riparian vegetation displaced by lawn, invasives, or exotics; water quality compromised by garden chemicals, metals, sediment; elevated water temperatures due to increased water use at times when flows lowest.	Protect and improve rearing and migratory habitat; protect and restore water quality	Lakeshore property owners, general public	Update where necessary salmon-friendly educational materials such as *Salmon Friendly Gardening Practices, Going Native, Watershed Waltz and Sammamish Swing* booklets. Print and distribute to the following prioritized audiences: 1)lakeshore property owners 2) Public places such as libraries, city halls, community centers and where permitted, at home improvement centers and other major retail establishments.	Medium - High	Yes	Low-Medium
C733	Riparian vegetation displaced by lawn, invasives, or exotics; water quality compromised by garden chemicals, metals, sediment.; elevated water temperatures due to increased water use at times when flows lowest.	Protect & restore shoreline buffer plantings to provide source of food & shelter; protect& restore water quality, maintain baseflows of feeder streams in order to provide source of cooler water	Lakeshore property owners	Modify more for “lakeshore living” the existing “Streamside Living Welcome Wagon” program in which residents welcome new homeowners to the neighborhood and provide information concerning “salmon friendly” yard care, lakeshore planting tips, water-wise gardening.	Medium	WaterTenders Streamside Living Welcome Wagon	Low-Medium
C734	Solid overwater surfaces that create sharp light contrast and dark shadows,	Reduce severity of predation on juveniles	Lakeshore property owners	Explain about mutual value of mesh docks, smaller piling sizes, and community docks to salmon and property owners: Reduced predation for fish; reduced maintenance for homeowners, opportunity to watch small	High		Medium

Proj #	Habitat Condition	Desired Outcome	Target Audience	Proposed Action	Priority	Proven Track Record/Model	Level of Financial Commit.
	conditions favored by predators.			fish swimming under the dock, and architectural interest provided by new salmon-friendly elevated dock bridges. Outreach could be carried out, for example, by creating a boat owner education campaign. Mailings could be sent with boat registration tab renewal or with property tax notice for shoreline property owners; by literature at marine, sporting goods and hardware stores, at boat shows; and through workshops to homeowners and marine construction industry. Coordinate outreach through appropriate licensing agencies.			
C735	Sharp light contrast and dark hiding spots created by overwater structures, conditions favored by predators	Reduce severity of predation on juveniles by reducing number of docks.	Lakeshore property owners	Offer financial incentives for community docks in terms of reduced: permit fees, loan fees/percentage rates, taxes and permitting time, in addition to reduced construction costs	High		low
C736	Steep shoreline gradient with coarse aggregate caused by wave action on vertical wall bulkheads	Create sandy, shallow water habitat needed by juveniles.	Lakeshore property owners	Utilize niche marketing to promote a "Build a Beach" campaign. Clarify how hardened shorelines prevent the development of shallow, sandy beaches and how alternative treatments can provide these amenities. Of benefit to salmon and to homeowners desiring more easily accessible shallow beach and aesthetics of a cove. Work with media (including design and lifestyle magazines) and real estate community (articles in real estate sections of papers) as well as construction, and design industry professionals	High	Pro Bono advertising campaign development – The Coalition for Drug Free America ad campaign). Bert the Salmon ads	Variable, but low able to get Pro Bono assistance .
C737	Lack of shelter provided by large and small woody debris due to lack of shoreline vegetation; steep dropoffs from shoreline hardening	Reduce conditions favored by predator species.; increase shoreline buffer vegetation and sources for large and small woody debris	Lakeshore property owners	Alternative marketing campaign: work with advertising industry and media. Do a play on "Child Haven" promotion. *Fry Haven*? Contrast picture of a sandy shallow shoreline containing woody debris hiding Chinook juveniles with that of a deep gravelly shoreline with evil looking predator species lurking, gobbling up young Chinook. [A "Chinook need safe places too" idea]. Possibly graphics in style of *Finding Nemo*. Create a marketing niche with landscape related industries to inform property owners about feeding requirements of out-migrating salmon off their beach. Validate need for native vegetation along the shoreline in	High	Various Bert the Salmon Ad campaigns	

Proj #	Habitat Condition	Desired Outcome	Target Audience	Proposed Action	Priority	Proven Track Record/Model	Level of Financial Commit.
				how it provides food source for fish and other wildlife. Perhaps an "Are you starving your neighborhood salmon?" campaign that addresses impacts of denuding shorelines of woody and emergent vegetation could be developed. Or maybe flip to more positive "Have you fed your neighborhood salmon today?" Heighten awareness that it is the young juvenile fish that are at risk. (Humans are often more receptive to saving children). Possibly do a play on *Save the Children* charity campaign, showing stressed conditions for juvenile Chinook trying to rear and migrate through lake.			
C738	Lack of appropriate shoreline vegetation, shoreline hardening by vertical wall bulkheads and rip rap walls; docks that create stark light contrast and hiding spots for predators	Reduce conditions favored by predator species by "softening" shoreline; increase shoreline buffer vegetation and sources for large and small woody debris, replace the many docks with more salmon friendly designs	Lakeshore property owners	Demonstration Project. Locate property owner in publicly accessible (or viewable) area willing to remove bulkhead, or shoreline armoring and replace it with more ecologically friendly design. Similarly, renovate existing dock with more salmon-friendly design. Publicize efforts through various means. Demonstration project should contain elements that can be done by average shoreline property owner. Provide information on costs and advantages of alternate treatments.	Medium – High	Redmond River Walk, Juanita Beach, Classic Nursery, Lark Forest Park Stewardship projects	Medium
C739	Coarse substrate, steep slope, dark hiding spots for predators caused by bulkheads and solid surface docks.	Reduce conditions favored by predator species; increase shoreline buffer vegetation and sources for large and small woody debris	Lakeshore property owners, general public	Document video progress on a range of restoration projects from planning to post-construction. Air on government cable channels, in shoreline property owner classes and for libraries, schools, communities groups.	Medium		Variable
C740	Coarse substrate, steep slope, dark hiding spots for	Overcome resistance of shoreline property	Lakeshore property owners,	Combine recreation and education. Organize a Bulkhead Alternatives and Salmon Friendly Dock Design tour to see good examples of design on a residential scale.	Low	King County and People for Puget Sound	Variable

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	predators caused by bulkheads and solid surface docks.	owners to make such drastic changes to their shorelines by offering local examples of alternative treatments. Ultimate goal is to reduce conditions favored by predator species	general public	Organize as boat tour so properties can be viewed from water (less invasive to property owner). Alternatively, create a self-guided water tour (most shoreline property owners have their own boats) with GPS coordinates to help locate example property.		shoreline homeowner workshops (pilot programs)	
C741	Shoreline hardening, riparian vegetation displaced by lawn, ivasives, or exotics with low ecological value, overwater structures creating sharp light contrast, water quality degraded by effects of landscape practices	Protect and improve water quality; habitat quality - or- Protect & restore riparian vegetation to provide terrestrial food source and shelter; protect& restore water quality, maintain instream flows upstream to provide source of cooler water	Landscape Contractors	Offer professional workshops to landscape designers & contractors on environmentally-friendly lakeshore landscaping. Include topics such as shoreline buffer function and design, native plant selection, installation techniques, use of compost to build healthy soils, and noxious weed control. Determine need for training for non-English speaking participants	Medium – High	Washington Assoc of Landscape Professionals (WALP) Trainings by King County Local Hazardous Waste Management Program	Low
C742	Riparian vegetation displaced by lawn. Water quality compromised by garden chemicals, metals, sediment.	Increase shoreline planting; reduce lawn size to at least have buffer between lawn and shore.	Lakeshore property owners	Work with landscape, design, and real estate industries to sell benefit of "privacy" to homeowners. With restoration of shoreline buffer planting homeowners can increase privacy without sacrificing views. Promote idea of "framed views" as a more sophisticated landscape aesthetic.	Medium - High	1998 Lake Sammamish Shoreline Prop owners workshop Pilot Program	
C743	Lack of shoreline buffer vegetation, increased water use when levels lowest;	Increase native vegetation and source of shelter and food for fish;	Lakeshore property owners , Community	Increase number of native plant salvages where landowners can take plants back to their yards. Publicize opportunity to drop off unwanted native plants at various parks surrounding the lake.	Low – Lake Washin gton	King County Native Plant Salvage Program	

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	increased perceived need for pesticides	reduce erosion and need for supplemental irrigation (once established)			Low-Med Samma mish		
C744	Lack of appropriate shoreline vegetation	Increase shoreline vegetation and reduce non-native vegetation & spread of invasives	Lakeshore property owners	Reduce permit fees (where applicable) for shoreline restoration, removal & replacement of non-native vegetation	Medium		Low
C745	Water quality degraded by toxics, pesticides, increased nutrient loads, sediment from construction sites; loss of riparian vegetation	Protect and improve water quality	General Public	Publicize emergency call numbers for public to report water quality problems, water diversion from lake for irrigation, , non-permitted vegetation clearing, or tree overspray (pesticide) related incidents.	High	King County Water & Land Division, Seattle Public Utilities Hotlines	Low
C746	Reduced forest and canopy cover; increased impervious areas, decreased infiltration; more flashiness of floods due to intensity of runoff	Protect and improve water quality; reduce quantity of water entering lake: during flood conditions can mix with sanitary sewer flows and enter lake.	General public, but property owners in particular	Increase outreach concerning the benefits of trees and basin-wide forest coverage to protect water quality. Include such actions as significant tree ordinance and information that links canopy cover to storm water issues. Provide clarification on hazardous tree issues. Offer seedlings to replant after hazard trees are removed. Coordinate with commercial nurseries to expand outreach about benefits of trees to salmon.	Medium-High	Sammamish ReLeaf; Mountains-to-Sound Greenway; City tree ordinances, King County Forestry Program	Low
C747	Elevated lake temperatures, lack of cool water sources from feeder streams, insufficient flows in feeder streams to provide source of cooler water, lack of ground water recharge, water	Protect forest cover, reduce paving an d impervious areas, increase infiltration and conditions that mimic natural hydrology, protect water quality	Design, engineering, and construction industries	Provide education to architects, landscape architects, engineers, and developers on sustainable building/design practices. Work with professional associations to highlight building practices that maintain watershed health, importance of maintaining canopy cover and limiting impervious surfaces. Provide incentives to builders that demonstrate a use ecologically sensitive designs and/or techniques. Provide professional workshop and tours focusing on	Medium - High	WALP Trainings by King County Local Hazardous Waste Management Program. Stoneway	Variable

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	quality, habitat quality			sustainable building/design practices to architects, landscape architects, engineers and developers. Build partnerships with professional associations to highlight the benefits of practices that maintain watershed health. Promote through design competitions and media coverage the use of "rain gardens" and other low impact development practices that mimic natural hydrology. Combine a home & garden tour or "Street of Dreams" type event featuring these landscape and engineering treatments.		Concrete Council for Sustainable Development outreach on pervious pavement. Port Blakely Communities, Issaquah partnerships, Built Green, Sustainable Seattle, LEEDS	
C748	Reduced forest cover, increased impervious area, decreased infiltration and ground water recharge, water quality degraded by runoff	Protect and improve water quality and quantity to more closely mimic natural hydrology	Developers, Architects, Engineers Building Professionals	Use recognition as a means to encourage more salmon sustainable designs and construction. Coordinate with professional association awards, in addition to popular magazine merit awards. Continue to recognize businesses that carry out procedures or use products that protect watershed health. Promote through design competitions and media coverage the use of "rain gardens" and other low impact development practices that mimic natural hydrology. Combine a home/garden tour or "Street of Dreams" type event featuring these landscape /engineering treatments	Medium	AIA, ASLA, Sunset Magazine, and Seattle Times Home and Garden awards, King County Enviro Stars.	Low
C749	Water quality degraded by metals, toxins, pesticides, and nutrient overloads	Protect and improve water quality	General Public	Create a program that addresses impact of car maintenance and offers alternatives that help protect watershed health and water quality. More actively distribute – poster series developed by multi-jurisdictional Water Quality Consortium. Series depict water quality implications of everyday activities such as car washing, ignoring car maintenance, pet wastes. Work with auto parts retailers and gas stations to increase potential for collection of used motor oil/transmission fluids.	Medium	King County Local Hazardous Waste Mgmt Program Water Quality Consortium, Businesses for Clean Water	variable

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				Make outreach materials available to non-English speakers.			
C750	Water Quality degraded by toxics and metal fines	Protect and restore water quality	General Public	Build partnerships and seek outreach opportunities with commute trip reduction programs to convey the impacts of automobiles on water quality and salmon habitat. Encourage alternative transportation choices.	Medium	Commute Trip Reduction Programs	Low - Medium
C751	Water Quality degraded by toxics and metal fines degraded by metals and toxins	Protect and restore water quality	General Public, schools/non-profits and Charity groups – and business that offer to host a carwash.	Coordinate with local business community to encourage the use of commercial car washes over washing at home on street or in parking lots. Encourage alternatives to charity cash washes via commercial car wash coupon books or extend car wash kits throughout entire watershed. Make requirement that all charity car washes use coupons or car wash storm drain kit. Distribute "alternative community fundraising idea" brochure to volunteer fundraisers.	Medium - High	Yes, various cities' car wash kit programs. Puget Sound Carwash Association	Low
C752	Water quality degraded by metals and toxins	Protect and restore water quality	Businesses, property management companies, homeowners associations.	Educate and support retail business and homeowner associations on stormwater best management practices specifically related to parking lot cleaning, storm drain maintenance, and boat cleaning.	Medium	Ongoing programs by various jurisdictions within WIRA, e.g. Issaquah, Redmond	Low
C753	Reduced baseflows from streams that feed into lake and subsequent elevated water temperatures in lake	Protect and restore sources of cool water	High end water users and general public	Extend availability of water conservation incentive programs such as rebates for efficient toilets, appliances, soaker hoses, free indoor conservation kits, or free landscape irrigation audits to decrease household and commercial water consumption.	High	Smart & Healthy Landscapes, Water Cents, and other utility incentive programs	Low