

SHORELINE RESTORATION PLAN

City of Spokane Valley Shoreline Master Program Update

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Acronyms

ALEA	Aquatic Lands Enhancement Account
CIP	Capital Improvement Project
City	City of Spokane Valley
DIP	Detailed Implementation Plan
DNR	Washington Department of Natural Resources
Ecology	Washington Department of Ecology
GIS	Geographical Information Systems
INLT	Inland Northwest Land Trust
IPM	Integrated Pest Management
LWD	Large Woody Debris
NPCC	Northwest Power and Conservation Council
OHWM	Ordinary High Water Mark
REI	Recreational Equipment Incorporated
ROW	Right-of-Way
SCD	Spokane Conservation District
SMA	Shoreline Management Act
SMP	Shoreline Master Program
SSP	Spokane Subbasin Plan
State Parks	Washington State Parks and Recreation Commission
TMDL	Total Maximum Daily Load
URS	URS Corporation (author)
WAC	Washington Administrative Code
WDFW	Washington Department of Fish and Wildlife
WRIA	Water Resource Inventory Area

1.1 SHORELINE RESTORATION IN THE SMP UPDATE PROCESS (OVERVIEW)

Under the Washington State Shoreline Management Act (SMA), each city and county with "Shorelines of the State" must adopt a Shoreline Master Program (SMP) based on state laws and rules but tailored to the specific geographic, economic, and environmental needs of the community. The primary goal that must be addressed in an SMP update is how to achieve "no net loss of ecological shoreline functions necessary to sustain shoreline natural resources" (Ecology 2004). This Shoreline Restoration Plan (Plan) describes actions intended to compensate for anticipated future shoreline habitat degradation associated with development and increased land use pressure. Incorporating shoreline restoration planning into the SMP update process allows the City of Spokane Valley (City) to balance anticipated shoreline habitat degradation and enhancement in a manner that maintains the overall existing ecological condition of shorelines.

Within the City, only the Spokane River shorelines meet the definition of "Shorelines of Statewide Significance." Additionally, all waters over 20 acres in area fall under the jurisdiction of the SMA as "Waters of the State." As such, all areas within 200 feet of the Ordinary High Water Mark (OHWM) of Shelley Lake are also regulated under the SMA and considered in the City's SMP updates. Two active gravel mine pits have exposed the aquifer resulting in areas of water greater than 20 acres. However, as active mine pits are regulated under the Washington Department of Natural Resources (DNR), these features are not addressed in this Plan.

Updating the SMP involves several elements, including a baseline inventory of regulated shoreline areas, an assessment of key issues and opportunities for improvement within such areas, and a restoration plan to provide guidance for carrying out restoration in a comprehensive manner. The baseline characterization and the assessment of key issues and opportunities have been completed by URS Corporation (URS) in coordination with the City's Planning Department. These efforts were documented in a report titled *City of Spokane Valley Shoreline Master Program Update, Shoreline Inventory and Characterization Report* (URS 2010).

This Plan establishes overall goals and objectives for city-wide shoreline restoration efforts. It addresses degraded areas and impaired ecological functions identified in the Inventory and Analysis Report, identifies and prioritizes restoration opportunities, and prescribes generalized treatment options for various restoration scenarios. The Plan also identifies current and ongoing programs that contribute to achieving these goals, as well as additional projects or programs necessary for success. Lastly, this Plan seeks to develop a draft implementation strategy including funding options, proposed timelines, an adaptive management strategy, and benchmarks. The Plan is based on the Inventory and Analysis Report and a review of other plans and assessments aimed at improving the ecological health of the Spokane River and Shelley Lake.

The term "restoration" has many definitions, both scientific and regulatory. For the purpose of this Plan, restoration is defined as:

The reestablishment or upgrading of impaired ecological shoreline processes or functions. This may be accomplished through measures including, but not limited to, revegetation, removal of intrusive shoreline structures, and removal or treatment of toxic materials. Restoration does not imply a requirement for returning the shoreline

area to aboriginal or pre-European settlement conditions. (Washington Administrative Code [WAC] 173-26-020(27)).

Under the SMP, the City's role in shoreline restoration includes collaborative planning, regulation, preservation of high-quality shoreline areas, and aiding community efforts to restore degraded portions of City's shorelines.

A well-designed restoration plan can help local governments meet the "no net loss" standard of the SMP Guidelines. Restoration planning must, therefore, include some form of monitoring to ensure that intended restoration actions are offsetting the expected loss of function that will occur from incremental impacts sustained over time (Ecology 2010a).

1.2 CONTEXT FOR THE CITY OF SPOKANE VALLEY

This Plan provides a framework for restoration of the City's SMA-regulated shorelines. Specifically, it describes how the City plans to develop and monitor a restoration program as part of its SMP. Upon acceptance by the Washington State Department of Ecology (Ecology), the City will oversee the implementation, progress, and monitoring of this Plan.

The City's role in the restoration of shorelines will focus on the fostering, coordinating, and documenting of restoration partnerships as described in Sections 6.1 and 6.3. Upon forming these partnerships, the City and its restoration partners would work together on securing restoration funding, as per Section 6.2. The City realizes the importance of implementing this Plan and will strive to attain the timelines and benchmarks described herein as funding allows.

Per WAC 173-26-201(2)(f), the process to prepare a restoration plan may vary significantly among local jurisdictions depending on a variety of factors including size of the jurisdiction; extent and condition of shorelines; the availability of grants, volunteer programs, or other tools for restoration; and the nature of the ecological functions to be addressed. The City is unique in that most of the near-shore riparian habitat along the Spokane River within the city limits is managed as natural area by the Washington State Parks and Recreation Commission (State Parks). Due to this designation, the shoreline condition is in a relatively natural and stable state compared with other urban environments. However, recreational use is projected to increase and future developments are anticipated within the shoreline jurisdiction. To balance this increased land use pressure, which has the potential to negatively affect shoreline ecological functions, implementing the restoration actions described in this Plan will help the City meet the goal of "no net loss of shoreline ecological functions."

A limitation to Spokane River aquatic habitat quality is the presence of dams above and below the City. The dams limit summer flows and also create slack water at the west end of the City. Operation of the dams is a factor that is mostly beyond the control of the City.

The restoration element of the City's SMP update is focused on the identification of restoration opportunities, ranking of those opportunities, and identifying partnerships, planning elements, and grant options to implement these opportunities. It should be noted that coordination between the City and State Parks will be required to further many of the restoration opportunities identified in this Plan.

1.3 REQUIRED ELEMENTS OF RESTORATION PLANNING FOR SMP UPDATES

The state guidelines (WAC 173-26-201(2)(f)) provide six necessary elements for a complete shoreline restoration plan. These elements are summarized in Table 1 with reference to the section of this report in which that element is addressed.

Table 1. Required Elements of Restoration Planning for SMP Updates

Shoreline Restoration Plan Elements for SMP Updates	Section in this Report
Identify degraded areas, impaired ecological functions, and sites with potential for ecological restoration.	Section 3: Existing and Ongoing Projects and Programs -and- Section 5: Restoration Opportunities
Establish overall goals and priorities for restoration of degraded areas and impaired ecological functions.	Section 2: Restoration Goals and Supporting Policies -and- Section 4: Prioritization Methodology
Identify existing and ongoing projects and programs currently being implemented that are designed to contribute to local restoration goals (such as capital improvement programs [CIPs] and watershed planning efforts).	Section 3: Existing and Ongoing Projects and Programs
Identify additional projects and programs needed to achieve local restoration goals and implementation strategies, including identifying prospective funding sources for those projects and programs.	Section 3: Existing and Ongoing Projects and Programs -and- Section 6: Implementation Plan
Identify timelines and benchmarks for implementing restoration projects and programs, and achieving local restoration goals.	Section 6: Implementation Plan
Provide for mechanisms or strategies to ensure that restoration projects and programs will be implemented according to plans and to appropriately review the effectiveness of the projects and programs in meeting the overall restoration goals (e.g., monitoring of restoration project sites).	Section 7: Monitoring and Maintenance

SECTION TWO RESTORATION GOALS AND SUPPORTING POLICIES

The goals and policies of this Plan direct the course of the City's shoreline restoration efforts. This Plan's goals and policies are an expansion of the proposed SMP Restoration Element goals and policies and are tailored to address the findings and recommendations of relevant plans and assessments reviewed for this Plan.

Goal SMP 6: Conservation: Preserve for the future those natural resources, including the unique, fragile, and scenic qualities of the shoreline, which cannot be replaced. Achieve no net loss of ecological functions of the shoreline.

Goal SMP 7: Restoration: Restore habitat and the natural systems to improve shoreline ecological functions.

Restoration Plan Policy 1: *Summarize degraded shoreline areas and functions documented by previous assessments.*

This Plan documents areas identified as restoration opportunities by the *City of Spokane Valley Shoreline Inventory and Characterization Report* (URS 2010). For each restoration opportunity identified by the Inventory and Characterization Report, the Plan documents the apparent impairment (cause of degradation to shoreline ecological functions) and a conceptual restoration approach.

Restoration Plan Policy 2: *Prioritize restoration opportunities to identify projects with greatest benefit to shoreline areas.*

In order to most effectively proceed with restoration efforts, this Plan prioritizes restoration opportunities in terms of overall benefit to the waterway. Restoration priorities are based on an assessment of limiting factors (as summarized in Section 3.1, below) in combination with the ease of project implementation (e.g., on public land) and project size. Prioritization methods are described in Section 4.

Restoration Plan Policy 3: *Establish an implementation strategy.*

As directed by WAC 173-26-201(2)(f)(iii-iv), an adequate restoration plan must identify potential restoration partners, potential funding mechanisms, timelines, and benchmarks. Together, these elements comprise an implementation strategy. This Plan includes these elements and organizes them to facilitate a workable implementation strategy.

Restoration Plan Policy 4: *Identify existing and prospective projects and programs that are contributing or likely to contribute towards local shoreline restoration efforts.*

An assortment of existing project and programs are in effect to support shoreline restoration efforts. Some are located within the City while others are regional. This Plan includes an assessment of the existing project and programs to determine where gaps exist with regard to achieving the goal of this Plan. This Plan then describes additional projects and/or programs that have the potential to fill in those gaps.

SECTION TWO RESTORATION GOALS AND SUPPORTING POLICIES

Restoration Plan Policy 5: *Work with public and private partners to encourage restoration and enhancement of Spokane Valley's shoreline areas.*

The City will work to establish partnerships with public and private groups on specific restoration projects and/or programs, as funding allows. Special emphasis will be placed on creating partnerships with State Parks as they own a majority of the land within the City's shoreline jurisdiction.

Restoration Plan Policy 6: *Monitor success of restoration activities and adapt strategies based on monitoring results.*

This Plan establishes a monitoring protocol to evaluate the effectiveness of the City's efforts to implement the Plan and meet the overall restoration goal. Monitoring data may be used to identify successful project designs that serve as examples for future restoration projects. In addition, where monitoring data documents failed design, the data will be used to modify the strategy for subsequent restoration design projects.

This section summarizes existing factors limiting the functionality of the shoreline ecosystem within the City. It then identifies existing ongoing projects and programs that are contributing or likely to contribute towards local shoreline restoration efforts. Lastly, this section identifies additional projects and programs that, in combination with existing projects and programs, would meet the goals of this Plan and address the limiting factors.

3.1 SUMMARY OF LIMITING FACTORS

Based on shoreline observations and existing natural resource assessments and watershed plans reviewed while preparing the *City of Spokane Valley Shoreline Inventory and Characterization Report* (URS 2010), the following table provides a summary of limiting factors for the Spokane River and Shelley Lake shoreline ecosystems. Limiting factors are environmental variables whose presence, absence, or abundance restricts the distribution, numbers, or condition of one or more organisms (Webster 2007). These factors impair ecosystem processes and limit the capacity of ecological functions. Restoration activities should be developed to address the cause of these limiting factors, where possible.

Table 2. Summary of Factors Limiting the Proper Functioning Condition of the City’s SMA-Regulated Waters

LIMITING FACTOR	ASSUMED CAUSE(S)	AFFECTED WATER
Dissolved metals (toxics)	Past industrial practices	Spokane River
High summer water temperature	Lack of riparian cover, low/restricted flows	Spokane River, Shelley Lake
Lack of riparian cover	Adjacent land management (transportation/ utility corridor right-of-way [ROW] maintenance), pedestrian degradation, non-native species establishment, urban land use (turf, concrete, etc.)	Spokane River
Lack of lake fringe vegetation	Dramatic draw-down zone on steep lacustrine banks inhibits natural recruitment of permanent lakeside vegetation	Shelley Lake
Presence/spread of noxious vegetation that displaces higher functioning native habitat	Prior introductions, funding insufficient to treat cause or contain existing populations, continued transport along Centennial Trail	Spokane River
Low dissolved oxygen	Eutrophication due to high-nutrient inputs from non-point sources in WA and ID, low flow in slack water portions of river	Spokane River, Shelley Lake
Lack of fish passage	Multiple hydroelectric dams and Spokane Falls	Spokane River
Low summer flows	Dams hold back water in Lake Coeur d’Alene and Saltese Creek, which results in low summer flows to the river and lake, respectively	Spokane River, Shelley Lake

3.2 EXISTING AND ONGOING PROJECTS AND PROGRAMS

3.2.1 Spokane Subbasin Plan

The Spokane Subbasin Plan (SSP), contained within the larger Intermountain Subbasin Plan, was prepared by GEI Consultants Inc. for the Northwest Power and Conservation Council (NPCC) in 2004 (GEI Consultants Inc. 2004). The NPCC is responsible for developing a fish and wildlife program to protect, mitigate, and enhance fish and wildlife affected by hydroelectric development in the Columbia River Basin and make annual funding recommendations to the Bonneville Power Administration for projects to implement the program. The SSP assessed existing conditions within the subbasin and was developed in an open public process, incorporating feedback from a wide range of state, federal, tribal, and local managers, experts, landowners, local governments, and stakeholders.

The primary purpose of the plan is to guide the design and funding of projects that protect, mitigate, and enhance fish and wildlife that have been adversely impacted by the development and operation of the Columbia River hydropower system. The construction and maintenance of dams, habitat degradation caused by agriculture and timber harvest, pollutants from point and non-point sources, sedimentation, declining stream flows, urbanization, fish barriers, and non-native fish have all contributed to the decline of native species in the Intermountain Subbasin. The SSP contains a management plan that outlines goals and objectives which prioritize implementation strategies to address the degraded fish habitat specifically within the Spokane Subbasin.

The SSP evaluates the health of the major water bodies included within the Spokane Subbasin, including the Spokane River. The SSP provides province level objectives as well as specific objectives and strategies for effectively managing priority fish species within the Spokane Subbasin. Objectives and strategies within the SSP include the following:

- Complete assessments of resident fish losses throughout the Spokane Subbasin resulting from dam construction and operation by year 2020.
- Develop and implement projects directed at protecting, restoring, and enhancing fish habitat for both native and non-native resident fish through improvements in riparian conditions, fish passage, and aquatic conditions.
- Develop and meet recovery plan goals for sensitive native resident fish species.
- Conduct baseline investigations to determine native resident and resident fish stock composition, distribution, and relative abundance in the subbasin.
- Protect, restore, and enhance existing terrestrial and aquatic resources in order to meet the increased demands (cultural, subsistence, and recreational) on these resources associated with the extirpation of anadromous fisheries.
- Where possible, acquire priority properties that can be protected or restored to support native ecosystem/watershed function through title acquisition, conservation easements, and/or long-term leases.
- Create or use existing incentive programs for private landowners to protect and/or restore habitats to support native ecosystem/watershed function.
- Enhance populations of sensitive native resident fish through habitat improvements and artificial production in concert with recovery plans.

3.2.2 Spokane River Water Quality Managed Implementation Plan for Water Resource Inventory Area (WRIA) 57

Watershed planning is being conducted in the Middle Spokane River Basin (WRIA 57) through grants from Ecology. WRIA 57 comprises the portions of the drainage basin of the Spokane River upstream of the confluence with Latah Creek to Washington State's eastern boundary, including all portions of the river within the City. Spokane County is the lead agency of a planning unit that was formed in 1999 and includes broad representation of local agencies and various interest groups in the basin. The planning unit holds monthly meetings that are open to the public.

The WRIA 55 & 57 Watershed Management Plan was adopted by the Pend Oreille, Spokane, and Stevens County Commissioners on January 31, 2006. The WRIA 55 & 57 Watershed Detailed Implementation Plan (DIP) was approved by the Watershed Implementation Team on February 20, 2008. The DIP is a blueprint for coordinating and implementing 107 recommendations outlined in the Watershed Management Plan for the Little and Middle Spokane River Basins. The watershed planning effort has identified a variety of water management challenges. The recommendations fall into the following categories:

- Instream flow needs
- Water conservation, reclamation, and reuse
- Domestic exempt wells
- Water rights and claims
- Strategies for base flow augmentation
- Strategies for ground water recharge augmentation
- Approaches to plan implementation

The watershed plan and associated DIP have resulted in the various key projects being implemented within the watershed. Some future projects may occur within the City. Coordination and participation in the watershed planning unit can help implement shoreline restoration projects within the City that can help support the City's shoreline restoration goal.

3.2.3 Spokane River TMDL Management Plan

The total maximum daily load (TMDL) water quality improvement report was prepared by Ecology in 2007 and revised in 2010 (Ecology 2010b). The report establishes a management plan to address the problem of low dissolved oxygen occurring in the river due to eutrophication in the Spokane River and Lake Spokane. Eutrophication is a process where excess aquatic plant growth and algal blooms occur in water due to high levels of nutrients such as phosphorus. The excessive plant growth consumes large amounts of dissolved oxygen in the water, reducing it to levels that are harmful for fish and other aquatic species.

The report includes a Managed Implementation Plan. The goals of the Managed Implementation Plan are to reduce significant amounts of phosphorus in the Spokane River during the April through October season and achieve water quality standards for dissolved oxygen. The plan establishes limits for ammonia, total phosphorus, and carbonaceous biochemical oxygen

demand. The plan focuses on strategies to reduce phosphorus because the strategies will likely result in reductions of these and other important pollutants.

The plan sets limits on point sources, including the Kaiser industrial facility in the City. In addition, the plan must also assign pollutant loads to non-point sources in the watershed. Non-point sources are addressed by a Regional Non-Point Source Reduction Program and a Septic Tank Elimination Program.

3.2.4 Spokane River Hazardous Metals Cleanup Efforts

As part of the Eastern Washington Clean Sites Initiative, Ecology is engaged in an effort that involves communities and other partners in shaping cleanup projects, including sites within the City. Through the initiative, Ecology is attempting to reduce toxic threats to people and the environment associated with historical mining practices in the Coeur d'Alene Basin. These historical mining practices resulted in contaminants known as heavy metals washing downstream from Idaho. The metals include lead, arsenic, zinc, and cadmium, and they have settled in soil and river sediments at certain shoreline areas along the Spokane River.

Within the City, cleanup efforts are planned at four sites. In 2012, cleanup efforts will commence at the Barker Road north beach, which lies on the north side of the Spokane River east of the Barker Road Bridge. The other three beaches proposed for cleanup within the City are Islands Lagoon, Myrtle Point, and Flora Road, which are all on the south side of the Spokane River. Initial cleanup work was done at the Flora Road beach in 2009. However, heavy spring runoff in 2011 damaged portions of the protective soil cap. The new cap will be designed to minimize future erosion. Ecology and local river groups intend to plant native vegetation on the soil caps to help stabilize the banks, thus reducing future erosion concerns at cleanup sites. City coordination in these projects may help ensure that revegetation efforts are successful.

3.2.5 Riverside State Park/Centennial Trail Management Activities

Through State Parks' Classification and Management Planning Project, the Riverside State Park Management Plan was created in 2005 to establish a management plan for the park that is consistent with the agency's goal to identify appropriate recreational experiences that meet the needs of the public while protecting natural, cultural, and recreational resources for future generations (State Parks 2005). The park includes several subareas. The Centennial Trail subarea is the park area found along the Spokane River in a narrow band along much of both shorelines through the City. According to the plan, there are two relevant natural resource management issues for the Centennial Trail subarea. These include noxious weed control and protection of wildlife habitat/natural ecosystems.

As part of the park-wide vegetation management program, the plan directs park staff to coordinate with their Regional Stewardship Manager to solicit cooperation from local governments to enhance noxious weed control efforts along segments of the Centennial Trail for which they have management responsibility. To achieve this, park staff is expected to actively solicit volunteer participation in manual removal of noxious weeds along the Centennial Trail.

The plan directs wildlife habitat and natural ecosystem protection efforts to focus on riparian planting projects. Specifically, the plans' maintenance program includes planting of appropriate native vegetation along the shoulders of the Centennial Trail to reduce noxious weed invasion and enhance slope stability.

3.2.6 Washington Department of Fish and Wildlife (WDFW) Habitat Mitigation Fund

The WDFW issues Hydraulic Project Approval (HPA) permits to projects proposing construction within flowing waters. In order to issue an HPA, the WDFW must ensure that project-related impacts to fish habitat are mitigated. Using money collected through past permit violations as well as payments made in lieu of on-site compensatory mitigation from various bridge projects along the Spokane River, the WDFW created a habitat mitigation fund. The purpose of this fund is to provide dollars for fish enhancement projects within the river that offset past habitat impacts associated with the permitted projects and violations. Typically, the fund is passed on to local conservation organizations that implement specific shoreline restoration projects.

Use of the fund is discontinuing as the agency is moving away from the current process, which often makes the link between project impacts and future restoration projects difficult to follow. Future bridge projects, like the Sullivan Road Bridge repair project proposed by the City, will likely need to prepare project-specific mitigation plans in order to obtain an HPA. However, remaining money in the fund may be available for shoreline restoration projects within the City. To be eligible, the restoration project must benefit fish habitat. As riparian restoration projects and shoreline stabilization/erosion control project benefit fish habitat, it is possible that these projects would be eligible for use of any remaining funds.

3.2.7 Local Volunteer Groups

The City is fortunate to receive help from a variety of volunteer groups that engage in habitat restoration, often in shoreline areas. These groups include the Spokane River Forum, Friends of the Falls, the Spokane Canoe and Kayak Club, the Northwest Whitewater Association, Trout Unlimited, and the Veterans Conservation Corps among others. Recent shoreline restoration projects implemented by such groups include riparian plantings and the restoration of Mirabeau Park. This project involved debris and weed removal, a drain system to remedy shoreline erosion from stormwater runoff, and hydro-seeding with native plants to stabilize the affected shoreline area and provide native plant community support.

Other recent volunteer efforts in the City include the 2012 Spokane River Cleanup. This year's event is planned to cover the University District, Sullivan Park, Barker Road, and Harvard Road in the City. Each year, the amount of litter removed from the Spokane River's shorelines grows as more volunteers show up and cover more area. A growing list of groups and organizations participate each year, including high schools, churches, whitewater groups, service clubs, and others.

In addition, the Lands Council planted a mix of about 50 native shrubs at the Barker Road trailhead during the Spokane River Cleanup in 2011 and about 1,200 ponderosa pines along the Spokane River near Sullivan Park during Reforest Spokane Day in 2011. The Lands Council plans to continue these efforts in Spokane Valley during future Reforest Spokane Days and has identified high schools that may be interested in assisting with volunteer efforts. Shoreline restoration opportunities described in this Plan would be of assistance to the council as they plan for future shoreline planting projects.

3.3 ADDITIONAL PROJECTS AND PROGRAMS NEEDED TO ACHIEVE SHORELINE RESTORATION GOALS

The following proposed additional projects and programs may augment the existing, ongoing projects and programs in a manner that addresses the limiting factors and, thereby, meets the shoreline restoration goal (Section 2.1):

- Support volunteer groups engaged in shoreline restoration activities.
- Coordinate with WDFW to direct wildlife mitigation funds towards shoreline enhancement projects within the City and/or develop habitat enhancement strategies to offset impacts associated with proposed bridge projects.
- Work with the Ecology to incorporate revegetation into future hazardous materials cleanup activities located along the river.
- Work with project managers within City government to incorporate shoreline restoration into proposed capital improvement projects located near Shoreline of the State.
- Generate funding through fees to support staff availability for shoreline restoration coordination.

The existing level of local interest in shoreline habitat enhancements is promising but, as a volunteer and grant funding-dependent venture, it cannot be relied upon alone to realize the goal of no net loss of ecological functions within the SMP planning area. However, grant-funded volunteer efforts have contributed greatly towards shoreline restoration efforts, as noted above, and the City should periodically check in with these volunteer organizations to see how the City can assist with planning for future shoreline restoration efforts.

Regional WDFW mitigation funds have been and will continue to be provided to either the Spokane Conservation District (SCD) or Trout Unlimited to be used for implementing habitat enhancements. To tap into these, the City will need to coordinate with the SCD, Trout Unlimited, and the WDFW to create agreements for the design, permitting (as necessary), implementation, and maintenance of shoreline enhancement projects. Therefore, the City planning staff should begin to regularly coordinate with these groups to steer funds towards identified restoration priorities.

Ecology's river cleanup plans currently lack robust vegetation enhancement components. Cleanup sites noted near Sullivan Road appear to involve a gravel cap with no vegetation. These Ecology cleanup efforts should be encouraged to incorporate a vegetative restoration component, preferably with input from State Parks and the City, to ensure that the projects are consistent with the Shoreline Restoration Goals of the SMP.

Capital improvement projects slated within the shoreline areas have the potential to be planned and funded so as to include an element of shoreline restoration. This includes the Sullivan Road

SECTION THREE

Existing and Ongoing Projects and Programs

Bridge repair project and enhanced formal river access developments described in the access management plan element of the City SMP update. When discussing justification for the spending of tax dollars on shoreline restoration elements of future capital improvement projects, this plan may be referenced as it describes the role of shoreline restoration under the SMP.

Lastly, the City may modify shoreline development permit fees so that they generate sufficient income to cover the cost of staff involvement in shoreline restoration coordination.

The prioritization methodology described in this Plan was created specifically for the shoreline conditions along the Spokane River and Shelley Lake. Prioritization of restoration areas was based on five factors that are simple to measure and greatly influence the value of shoreline enhancements. Geographical Information Systems (GIS) technology was utilized to measure and score each site. Each site is scored on a scale of 1 to 5 for each of the five factors. The sum of the scores for these five factors provided an overall priority score for each site. This score illuminates restoration opportunities that are both practical to develop and result in the greatest benefit to shoreline functions.

Table 3. Restoration Priority Scoring Criteria

Factor	Measurement	Scoring Criteria
Ease of property acquisition	Public ownership	Public (5) or private (1).
Shade benefit (thermoregulation)	Aspect along stream corridor (for planting of woody vegetation)	South bank (5), west bank (3), east bank (2), or north bank (1). Sites with more than one aspect receive the highest aspect score. Sites that would not produce shade are scored as 0.
Scale of restoration activity	Size (acreage)	Area ≥ 2 acres (5), ≥ 1 but < 2 acres (3), ≥ 0.5 but < 1 acre (2), and area smaller than 0.5 acres (1).
Role within context of surrounding habitat matrix	Habitat connectivity	Creates or fills gaps in wildlife habitat corridor (continuous woody vegetation cover) to produce a corridor that is greater than 1000 linear feet (5), 500 to 999 linear feet (3), 100 to 499 linear feet (2), or under 100 linear feet (1). Restoration opportunities that would not create shade within 100 feet of the shoreline are not applicable and receive a score of 0.
Consistency with other SMP goals	Supports at least one other SMP goal	This Plan addresses SMP Goal #7 (Restore habitat and the natural systems to improve shoreline ecological functions). For shoreline restoration actions that have the additional merit of supporting other SMP goals, such as flood hazard reduction (Goal #9) or safe public access (Goal #10), those actions will receive a score of 5 for this factor.

Natural Heritage Data and Priority Habitat & Species data were also factored in the prioritization analysis but these data did not affect any one site more than the others based on a lack of known populations within the City’s shoreline areas. The priority scores are ranked from highest to lowest in Table 4 of this report.

Restoration opportunities are discussed below as either a programmatic opportunity or as a site-specific opportunity. Site-specific opportunities draw directly from physical shoreline assessments that identified sites where degraded conditions could be restored to a properly functioning condition. These are *opportunities* for shoreline restoration for the City's consideration as the Plan is implemented. As restoration opportunities identified in this Plan are voluntary and subject to available funding, the City is not obligated to implement these opportunities directly. However, the City should reference these projects when reviewing shoreline development proposals or discussing shoreline projects with public agencies or interested volunteer groups. Where possible, the City should attempt to incorporate shoreline restoration into prospective projects, and track such progress, to document compliance with the shoreline restoration element of the SMP.

5.1 PROGRAMMATIC RESTORATION OPPORTUNITIES

Programmatic opportunities are those that can be incorporated into existing or proposed programs with the goal of restoring ecological functions to the waterways without focusing on specific sites. Programmatic opportunities include approaches like public education or regulatory policy changes. These changes do not address specific sites, but rather, modify the way in which the public generally uses and views the shoreline areas in the City.

OPPORTUNITY

STRATEGY

- | | |
|---|---|
| 1. Public Education | Examples include incorporation of stream restoration practices (planting) and stewardship opportunities (minimal water use, litter removal) into environmental education curriculum at Spokane Valley Public Schools and colleges. Also, schools can be assigned to specific shoreline reaches to foster a conservation relationship between students and their local environment. |
| 2. Shoreline Regulations and Enforcement | The City manages development by regulating use, setbacks, height, design, and other standards to reduce impacts to ecological functions. |
| 3. Shoreline Maintenance | <p>The following are examples of ways in which the City can restore shoreline areas through City maintenance programs:</p> <ol style="list-style-type: none"> a. Identify potential funding sources to support the development and implementation of shoreline maintenance and enhancement strategies and low-impact development strategies for City parks located in shoreline areas. This would apply to the following parks managed or maintained by the City Parks and Recreation Department (within SMA jurisdiction): Sullivan Park, Mirabeau Park, the Myrtle Point Natural Area, and any portions of the Centennial Trail maintained by the City. b. Develop roadside maintenance and enhancement strategies with the City Public Works Department for road ROW areas within SMA jurisdiction. Maintenance strategies can include slope |

stabilization (seeding/planting of bare soil areas), noxious weed control, and protection of native vegetation. Representative streets include North Barker Road, North Flora Road, North Sullivan Road, South Mirabeau Parkway, and East Coyote Rock Drive.

- 4. Conservation Futures** The City may utilize conservation futures funding to purchase private properties with high restoration potential or developments within a flood zone to enhance shoreline areas.
- 5. Stormwater Plan/
Development Standards** The City's stormwater master planning may identify ways to reduce non-treated runoff from entering aquatic habitats. Additionally, development standards may be reviewed to determine whether updated standards would provide opportunities for reducing pollution associated with stormwater.

5.2. SITE-SPECIFIC RESTORATION OPPORTUNITIES

Table 4 summarizes the site-specific restoration opportunities that were identified during detailed stream assessments that occurred in 2010 as summarized in the *City of Spokane Valley Shoreline Inventory and Characterization Report* (URS 2010). For each opportunity, the cause of degradation (impairment), functions affected, conceptual restoration strategy, and restoration priority are provided. Photographs representative of the general impairments encountered at the restoration opportunity sites are contained in Appendix B. Opportunities are arranged by their priority score. Spokane River restoration opportunities can be seen on Figures 3a, 3b, and 3c. Shelley Lake restoration opportunities can also be seen in an inset on Figure 3c. Sites are generally numbered progressively along the waterway, beginning at the downstream extent and continuing progressively up river to the east.

It should be noted that opportunities for enhancing the drawdown zone (shorelines between seasonal high and low water levels) around Shelley Lake were investigated. Little research exists on successful revegetation practices for drawdown environments. A review of historical photography indicates that vegetation did not naturally establish along the north, west, and south sides of the lake. Therefore, efforts to establish vegetation there would be better described as enhancement rather than restoration. Recent past efforts to establish vegetation were unsuccessful according to local residents. Vegetation establishment along the lake's northern, western, and southern drawdown zones would likely require either stabilizing lake water levels, benching/terracing the shoreline, or irrigation.

Due to the proximity of the lake's shorelines to adjacent, developed residential properties and the frequency of human visitors on and around the lake, enhancement of the lake's steep shorelines would seem to be a low priority within the greater City. This is especially true with regard to ensuring no-net-loss of shoreline ecological functions when considering the degree of difficulty associated with water level management and/or shoreline grading around Shelley Lake. As such, the shoreline restoration opportunities identified around Shelley Lake (see Table 4) focus on the restoration of habitat along the east end of the lake and a wetland area just southeast of the lake where shorelines are more likely to support successful plantings.

Table 4. Shoreline Restoration Opportunities

Site Priority Score	Site ID	Waterway	Impairment	Conceptual Restoration Approach	Acres	Public	Map No.	Photo ¹
22	30	Spokane River	Area of bank erosion due to high winter flow energy directed against bank. Heavily rip-rapped.	A combination of slope bioengineering combined with potential upstream fluvial modifications to decrease flow energy.	0.65	YES	3-C	1
20	31	Spokane River	Degraded habitat with large concentration of noxious weeds and off-road vehicle traffic.	Managed access and noxious weed control. If off-road driving is curtailed, several pine saplings will develop into productive riparian forest habitat.	2.88	YES	3-C	
18	11	Spokane River	Fence along access road creates impasse for wildlife.	Create wildlife undercrossing beneath fenced roadway.	0.03	YES	3-B	
18	24	Spokane River	Remnant patches of native prairie habitat competing with weeds.	Weed control and seeding with native prairie species.	3.63	YES	3-B, 3-C	
17	13	Spokane River	Break in corridor full of spotted knapweed.	Riparian plantings.	0.75	YES	3-B	
17	23	Spokane River	Degraded habitat; clearing associated with old road.	Riparian forest plantings.	0.44	YES	3-B	
17	33	Spokane River	Degraded habitat with large concentration of noxious weeds and off-road vehicle traffic.	Managed access and noxious weed control. If off-road driving is curtailed, several pine saplings will develop into productive riparian forest habitat.	0.60	YES	3-C	2
16	6	Spokane River	Break in high quality riparian shrub corridor.	Signage indicating riparian rehabilitation to allow for passive restoration. Many saplings here.	0.30	YES	3-A	
16	10	Spokane River	Habitat degradation due to unmanaged pedestrian traffic between parking areas and shoreline.	Formal trail establishment between parking areas and rock outcropping along shoreline. Signage, plantings, and	8.47	YES	3-B	

SECTION FIVE

RESTORATION OPPORTUNITIES

Site Priority Score	Site ID	Waterway	Impairment	Conceptual Restoration Approach	Acres	Public	Map No.	Photo ¹
				strategic fencing to limit dispersed travel.				
16	18	Spokane River	Remnant patches of native prairie habitat competing with weeds.	Riparian forest plantings along banks and prairie restoration on terrace above.	2.57	YES	3-B	
16	20	Spokane River	Disturbed/cleared area with large spotted knapweed infestation.	Riparian forest plantings.	0.11	YES	3-B	
16	21	Spokane River	Disturbed/cleared area with large spotted knapweed infestation.	Riparian forest plantings.	0.13	YES	3-B	3
16	29	Spokane River	Ecology clean up area resulting in bare gravel fill.	Riparian plantings and habitat features (woody debris).	0.28	YES	3-C	4
16	36	Spokane River	Erosive gully.	Slope bioengineering and riparian plantings.	0.09	YES	3-C	5
16	38	Spokane River	Recently burnt area with heavy foot traffic associated with recreation access.	Formal access combined with native plantings and weed control to deter transition to post-fire cheat-grass community.	2.07	YES	3-C	6
15	5	Spokane River	Remnants of native Rathdrum Prairie habitat competing with noxious weeds.	Weed control.	3.94	YES	3-A	
15	7	Spokane River	Degraded riparian slope area with heavy foot traffic.	Riparian plantings.	1.36	YES	3-A	7
15	16	Spokane River	Eroding area beneath transmission line, break in riparian corridor.	Plant height appropriate shrubs along slope beneath powerline to create cover for wildlife and slope stabilization.	1.77	YES	3-B	
15	26	Spokane River	Eroding, steep streambank beneath trail. Support for trail and bench	Slope bioengineering.	0.61	YES	3-C	

SECTION FIVE

RESTORATION OPPORTUNITIES

Site Priority Score	Site ID	Waterway	Impairment	Conceptual Restoration Approach	Acres	Public	Map No.	Photo ¹
			feature are failing .					
15	40	Shelley Lake	Wetland along tributary to lake lacks cover/shade.	Wetland functions including water filtration, temperature regulation, and habitat complexity would be enhanced by planting native shrubs in upper fringe of wetland and trees along wetland buffer.	2.25	NO	3-C	8
14	12	Spokane River	Sparse riparian vegetation lacks cover/shade.	Riparian plantings/underplantings.	1.41	YES	3-B	
14	32	Spokane River	Area historically cultivated for apple trees.	Opportunity for native plant establishment and/or upland native prairie seeding.	1.48	YES	3-C	
13	19	Spokane River	Remnant patches of native prairie habitat competing with weeds.	Controlled burn combined with native seeding and knapweed control.	0.65	YES	3-B	
12	4	Spokane River	Area full of construction debris and disturbed by random trails.	Debris removal, managed access, and riparian plantings.	0.55	NO	3-A	
12	8	Spokane River	Sparse riparian vegetation lacks cover/shade.	Riparian shrub plantings and native prairie enhancement.	4.59	NO	3-B	
12	17	Spokane River	Slope erosion due to heavy foot traffic.	Controlled access/stairs would allow for passive restoration.	0.28	YES	3-B	9
11	3	Spokane River	Erosion/break in corridor.	Slope stabilization/plantings.	0.14	NO	3-A	
11	9	Spokane River	Degraded riparian habitat.	Shoreline stabilization/riparian plantings.	0.30	YES	3-B	
11	14	Spokane River	Erosion associated with heavy foot traffic.	Bioengineered slope stabilization and managed/formal access.	0.04	YES	3-B	10

SECTION FIVE

RESTORATION OPPORTUNITIES

Site Priority Score	Site ID	Waterway	Impairment	Conceptual Restoration Approach	Acres	Public	Map No.	Photo ¹
11	15	Spokane River	Remnant patches of native prairie habitat competing with weeds.	Weed control and seeding with native prairie species.	0.50	NO	3-B	
11	22	Spokane River	Disturbed/cleared area with large spotted knapweed infestation.	Riparian forest plantings.	0.12	YES	3-B	
11	34	Spokane River	Flood erosion undercutting trail.	Provide a return flow culvert to drain flood waters that otherwise erode trail and adjacent habitat areas.	0.02	YES	3-C	
11	37	Spokane River	Degraded shoreline habitat with high spotted knapweed concentration.	Riparian plantings.	1.87	NO	3-C	11
9	1	Spokane River	Habitat degraded by old road resulting in break in riparian corridor	Riparian plantings.	0.33	NO	3-A	
9	35	Spokane River	Degraded shoreline habitat with high spotted knapweed concentration.	Riparian plantings.	0.25	YES	3-C	12
8	39	Shelley Lake	Noxious weeds.	Reed canarygrass removal; native plant establishment.	0.27	NO	3-C	
7	2	Spokane River	Eroded gully.	Slope stabilization/plantings.	0.01	NO	3-A	
7	28	Spokane River	Break in vegetation corridor on steep slope.	Riparian forest plantings.	0.10	NO	3-C	13
6	25	Spokane River	Degraded grassland habitat dominated by non-native vegetation, break in riparian forest corridor.	Riparian plantings.	0.49	NO	3-C	
3	27	Spokane River	Remnant patches of native prairie habitat competing with weeds.	Selective weed control and passive restoration.	0.67	NO	3-C	

¹Photo Numbers Refer to Appendix A.

5.3 CONCEPTUAL RESTORATION APPROACHES

Restoration opportunities listed in Table 4 of this Plan include conceptual restoration approaches. These approaches address the specific impairments at each restoration opportunity site. Where possible, they attempt to address the cause of the impairment to achieve long-term gains in shoreline ecological functions. The majority of the recommended restoration approaches have to do with riparian forest or scrub-shrub plantings. This is because these types of restoration projects tend to provide multiple ecological benefits that enhance various shoreline functions. According to research conducted while preparing the *City of Spokane Valley Shoreline Inventory and Characterization Report* (URS 2010), riparian plantings tend to provide the greatest return on investment along the Spokane River, considering the options available to the City.

Plantings within areas of active river flow tend to require greater planning; these areas often require additional restoration factors to ensure that plantings are not washed out with the first high water of the season. Riparian planting projects located above the area of seasonally high water are generally much simpler to establish. This section provides generalized restoration information associated with the conceptual approaches noted in Table 4 to aid in developing site-specific restoration plans.

5.3.1 Riparian Plantings

Native riparian plantings almost always enhance quality of riparian habitats. The quality of riparian habitat promotes several beneficial functions to both the terrestrial and aquatic habitat components. These include pollutant filtering, wildlife habitat (cover, food, roosting), habitat connectivity, shading/temperature control of water, and input of organic matter (e.g., leaf litter) that provides food web support to aquatic species, including support for benthic invertebrates (Covitch et. al. 1999). Benthic invertebrates, or insects that live in the river soils, are a primary food source for native fish but heavy concentrations of metals in the river substrate have negatively affected the invertebrates, thus affecting the overall food web (Ecology 2005).

Planning for riparian planting projects must address the physical and ecological site conditions such as soil stability, moisture availability, and aspect (amount of sun). Successful riparian plantings require appropriate species selection for a given set of local site conditions. Some species are found more commonly on the north, dry banks of the Spokane River, while others prefer the less-exposed southern banks. Certain species grow near the river edge while others prefer the elevations slightly above the water but where roots can reach the seasonally low water table. For these reasons, a qualified ecologist with riparian planting experience should assist with developing planting plans for specific areas whenever possible. Appendix C of the *City of Spokane Valley Shoreline Inventory and Characterization Report* (URS 2010) includes a list of vegetation inventoried along the shoreline. Native species contained in this list provide a good starting point for the development of a restoration project plant list.

5.3.2 Streambank Stabilization

Streambanks often become unstable as a result of natural forces, such as increased water velocity. Where vegetation is present, the water scour energy is dissipated by the vegetation and the soils are bound by the roots, thus resulting in less erosion. However, where vegetation is absent or degraded, often in association with pedestrian foot traffic or historical clearing, soils become less stable and prone to erosion. Erosion, although a natural process, can be detrimental to aquatic organisms when the amount of loose sediments in the river (turbidity) exceeds low densities. In addition to protecting human infrastructure, such as the Centennial Trail, streambank stabilization reduces the potential for shoreline erosion.

Depending on site-specific conditions, one or more actions may be appropriate to stabilize an eroding shoreline area. Riparian plantings contribute greatly to bank stabilization by binding soil in roots and acting as a buffer to water velocity and abrasive materials transported in water. Based on existing streambank conditions, stabilization may also require engineering techniques such as slope setback, terracing, soil wraps, or placement of large woody debris (LWD), to promote long-term stability.

The term “bioengineering” used in Table 4 refers to the use of both engineering materials and biological materials that can grow within an engineered structure to provide structural support as well as habitat and shade functions. Examples include large rock or soil wrapped in geotextile fabric and secured with willow stakes. Streambank bioengineering in low precipitation areas often include live-stake plantings, brush or tree revetments, erosion-control straw blankets, and willow fascines (Hoag and Fripp 2002).

In certain situations, more durability is needed to secure banks against high water velocity, to protect property, and stabilize eroding riparian habitat. Hard devices such as rip-rap should be specifically sized and configured to the situation by a qualified person or team. Where possible, they should incorporate plantings. Geotechnical and hydraulic considerations are important to assess on a site-specific basis.

5.3.3 Noxious Weed Control

Noxious weed control is an essential component of riparian vegetation maintenance and restoration. Native vegetation, in many areas throughout the Spokane Valley, has the potential to re-establish through passive means (i.e., by itself) but competition from non-native and noxious vegetation in many areas is sufficient to prevent its successful growth.

The installation of native vegetation in areas where weeds are prevalent requires careful site preparation and noxious weed maintenance. Given realistic constraints on long-term site maintenance, the best opportunity to control weeds is to select plants to install that can compete against the weed(s), and in the best-case scenario out compete (i.e., shade out) weeds. The goal should be to establish a “weed-resistant” plant community to the extent possible. An Integrated Pest Management (IPM) approach to establishing favorable conditions for native plants and controlling invasive plants should be used. Several references are available on weed control and specialists with the County Noxious Weed Control Board are very knowledgeable of current control strategies.

This section addresses an implementation framework for the City’s shoreline restoration planning as per WAC 173-26-201(2)(f)(vi). An implementation plan must include identified partners, potential funding sources, timelines, and benchmarks.

6.1 POTENTIAL RESTORATION PARTNERS

The following organizations have demonstrated an interest in shoreline protection or restoration in the vicinity of Spokane Valley. These organizations may be contacted when seeking partners for restoration project funding, construction, and/or maintenance and monitoring.

Table 5: Existing Partnership Opportunities

Organization	Summary
Washington Conservation Corps (WCC)	The WCC is an affiliate of the Americorps program administered by Ecology. The WCC provides members the opportunity to develop skills in environmental restoration, trail work, environmental education, and disaster response.
City of Spokane Valley Water Districts	Water districts are involved in planning for water use within the City. They may be interested in partnering on projects that conserve water or enhance habitat.
Friends of the Falls	Friends of the Falls is a non-profit organization working to implement projects identified in the Strategic Master Plan for the Spokane River area.
Inland Northwest Land Trust (INLT)	INLT is a local, non-profit, non-political organization with over 450 members. Through easements, acquisitions, and by working with other conservation partners, INLT works to preserve wetlands, shorelines, farmlands, and forests in eastern Washington and northern Idaho.
Local Academia	Three local colleges have biology programs that include riparian ecology studies. By coordinating with biology professors, the City may be able to create mutually beneficial relationships with their biology studies, particularly with graduate students studying riparian ecology. Gonzaga and Whitworth colleges have undergraduate biology programs. Eastern Washington University has undergraduate and graduate biology programs.
Riverside State Park Foundation	The foundation is a volunteer group that assists the efforts of State Parks staff by raising funds for the park, accomplishing specific projects, and being a helpful source for working with the community in many ways. The mission of the foundation is to preserve and protect the natural resources and inherent beauty of Riverside State Park.
Sierra Club Upper Columbia River Group	The Sierra Club is a non-profit volunteer organization that has been working to protect the natural environment and communities. The club is one of the largest and most influential grassroots environmental organization in the United States.
Spokane Audubon Society	The mission of the Spokane Audubon Society is to provide services to the Spokane region that allow natural ecosystems to become more healthy, thriving, and restorative, to nurture and protect birds and other wildlife and their habitats, and to encourage biological diversity for the benefit of people and nature in the Spokane region and the world.
Spokane Canoe and Kayak Club	The Spokane Canoe and Kayak Club is an organization of individuals who are enthusiastic about human-powered watercraft. In recent years, the club has participated

Organization	Summary
	in joint habitat restoration projects, including the Spokane River Cleanup and tree plantings at Mirabeau Park.
Spokane Conservation District (SCD)	<p>The Washington Conservation District Law (RCW 89.08) describes the responsibilities and purpose of conservation districts, which include:</p> <ul style="list-style-type: none"> •Conducting education and demonstration projects. •Carrying out improvements to conserve natural resources. •Cooperating or entering into agreements with others, including other districts. •Making equipment and materials available to landowners to assist them in conserving natural resources. <p>The mission of the SCD is to promote the sustainable use of natural resources within Spokane County. The district provides information on their available programs and services, as well as potential funding sources from outside agencies.</p>
Spokane River Forum	The forum is a non-profit organization that creates materials, events, and activities that promote regional dialogs for sustaining a healthy river system while meeting the needs of a growing population. The forum has been involved in various shoreline restoration projects, including tree plantings at Mirabeau Park
The Lands Council	The Lands Council is a Spokane-area grassroots, non-profit organization dedicated to protecting the quality of life in the Inland Northwest. The Lands Council has protected thousands of acres of public land, and in the process worked to preserve forests, water, and wildlife.
Trout Unlimited, Spokane Falls Chapter	<p>The mission of Trout Unlimited is to conserve, protect, and restore cold water fisheries, their watersheds, and ecosystems as a means of maintaining our quality of life.</p> <p>The Spokane Falls Chapter of Trout Unlimited does this by promoting effective fish management decisions, and by taking an active part in habitat restoration and fish production projects.</p>
Veterans Conservation Corps	<p>The mission of the Veterans Conservation Corps is to assist veterans by providing training and volunteer opportunities that help to restore and protect Washington state's natural resources. Volunteer and internship opportunities include:</p> <ul style="list-style-type: none"> •Stream restoration and monitoring. •Revegetation of native plants. •Restoration of watersheds, forests, prairies, or native grasslands. •Environmental or community education. •Other protection or restoration activities.
WDFW's Habitat Program, Restoration Division	<p>The Restoration Division leads WDFW's efforts to restore and protect aquatic ecosystems by providing scientific, engineering, and planning expertise through cooperative partnerships. The division's focus areas include:</p> <ul style="list-style-type: none"> • Providing near-shore ecosystem assessment, strategic planning, and funding assistance to local communities. • Identifying and prioritizing needed projects to remove fish passage barriers. • Providing training and guidance to local restoration project proponents to help communities inventory fish passage and successfully restore habitat.

Organization	Summary
	<ul style="list-style-type: none"> Supporting aquatic habitat restoration by providing environmental engineering review, design, and technical guidance to public and private landowners and restoration entities.

In addition to the partnership opportunities listed above, many others are likely. For example, local schools may be interested in supporting shoreline restoration projects.

6.2 POTENTIAL SOURCES OF FUNDING

There are several sources of potential funding available to the City and potential restoration partners for shoreline restoration projects. This section summarizes the most likely and available funding sources. Potential restoration partners in the Spokane Valley area have indicated that the following grants have been, or are likely to be, used to fund previous shoreline restoration projects.

Environmental Protection Agency:

- Five-Star Restoration Program - This grant funds community-based wetland restoration having a strong “on-the-ground” component, with long-term ecological, educational, and/or socio-economic benefits to the community. This grant is available to citizen volunteer organizations, corporations, landowners, federal, state, tribal agencies, local government, charitable foundations, and youth groups. The grant provides \$5,000-\$20,000 on average. A \$10,000 grant requires in-kind or cash match at 1:1. Each project ideally involves five partners. Apply in March - awards in May. For further information contact John Pai, US EPA, Wetlands Division, 202-260-8076, pai.john@epa.gov. <http://www.epa.gov/owow/wetlands/restore/5star/>

U.S. Fish and Wildlife Service:

- Habitat Conservation - Partners for Fish and Wildlife Program - This program provides expert technical assistance and cost-share incentives to private landowners to restore fish and wildlife habitats. Any privately-owned land is potentially eligible. After signing a cooperative agreement with a minimum duration of 10 years, the landowner works one-on-one with a local Service biologist to develop a project plan addressing the goals and objectives of the landowner and the Service to benefit fish and wildlife species on his/her land. The landowner is reimbursed after project completion, based on the cost-sharing formula in the agreement. For further information contact Juliet Barenti, Eastern Washington Coordinator, 11103 East Montgomery #2, Spokane, WA 99206, 509-893-8005, Juliet_Barenti@fws.gov.
- Upper Columbia Fish and Wildlife Office Recovery Program - Recovery grants are available to fund restoration, recovery, assessment, or research projects with an emphasis on well-planned “on-the-ground” projects that restore or enhance fish and wildlife and/or their habitats, benefit federally-listed/candidate species and their habitats, or improve listed species numbers. Non-profits and private landowners are eligible. There is no

match requirement; however, projects with some cost share or in-kind support may be prioritized. Proposals are accepted near the beginning of each fiscal year for restoration or recovery projects to be funded during that fiscal year. For further information contact Suzanne Audet at (509) 893-8002, Juliet Barenti at (509) 893-8005, or Greg Van Stralen at (509) 665-3508 ext. 20, or by email at: suzanne_audet@fws.gov, juliet_barenti@fws.gov, or greg_vanstralen@fws.gov.

Washington State Department of Ecology:

- Centennial Clean Water Fund - Provides funding for activities to reduce non-point pollution, comprehensive planning (sewer, storm water, watershed), and/or construction point source facilities. Available to local governments, tribes, and special purpose districts such as sewer, health, and conservation districts. The funding is capped at \$250,000 for up to four years and requires a 25 percent match except for construction projects, which require a 50 percent match. Funding is awarded annually. Notice and workshops occur in December and January. Applications are due late February. For further information contact Tim Hilliard at Ecology, (360) 407-6429, thil461@ecy.wa.gov. <http://www.ecy.wa.gov/fap.html>.
- Flood Control Assistance Account Program - This statewide, financial-assistance program funds proposal that can demonstrate a propensity for preservation, restoration, or enhancement of Endangered Species Act-listed fishery resources through planning or flood damage reduction projects. Any public entity that belongs to the National Flood Insurance Program, including towns, cities, counties, and eligible Native American tribes throughout the state are eligible. Funding is capped at \$500,000 per county, per biennium and requires a 25-50 percent match, depending on the project. Applications are due in May, with funds available in September. For further information contact Ted Olson at Ecology, (509) 329-3413, tols461@ecy.wa.gov.
- Non-point Source Implementation Grant (319) Program - This fund provides grants to local governments, Native American tribes, state agencies, and non-profit organizations to address identified non-point source pollution and to improve and protect water quality. Grant funds available for each state are determined by an Environmental Protection Agency-developed allocation formula. Grants are awarded annually. For further information contact Helen Bresler at Ecology, (360) 407-6180, hbre461@ecy.wa.gov.
- Watershed Planning Grant Program - This program provides funds for the organizational, assessment, and planning phases of watershed related projects. The program requires a 10 percent match for Phase 4 watershed planning implementation. Eligible candidates include government agencies or tribes who wish to apply for grant funds for watershed related projects. To be eligible for Phase 4 funding, the watershed plan must have received approval from the planning unit and the county government(s). Grant amounts vary depending on which phase of planning is to be funded and whether projects involve one or more than one WRIA. Grants are funded on a fiscal year basis. Applications are due in June and awards are announced in July. For further information contact Cathy Hubbard, Grants Administrator, at Ecology, (360) 407-6491, cahu461@ecy.wa.gov.
- Washington Coastal Protection Fund – Terry Husseman Water Quality Account - This account is used to fund environmental, recreational, and aesthetic restoration and

enhancement projects. Funding is available to local governments, tribes, watershed planning units, nonprofits, and state agencies. Priority is given to projects that involve partnerships with local resources/volunteers. Requires Ecology partner. Total available funding is \$200,000 for all projects. Match not required but given points. Applications are accepted year-round. For further information, contact Melissa Gildersleeve, Watershed Coordinator, (360) 407-6548, mgil461@ecy.wa.gov.

Washington State Recreation and Conservation Office:

- Aquatic Lands Enhancement Account (ALEA) - This grant supports the purchase, improvement, or protection of aquatic lands for public purposes, including improved accessibility. The grant is available to local governments, state agencies, and tribes. Applicants must provide at least 50 percent in matching resources. Projects must be consistent with the local SMP and must be located on lands adjoining a water body that meets the definition of "navigable." For further information contact Kim Sellers, Outdoor Grant Manager, (360)902-3082, kims@rco.wa.gov.

Washington State Department of Natural Resources (DNR):

- Restoration Funding Program - The DNR funds projects associated with its aquatic lands lease program. Funding typically comes from the ALEA, as described above under the Washington State Recreation and Conservation Office. Under the ALEA, the DNR is instructed to ensure that revenue generated from state-owned aquatic land leases goes back to helping restore aquatic environments. Recently, the DNR funded a riparian restoration project at Riverwalk Park in the City of Spokane. For further information contact Monica Shoemaker at (206)799-2949, monica.shoemaker@dnr.wa.gov.

Recreational Equipment Incorporated (REI):

- Stewardship Grants - Every year, REI gives 3 percent of its previous year's operating profit to organizations that employees have been identified as important players in local conservation activities. In 2010, the company gave \$3.7 million in grants to more than 330 groups across the country. The Spokane River Forum is one of three Spokane-area groups to receive an REI grant in 2011. The grant was used to provide improved river access and signage as well as habitat restoration at Mirabeau Park.

6.3 TIMELINE AND BENCHMARKS FOR IMPLEMENTING RESTORATION PLAN

Restoration plans involve long-term goals and efforts with major developments generally occurring as funding becomes available. As per WAC 173-26-201(c), SMPs must "include planning elements that, when implemented, serve to improve the overall condition of habitat and resources within the shoreline area." To facilitate this policy, this Plan outlines five steps that the City may pursue to implement the restoration element of the updated SMP and the policies in this Plan. The first step will be to establish a restoration program within a department of city government. Within one year of the SMP's formal adoption by the City and the State of Washington, the City will begin implementing this Plan. Implementation includes the dedication of staff resources and the formation of a central shoreline restoration file that will contain all

documents associated with efforts to coordinate, implement, or otherwise support shoreline restoration activities.

Once familiar with the goals, policies, and opportunities contained in this Plan, City staff would begin the second step, outreach activities. Outreach is likely to include efforts to form partnerships on site-specific restoration opportunities, meetings with potential restoration partners to develop inter-agency/department plans for shoreline restoration, and/or efforts to meet with public and private schools to foster shoreline education and volunteer opportunities.

Once the City has identified potential restoration partners and specific programmatic or site-specific projects, the third step would involve supporting requests for funding. This would likely happen as a partnership with one of the organizations identified in Section 6.1. Applications for funding will likely target one of the sources identified in Section 6.2. The fourth step involves support throughout the construction phase of a restoration activity. Examples of City support may include, but are not limited to, provision of City resources such as material transport, site preparation, signage, or public outreach. The fifth and final step would monitor the success of the restoration program, as measured by meeting the benchmarks of this Plan, and assess the existing program based on monitoring results. The results of this assessment will document progress in implementing the restoration element of the SMP and aid in determining whether a subsequent update is necessary to the SMP, as required under RCW 90.58.080(4).

While exact dates cannot be specified for these five steps due to uncertainties in the SMP update adoption schedule and funding availability, Table 6 provides a target timeline to aid in conceptualizing the process.

Benchmarks associated with each implementation step were developed to provide a means of demonstrating progress and compliance with SMP restoration goals. Because of uncertain external funding sources and partnership opportunities, benchmarks for site-specific restoration projects are not the focus of this Plan. Dates associated with each benchmark are based on an estimated formal SMP update adoption date on or before December 31, 2012. A later adoption date would affect the timeline relative to the period of delay. Benchmark dates are not meant to impede any progress that might occur prior to the date given; any early shoreline restoration progress should be documented and stored in the City's files.

Table 6: Timeline and Benchmarks

Step	Year Ending	Description	Benchmark
1	2013	City allocates resources for portion of one full-time employee (10-25%) as per this Plan.	City verifies that sufficient resources have been allocated by 12/31/2013. City will create a shoreline restoration project file to store and track progress.
2	2014	City restoration staff has met with several key groups to create partnerships on specific shoreline restoration projects. City restoration staff has met with other City departments to look for shoreline restoration opportunities associated with proposed CIPs within SMP jurisdiction.	City will have met with potential restoration partners. Meetings minutes will be documented and stored in restoration project file.

Step	Year Ending	Description	Benchmark
3	2016	City, in partnership with others, will apply for restoration funding.	City will participate in one or more applications for restoration funding in partnership with organizations identified through outreach activities by 12/31/2016.
4	2018	City supports funded restoration projects, as able, with materials, transportation, site preparation, signage, engineering, etc.	City will provide support (as described in Section 6.3, above) for at least one restoration project by 12/31/2018.
5	2020	City monitors progress of program and specific opportunities. City assesses progress, determines need for additional SMP updates.	City will monitor the progress and success of the City's restoration program, as per Section 7.1 of this report by 12/31/2020.

7.1 MONITORING PLAN

This section provides steps for monitoring the successful implementation of this Plan as well as a process for monitoring site-specific restoration projects. Monitoring data will be utilized for ongoing maintenance strategies, adaptive management, future grant applications, and subsequent SMP updates.

7.1.1 Monitoring of Plan Benchmarks

The following monitoring methods are designed to document progress with the implementation of this Plan. Proposed monitoring activities are tied to the benchmarks established in Table 6, above. Future SMP updates will benefit from data collected in this regard. Monitoring will highlight where the City's Plan is most successful and where it may need improvement prior to the next round of SMP updates.

Benchmark 1: Allocate staff resources by 2013.

Monitoring Method: Review and evaluate annual restoration budget to determine if existing funding is sufficient to support implementation of restoration goals.

Contingency: Request budget summary for projects with restoration element.

Adaptive Management: If the City cannot allocate financing for staff to implement a restoration program, the responsibility may need to be parsed out and delegated to a variety of departments. If this is the case, it will be important to have a central shoreline restoration file to track overall progress.

Benchmark 2: Meet with potential restoration partners by the end of 2014.

Monitoring Method: Document that meetings have occurred or that an attempt was made to schedule meetings.

Contingency: Document internal City meetings where restoration concepts were incorporated into shoreline development projects, such as new bridge work.

Adaptive Management: If the City is unsuccessful at organizing a meeting with potential restoration partners, the City may delegate City's position to a restoration partner with demonstrated restoration goals that complement those of the City.

Benchmark 3: Apply for funding by 2016 (with partners).

Monitoring Method: Document application for restoration funding.

Contingency: Document why no action was made (e.g., lack of partners, staff unavailable, etc.) and how to ensure future action.

Adaptive Management: If the City is unable to partner on restoration funding applications for any reason, the City may alternately seek funding through council for programmatic restoration opportunities within the City, examples of which are provided in Section 5.1.

Benchmark 4: City will participate in and provide support for a restoration project by the end of 2018.

Monitoring Method: Document participation in a restoration project.

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Contingency: Summarize attempts made to assist restoration projects and revise strategy to a method more capable of yielding results.

Adaptive Management: If the City is unable for any reason to support a restoration project, the City may revise its strategy for obtaining restoration partners and implementing restoration projects.

Benchmark 5: Monitor and summarize success of implementing restoration plan by 2020.

Monitoring Method: City may prepare status reports documenting the City's progress toward achieving the goal and policies of this Plan, recommended adaptive management strategies, and the need for updating the Plan during the next cycle of SMP updates.

Contingency: Document cause of noncompliance with SMP/failure to implement.

Adaptive Management: City will revise strategy based on experience over the first five years since Plan was implemented.

7.1.2 Restoration Site Monitoring

Several of the site-specific restoration activities are similar in nature. Due to this fact, it is especially important to monitor the success of individual restoration activities so that subsequent restoration projects can be modified based on the particular successes and failures of each completed project. In addition to monitoring new shoreline restoration projects, it is advisable that the City or their partner contact existing shoreline restoration project proponents to see if they are monitoring their restoration projects and, if so, if they will share their monitoring data. When applying for restoration project funding, the City and partners should include funding for follow-up monitoring in the funding application. Monitoring data can be used to direct maintenance activities and demonstrate that the City is following through on the grant-funded projects. In addition, it can ensure grantors that future grant-funded restoration projects will have the benefit of lessons learned from past projects.

The U.S. Army Corps of Engineers Ecosystem Management and Restoration Research Program provides the following description of the process for implementing monitoring for riparian restoration projects:

The general process for implementing riparian restoration and monitoring is outlined in five basic steps. These include: (1) setting goals and objectives, (2) developing a monitoring protocol, (3) designing and implementing data collection, (4) analyzing and interpreting monitoring data, and (5) assessing restoration efforts.

This process is helpful for monitoring all shoreline projects described by this Plan. Additional detail for each of the five steps is provided in the literature (Guilfoyle and Fischer 2006).

7.2 MAINTENANCE

Maintenance responsibilities will depend on the specific project and the dynamics of the partnership between the City and its restoration partner(s). Maintenance is an important aspect

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of project completion. The City is already committed to maintaining various areas under its park maintenance responsibilities. Often these overlap with State Parks' maintenance responsibilities throughout Riverside State Park.

Specific maintenance activities will depend on site conditions and monitoring results. For example, restoration projects proposed at sites with identified noxious vegetation will need to maintain weed population reductions.

APPENDIX A

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**APPENDIX A:
REPRESENTATIVE PHOTOGRAPHS**

Project:		SHORELINE RESTORATION PLAN City Of Spokane Valley Shoreline Master Program Update	URS Project No. 36310035
Photo No. 1	Date: 09/21/09		
Direction Photo Taken: Looking southeast at south bank of Spokane River			
Description: Typical view of Restoration Opportunity 30 showing area of bank erosion across river.			

Photo No. 2	Date: 09/21/09	
Direction Photo Taken: Southwest, from Centennial Trail		
Description: Typical view of Restoration Opportunity 33 showing degraded habitat with large concentration of noxious weeds.		

Photo No. 3	Date: 09/21/09	
Direction Photo Taken: South, from north side of restoration opportunity area		
Description: Typical view of Restoration Opportunity 21 showing cleared and disturbed area.		

Photo No. 4	Date: 09/21/09	
Direction Photo Taken: North, from forest below Centennial Trail.		
Description: Typical view of area near Restoration Opportunity 29, which is a Dept. of Ecology metals cleanup site that currently lacks vegetation. The cleanup site and the area shown in this photo would both benefit from shoreline plantings to stabilize soil and offer habitat support during high flows.		

Photo No. 5	Date: 09/21/09	
Direction Photo Taken: Northeast, from Centennial Trail		
Description: Typical view of Restoration Opportunity 36 showing eroding gully slopes.		

Photo No. 6	Date: 09/21/09	
Direction Photo Taken: North, from edge of Spokane River		
Description: Typical view of Restoration Opportunity 38 showing degraded habitat area due to recent fire and heavy foot traffic associated with recreation access.		

Photo No. 7	Date: 09/21/09	
Direction Photo Taken: Southeast, from top of slope		
Description: Typical view of Restoration Opportunity 7 showing dense non-native grasses that would be a good location for riparian forest plantings.		

Photo No. 8	Date: 09/21/09	
Direction Photo Taken: Northeast, from pedestrian trail		
Description: Typical view of Restoration Opportunity 40 showing wetland with lack of vegetation cover/shade. Saltese Creek enters the wetland area prior to discharging into the creek. The wetland filters incoming seasonal flows. Area would benefit from shrubs for shade, cover, food, and habitat complexity.		

Photo No. 9	Date: 09/21/09	
Direction Photo Taken:		
Southeast, from top of slope above Spokane River		
Description:		
Typical view of Restoration Opportunity 17 showing slope erosion due to heavy foot traffic.		

Photo No. 10	Date: 09/21/09	
Direction Photo Taken:		
West, from shoreline		
Description:		
Typical view of Restoration Opportunity 14 showing erosion associated with heavy foot traffic.		

Photo No. 11	Date: 09/21/09	
Direction Photo Taken: Southeast, from Centennial Trail		
Description: Typical view of Restoration Opportunity 37 showing degraded shoreline habitat with high spotted knapweed concentration.		

Photo No. 12	Date: 09/21/09	
Direction Photo Taken: Southwest		
Description: Typical view of Restoration Opportunity 35 showing degraded shoreline habitat with high spotted knapweed concentration.		

Photo No. 13	Date: 09/21/09	
Direction Photo Taken: Southeast, from top of slope		
Description: Typical view of Restoration Opportunity 28 showing a break in the vegetation corridor on a steep slope.		