CITY OF SNOHOMISH
SHORELINE MASTER PROGRAM

Restoration Plan

Prepared for

City of Snohomish

October 2011, updated May 2017

ESA

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ABBREVIATIONS

CIP .....Capital Improvement Program

CLC.....Cascade Land Conservancy

OHWM .....Ordinary High Water Mark

RCW .....Revised Code of Washington

SCD.....Snohomish Conservation District

SMA.....Shoreline Management Act

SMP.....Shoreline Master Program

SWM.....Surface Water Management

UGA.....Urban Growth Area

WAC .....Washington Administrative Code

1.0 INTRODUCTION AND BACKGROUND

The City of Snohomish (City) is updating its Shoreline Master Program (SMP) to comply with the requirements of the Washington State Shoreline Management Act (SMA or the Act) (Revised Code of Washington [RCW] 90.58) and the state's shoreline guidelines (Washington Administrative Code [WAC] 173-26, Part III), which were amended in 2003.

The SMP guidelines require that local governments develop SMP policies that promote "restoration" of impaired shoreline ecological functions and a "real and meaningful" strategy to implement restoration objectives. The City's Shoreline Inventory and Characterization Report (ESA, 2010, updated 2017) identifies which shoreline ecological functions and ecosystem processes have been impaired. In updating its SMP, the City is required to identify and plan for ways to restore or enhance those functions and processes that have been impaired.

Restoration planning provides an opportunity for the City and its citizens to evaluate ways to make ecological improvements to their shorelines. In the context of the SMP, planning for shoreline restoration includes establishing goals and policies, working cooperatively with other regional entities, and supporting restoration through other regulatory and non-regulatory programs. Substantial restoration work is already occurring throughout the Snohomish River basin. Efforts to recover salmon habitat are a high priority for agencies and organizations; however, resources for restoration are limited and competition for grant funding is intense. The objective of this restoration plan is to help the City and the public understand the specific shoreline restoration opportunities in Snohomish and how these opportunities might be prioritized in order to maximize the available resources.

1.1 Shoreline Planning Jurisdiction

The City of Snohomish is located on the north side of the lower Snohomish River valley, approximately 11 miles upstream from where the river enters Puget Sound at Everett (Map 1). The City is bordered by the Snohomish River to the south and the Pilchuck River to the east. The Pilchuck River enters the Snohomish River 0.5 miles south of the city limits.

In Snohomish, the designated shorelines of the state are the portions of the Snohomish River, Pilchuck River, and entirety of Blackmans Lake that fall within the Snohomish city limits. This plan also includes shorelines within the Snohomish urban growth area (UGA). The Snohomish River is also designated as a shoreline of statewide significance, meaning that planning for the Snohomish River must consider statewide interests over local interests.

The shoreline jurisdiction under SMA also includes "shorelands" adjacent to shorelines of the state. "Shorelands" or "shoreland areas" means those lands extending landward for 200 feet in all directions as measured on a horizontal plane from the ordinary high water

mark (OHWM); floodways and contiguous floodplain areas landward 200 feet from such floodways; and all wetlands and river deltas associated with such streams, lakes, and tidal waters (see Map 2). "Associated wetlands" means those wetlands, that are in proximity to and either influence or are influenced by tidal waters or a lake or stream subject to the SMA (WAC 173-22-030 (1)). These are typically identified as wetlands that physically extend into the shoreline jurisdiction, or wetlands that are functionally related to the shoreline jurisdiction through surface water connection and/or other factors.

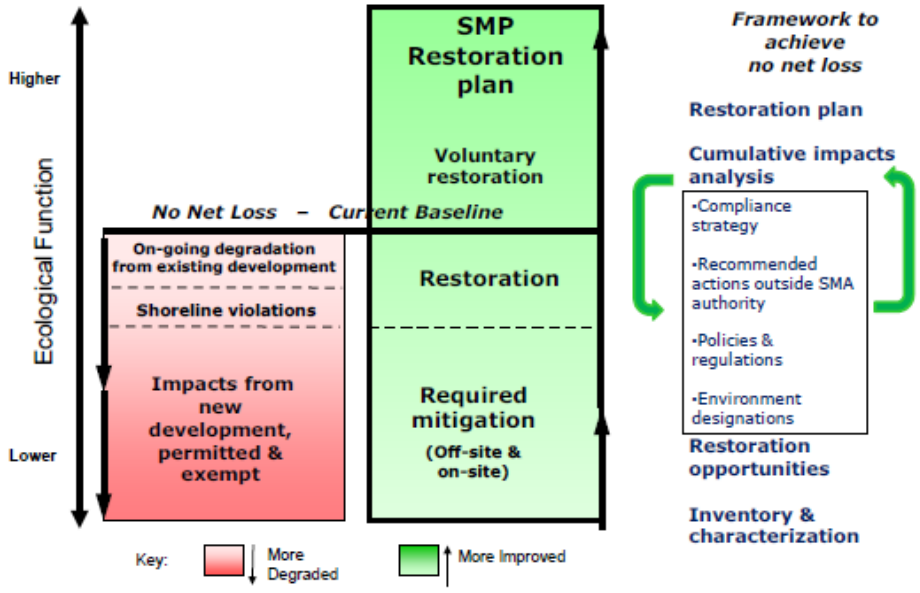
1.2 Regulatory Background

The State has directed local governments to develop SMP provisions "...to achieve overall improvements in shoreline ecological functions over time when compared to the status upon adoption of the master program." This overarching goal is accomplished primarily through two distinct objectives:

- **Protection** of existing shoreline functions through regulations and mitigation requirements to ensure "no net loss" of ecological functions from baseline environmental conditions; and

- **Restoration** of shoreline ecological functions that have been impaired from past development practices or alterations.

The figure below illustrates the role of the SMP update in achieving no net loss both through mitigation and restoration.



Source: Department of Ecology

Achieving No Net Loss of Ecological Function

The concept of no net loss of shoreline ecological function is embedded in the SMA and in the goals, policies and governing principles of the shoreline guidelines. The State's general policy goals for shorelines of the state include the "protection and restoration of ecological functions of shoreline natural resources." This goal derives from the SMA, which states, "permitted uses in the shoreline shall be designed and conducted in a manner that minimizes insofar as practical, any resultant damage to the ecology and environment of the shoreline area." The governing principles of the guidelines further clarify that protection of shoreline ecological functions is accomplished through the following (WAC 173-26-186):

a) Meaningful understanding of the current shoreline ecological conditions;

b) Regulations and mitigation standards that ensure that permitted developments do not cause a net loss of ecological functions;

c) Regulations that ensure exempt developments in the aggregate do not result in net loss of ecological functions;

d) Goals and policies for restoring ecologically impaired shorelines;

e) Regulations and programs that fairly allocate the burden of mitigating cumulative impacts among development opportunities; and

f) Incentives or voluntary measures designed to restore and protect ecological functions.

The restoration planning component of the SMP is focused on voluntary mechanisms, not regulatory provisions. Restoration planning is focused on economic incentives, available funding sources, volunteer programs, and other programs that can contribute to a no net loss strategy. However, the restoration framework developed for these non-compensatory mitigation projects can also be applied to compensatory mitigation projects. In this way, all efforts to improve ecosystem functioning are coordinated and will be designed to work together.

1.3 Defining Restoration

There are numerous definitions for "restoration" in scientific and regulatory publications. Specific elements of these definitions often differ, but the core element of repairing damage to an existing, degraded ecosystem remains consistent. In the SMP context, the WAC defines "restoration" or "ecological restoration" 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"* (WAC 173-26-020(27)).

Using the WAC definition of restoration in regard to state shorelines, it is clear the effort should be focused on specific shoreline areas where natural ecological functions have been impaired or degraded. The emphasis in the WAC is to achieve overall improvement in existing shoreline processes or functions, if these functions are impaired. Therefore, the goal is not to restore historically natural conditions, but rather to improve on existing, degraded conditions. In this context, restoration can be broadly implemented through a combination of programmatic measures (such as surface water management; water quality improvement; public education) and site-specific projects (such as bulkhead replacement and/or riparian plantings). The guidelines do not state that local programs should or could require individual permittees to restore past damages to an ecosystem as a condition of a permit for new development. For these reasons, restoration planning focuses on the city as a whole rather than parcel by parcel, or permit by permit.

1.4 Key Elements of Restoration Planning in the SMP Update Process

The State guidelines provide six key elements for shoreline restoration planning as part of a local jurisdiction's master program, as outlined in WAC 173-26-201(2)(f). Table 1 summarizes how these elements are addressed in the organization and content of this report.

Table 1. Restoration Planning Structure

Key elements for the shoreline restoration planning process WAC 173-26-201(2)(f)	***Section in this report***
Identify degraded areas, impaired ecological functions, and sites with potential for ecological restoration.	Sections 2 and 4
Establish overall goals and priorities for restoration of degraded areas and impaired ecological functions.	Section 4
Identify existing and ongoing projects and programs that are currently being implemented that are designed to contribute to local restoration goals (such as capital improvement programs (CIPs) and watershed planning efforts (WRIA habitat/recovery plans).	Section 3
Identify additional projects and programs needed to achieve local restoration goals, and implementation strategies including identifying prospective funding sources for those projects and programs.	Sections 4 and 5
Identify timelines and benchmarks for implementing restoration projects and programs and achieving local restoration goals.	Section 6
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 6

2.0 DEGRADED SHORELINE AREAS AND FUNCTIONS

Shoreline restoration planning begins with the identification of "degraded areas" or areas with "impaired ecological functions." The following discussion of existing degraded areas and functions is summarized from the *City of Snohomish Draft Shoreline Inventory and Characterization Report* (ESA, 2010, updated 2017).

2.1 Snohomish River

The Snohomish River valley was historically a mosaic of wetlands and forests where the river meandered across a broad floodplain. Beginning in the 1800s and continuing to the present, human activities have resulted in numerous changes in the valley in and around the city:

- Construction of levees and dikes;
- In-stream gravel mining;
- Clearing of forest from the floodplain and riparian areas;
- Increased impervious surfaces in developed areas;
- Filling and draining of wetlands;
- Removal of large wood from the river to allow for navigation and protect structures; and
- Fecal coliform and excess nutrients in runoff from agricultural and residential areas.

The Snohomish River has been divided into three shoreline planning reaches within the City (Map 2). Table 2 summarizes the major alterations to ecosystem functions by reach.

Table 2. Snohomish River - Alterations to Ecosystem Functions

Alteration	Effect on Functions	Affected Reaches		
		SNO_RV_01	SNO_RV_02	SNO_RV_03
Changes in land use to residential, commercial, agricultural have increased impervious surfaces and stormwater runoff	Increased stormwater pollution in the river (fecal coliforms, sediment, metals, phenols, PCBs)	X	X	
Livestock access to river	Increased bank erosion and fecal coliform contamination	X		
Levees and riprap installed to stabilize riverbanks and protect structures from flooding	River disconnected from its floodplain Reduction in off-channel habitat for salmon Changes in natural sediment supply to river, affecting composition of riverbed substrate	X	X	X

Alteration	Effect on Functions	Affected Reaches		
		SNO_RV_01	**SNO_RV_02**	**SNO_RV_03**
Vegetation removed from riverbanks and floodplains	Reduction in shading and organic debris formerly provided to river by riparian vegetation Reduction in habitat for native wildlife species Loss of source of large woody debris to river channel (important for fish habitat) Decrease in bank protection causing increase in erosion and sediment deposited in river	X	X	X
Filling and draining of wetlands	Reduction in off-channel fish habitat Loss of floodplain water storage capacity	X	X	X
In-stream gravel mining	May have caused incision of the riverbed	X	X	X

2.2 Pilchuck River

The major human modifications to the lower Pilchuck River in the vicinity of the City include:

- Diking and armoring of the riverbank;
- Increased impervious surfaces;
- Livestock access to the river;
- Removal of native riparian vegetation;
- Gravel mining from the channel, gravel bars, and floodplain; and
- Low flows potentially exacerbated by municipal water withdrawals.

The Pilchuck River has been divided into five shoreline planning reaches (Map 2). Table 3 summarizes the major alterations to ecosystem functions by reach.

Table 3. Pilchuck River - Alterations to Ecosystem Functions

Alteration	Effect on Functions	Affected Reaches				
		PIL_RV_01	PIL_RV_02	PIL_RV_03	PIL_RV_04	PIL_RV_05
Diking and armoring of the riverbank	River disconnected from its floodplain Reduction in off-channel habitat for salmon Changes in natural sediment supply to river	X	X	X		
Removal of native riparian vegetation	Reduction in shading and organic debris formerly provided to river by riparian vegetation Reduction in habitat for native wildlife species Lack of large wood in channel; loss of fish habitat complexity	X	X	X		
Changes in land use to residential and agricultural uses	Increased surface runoff, stormwater pollution (fecal coliform, elevated temperature, excess sedimentation)	X	X	X	X	
Diversion dam and City water treatment plant	Low river flows could be exacerbated by water withdrawals					X

2.3 Blackmans Lake

The Blackmans Lake watershed was historically logged and used for farming. Between the 1970s and 1990s, agricultural areas were replaced by residences and other developments, and by the mid-1990s half of the watershed had been urbanized. The shoreline functions of the lake have been degraded by:

- Excess nutrients contributed by runoff from residential areas, stormwater runoff drains, waterfowl, pets, and livestock;

- Removal of large wood and shoreline vegetation for construction of docks, bulkheads, and landscaping; and
- Development of the watershed with an associated increase in impervious surfaces and runoff.

Wintertime flooding and low summertime water levels in the lake have been an ongoing issue for residents. In the 1980s, a flow splitter was installed on Swifty Creek, the outlet stream from the lake, to discharge high flows to the Pilchuck River. Low stream flows continue to discharge to the Snohomish River. In 2016, an outlet improvement project removed accumulated sediment and encroaching invasive vegetation along 370 lineal feet of the lake's outlet channel, constructed an additional 580 lineal feet of new channel, and replaced 150 lineal feet of 24-inch culvert. The project included habitat restoration along the outlet channel, including native tree and shrub plantings.

Blackmans Lake is considered as one shoreline planning reach (Map 2). Table 4 summarizes the major alterations to ecosystem functions.

Table 4. Blackmans Lake - Alterations to Ecosystem Functions

Alteration	Effect on Functions
Runoff from residential and agricultural areas	Elevated levels of phosphorous in the lake, leading to toxic algae blooms Elevated fecal coliform levels in the lake, a health concern for recreational users
Removal of native lakeshore vegetation and large wood for residences and park development	Reduction in shading and organic matter provided to the lake Loss of habitat structures for aquatic species Change in wildlife habitat to favor waterfowl species that use lawns and parks; excess waterfowl contribute to water pollution
Introduction of non-native invasive species	Change in lake plant community from native species to invasive species such as fragrant water lily Invasive aquatic plants can cause water quality changes and inhibit recreational uses Introduced carp prey on and displace other fish species
Removal of emergent vegetation from lake	May have caused erosion of shoreline, reduced habitat for fish and amphibians

3.0 EXISTING RESTORATION PROGRAMS

A number of local and regional planning efforts have been developed to address water resource management, water quality, and salmon habitat recovery in the Snohomish River watershed. These existing plans and programs provide a framework of goals, policies, and in some cases, funding mechanisms. The goals, policies, and actions identified in this restoration plan should coordinate and be consistent with this broader framework of conservation and restoration work in the region.

3.1 City of Snohomish

The City of Snohomish is a Phase II municipality under the National Pollutant Discharge Elimination System (NPDES) program. As part of its NPDES permit, the City prepares an annual Stormwater Management Program that addresses public education and outreach, management of construction site runoff, and other topics related to protection of water quality. The City has recently partnered with Snohomish County and Environmental Coalition of South Seattle on public outreach programs related to pet waste, natural yard care, and septic system operation and maintenance (City of Snohomish, 2017).

The City's stormwater management regulations require the use of the 2012 Stormwater Management Manual for Western Washington for all new construction and redevelopment within the City's jurisdiction. In 2009 and 2016 the City adopted ordinances encouraging the use of low impact development techniques (Ordinance No. 2173 and Ordinance No. 2315).

The City operates its wastewater treatment plant under an NPDES permit issued by the State of Washington. The plant is currently subject to peaks in wastewater volume during storms because of combined sewer and stormwater systems in the older part of the City. The City plans to separate these sewer and stormwater systems in the future.

3.2 Snohomish County

3.2.1 Snohomish County Noxious Weed Control Board

State law requires all landowners (private or agency) to manage weeds on their properties (RCW 17.10.140). The Snohomish County Noxious Weed Control Board oversees county-wide management of noxious weeds in an effort to ultimately prevent establishment of invasive vegetation and preserve native species and habitat. Weed Control Board meetings occur in seven months out of the year to refine regulations, the noxious weed list, and provide guidance on methods of control (SCNWCB, 2011).

3.2.2 Snohomish Conservation District

Guided by the Washington State Conservation Commission, the Snohomish Conservation District (SCD) is a natural resources assistance agency whose mission is to work with landowners promoting conservation and responsible land use. SCD has programs and information to help with stream and wetland restoration, including urban streams; revegetation with native trees and shrubs; low impact development practices such as rain gardens and bioswales; and they hold an annual plant sale (SCD, 2011).

3.2.3 Snohomish County Surface Water Management

The Surface Water Management (SWM) Division of Snohomish County Public Works is responsible for management of urban drainage, river flooding and erosion, water quality, and community outreach and education. SWM has a Habitat and Rivers Capital Improvement Program that prioritizes projects for funding approval by the Snohomish County Council. The Six-Year Detailed Capital Improvement Program – 2008 through 2013 identifies 90 projects, including 75 site-specific projects. Additional restoration projects identified in the County's 2010 Shoreline Restoration Element could be incorporated into a future SWM Habitat and Rivers CIP 6-Year Detailed Improvement Program (SWM, 2011; Snohomish County, 2010).

3.2.4 Snohomish Basin Salmon Recovery Forum

The Snohomish Basin Salmon Recovery Forum is the lead entity for restoration of salmon in the Snohomish River basin. The Forum includes representatives of local government (including the City of Snohomish), Tribes, recreationists, agriculture, business, environmental organizations, and others. In 2005 the Forum published the *Snohomish River Basin Salmon Conservation Plan* outlining salmon recovery actions throughout the watershed, from the estuary to headwater streams. The Forum publishes annual three-year work plans that prioritize restoration projects in the basin. The 2011 work plan includes large wood and riparian planting projects on the Pilchuck River upstream of Snohomish, as well as the Everett Marshlands levee setback project, a major project in the estuary downstream of the City (SBSRF, 2011).

3.3 Non-profit Organizations

3.3.1 Forterra

Forterra seeks to conserve urban and rural natural spaces and “Keystone” places within the Puget Sound, Olympic Peninsula, and Central Washington regions. Forterra conservation strategies have included securing lands along streams, rivers, estuaries, and other natural areas through purchase and donation, conservation easements, and ownership agreements. In addition, the Green Cities Program consists of public-private partnerships between Forterra, municipal agencies, and citizens to develop civic-based stewardship programs for forested parklands and other green infrastructure (Forterra, 2017).

3.3.2 Audubon Society

Audubon Society staff and volunteers work for the protection, restoration and preservation of natural habitat for birds and other wildlife. The Pilchuck Audubon chapter serves Snohomish County and Camano Island, and runs a native plant demonstration garden in Edmonds (Pilchuck Audubon, 2011).

3.3.3 Stewardship Partners

Stewardship Partners is a 501(c) 3 non-profit organization that helps private landowners restore and preserve the natural landscapes of Washington State. Major projects include the promotion of low impact development techniques and rain gardens. Stewardship Partners runs free rain garden workshops in communities around the Puget Sound region, in partnership with Washington State University, to teach homeowners how to build their own rain gardens, helping minimize stormwater runoff impacts by absorbing rainwater from downspouts, driveways, and sidewalks (Stewardship Partners, 2011).

3.3.4 Stilly-Snohomish Fisheries Enhancement Task Force

The mission of the Task Force is to ensure the future of salmon in the Stillaguamish and Snohomish River and Island County watersheds. The Task Force provides educational programs and leads restoration projects along the Snohomish, Pilchuck, and other rivers. Examples of restoration projects include large wood placement, riparian planting, livestock fencing, and weed control. The Task Force works in partnership with volunteers, granting agencies, and government.
(http://www.stillysnofish.org/who_we_are/active_projects.html)

3.3.5 Adopt-A-Stream Foundation

The mission of the Adopt-A-Stream Foundation (AASF) is to teach people how to become stewards of their watersheds. AASF provides educational programs and performs restoration work on streams and wetlands. Examples of restoration projects include daylighting streams, installing fish ladders, installing riparian plantings, adding large wood to streams, and public outreach.
(http://www.streamkeeper.org/aasf/Welcome.html)

3.3.6 WSU Snohomish County Extension Beach Watchers

The WSU Snohomish County Extension Beach Watchers program is dedicated to the protection of local natural resources, especially focusing on Puget Sound. Participants have volunteered many hours to Salish Sea research, education and stewardship projects. The program works through the entire landscape, not just beaches, to protect waters, wildlife, and landscapes.
(http://extension.wsu.edu/snohomish/naturalresources/beachwatchers/)

4.0 RESTORATION GOALS, PRIORITIES, AND AREAS

The City of Snohomish has developed the following restoration goals for its shorelines:

- **Snohomish River:** Enhance native riparian vegetation along the shoreline while improving the aesthetic appeal of the riverfront, particularly within downtown Snohomish.

- **Pilchuck River:** Improve habitat for salmon and trout; partner with other agencies and organizations involved in salmon habitat restoration projects.

- **Blackmans Lake:** Improve ecological functions and recreational opportunities by stabilizing lake water levels, improving water quality, and restoring native vegetation.

There are several restoration programs the City could implement to involve residents and private property owners in shoreline restoration:

1. The City should consider a community education and/or incentive program to identify and develop restoration opportunities on private property that support the overall goals of shoreline management. For example, residents along Blackmans Lake could be encouraged to create native vegetation buffers, reduce the use of fertilizers and pesticides, and/or control or eliminate livestock use, as means to improving lake water quality. To be most effective, this program should extend upstream from the lake as well, and include property owners outside of the shoreline jurisdiction.
2. The City should consider ways to link improvements in public access with specific areas targeted for shoreline habitat enhancement to offset impacts that public access improvements might have on habitat functions. By establishing a specific plan and formula, the City can facilitate the community's vision of increased connection of the historic downtown business district with the river, such as through view corridors, additional signage and amenities along the riverfront trail, and encouragement of outdoor seating at riverside businesses. For example, the City may want to establish another shoreline area along the Snohomish River outside of the downtown district, or specific areas near downtown where ecological restoration is the primary objective. Applicants for redevelopment of downtown shoreline properties could then provide for restoration of this designated area in lieu of revegetating their own properties. If such a program is instituted, it should also consider public access improvements the City might make, and how the impacts should be offset.
3. The City should coordinate with the County regarding public access to the Pilchuck River. Public access improvements on the City's side of the river are limited because the river runs adjacent to steep slopes in much of the City jurisdiction, but the east side of the river may be better suited for a low-intensity trail system that would allow the public to enjoy the salmon and steelhead runs and other pleasures of this area. The City should protect this resource through enforcement of its critical areas buffers, including in parks. There may also be opportunities for restoration that the City could sponsor or support.

4. Standards for management of vegetation, fish, and waterfowl at Blackmans Lake are being carefully reviewed to ensure that they allow flexibility to effectively control invasive non-native species and support long-term ecological restoration, a viable sport fishery, and safe recreational use of the lake.

Table 5 provides a list of specific restoration opportunities and sites in the City's shoreline planning area. Generalized locations for the projects are shown on Map 3. Exact locations for each type of restoration would be determined during the design of specific projects. The table summarizes how each opportunity would affect shoreline ecological functions, and assigns a general priority level and timeline for each project.

Restoration opportunities are generally divided into low and high priority projects. High priority projects are those that meet at least some of the following criteria:

- The project would increase functional connectivity or link existing habitats.
- Public property or willing private property owners are involved.
- The project is compatible with adjacent land uses.
- Public support is likely.
- The project has a good likelihood of success based on ecological processes and functions in the watershed.
- The project is likely to be eligible for grant funding and/or partnerships with other agencies or organizations.

Table 5 lists the recommended timing for each restoration opportunity as "short-term" or "long-term." **Short-term** (approximately 1-5 years) restoration projects include those that could be implemented by local landowners and volunteers and that would benefit the areas that are most in need. Short-term restoration efforts include habitat restoration and enhancement efforts in publicly owned areas of the shorelines. These projects could be implemented in the near term, depending on grant cycles and coordination with volunteer and community organizations. **Long-term** (approximately 5-10 years) restoration projects could be those that require coordination with other jurisdictions or that cover larger land areas. These projects may be more difficult to implement and would likely require more planning and permitting.

Table 5. City of Snohomish Restoration Opportunity Areas

Opportunity Area (General Location)	Restoration Opportunity	Benefits to Shoreline Ecological Functions	Priority Level and Timeline
Snohomish River			
City owned properties: - wastewater treatment plant property - City shop yard - Cady Park - Kla Ha Ya Park - Riverfront Trail along downtown - urban horticulture property (north bank of river in reach SNO_RV_01 and adjacent floodplain) - open space located on the south bank of the river in reach SNO_RV_01	Control invasive vegetation and replant native trees and shrubs Along Riverfront Trail, limit vegetation plantings to widely spaced trees to allow for river views	Increased input of detritus and insects from shoreline vegetation Increased large woody debris Improved wildlife habitat Reduction of invasive plant species extent and potential for spreading Improved shading and incremental reduction of stream temperatures	High priority Short-term for revegetation
To be determined as flood control structures are proposed for replacement.	Incorporate vegetation and large wood into flood control structures	Increased wood availability Improved shading and incremental reduction of stream temperatures Increased area for juvenile salmon refuge	Low priority Long-term
Installation of large logjams on main river channel likely not feasible; however, smaller structures (groins, rootwads) could potentially be anchored near the banks.	Add small engineered logjams	Increased large wood and nutrient inputs to river Improved refuge and cover for salmon	Low priority Long-term
Urban horticulture area east of downtown	Install fencing to prevent livestock access to the river	Improved water quality Reduced bank erosion	High priority Short-term

Pilchuck River			
Pilchuck Park	Replace levees to allow controlled flooding	Restore off-channel fish habitat	Low priority Long-term
Locations for log placement would be determined by a fish biologist and hydrologist to maximize habitat benefit and account for hydraulics, movement of gravel and sediment, etc.	Add engineered logjams	Increased wood accumulation and pool formation Improved refuge and cover for salmon	High priority Long-term
Pilchuck Park; exact locations to be determined as flood control structures are proposed for replacement.	Incorporate vegetation and large wood into flood control structures	Increased wood availability Improved shading and incremental reduction of stream temperatures Increased area for juvenile salmon refuge	High priority Long-term
West bank residential areas and City parks	Control invasive vegetation and replant native trees and shrubs Limit plantings to widely spaced trees in areas where views are desired	Increased input of detritus and insects from shoreline vegetation Increased large woody debris Improved wildlife habitat Reduction of invasive plant species extent and potential for spreading Improved shading and incremental reduction of stream temperatures Reduced bank erosion	High priority Short-term

At City's water diversion dam	Remove the dam and restore the aquatic habitat	Improved fish passage Reduced impact on summer low flows in river	Low priority Long-term
Blackmans Lake			
City parks and private residential properties	Replant native vegetation and control invasive species such as English ivy and Himalayan blackberry	Reduction of invasive plant species extent and potential for spreading Improved wildlife habitat Increased input of detritus and insects from shoreline vegetation	High priority Short-term
Ferguson Park, Hill Park	If monitoring reveals lake levels drop below the recommended minimum elevation, then consider an outlet weir to control summer season low water levels. Post "no waterfowl feeding" signs at public access areas	Maintain lake hydrology, supporting associated wetland vegetation and habitats. Reduced excess waterfowl Improved water quality	High priority Short-term
Wetland on north side of lake	Plant native vegetation, control invasive species Create a more sinuous stream channel	Increased input of detritus and insects from shoreline vegetation Increased large woody debris Improved wildlife habitat Reduction of invasive plant species extent and potential for spreading Improved aquatic habitat	Low priority Long term
Hill Park	Explore options to restore native emergent vegetation and sandy swimming beach	Greater diversity of aquatic habitat Reduced shoreline erosion	High priority Long-term

5.0 IMPLEMENTATION STRATEGIES AND FUNDING SOURCES

As a long-range planning effort without dedicated funding, it is difficult to articulate a firm strategy for accomplishing the goals of this plan. Under the Shoreline Management Act, the City of Snohomish is required to review, and amend if necessary, its SMP once every seven years (RCW 90.58.080(4)). At the time of the update, the City is required to report progress toward meeting its restoration goals, but there is no requirement or timeframe for specifically *implementing* the Restoration Plan.

The City intends to adhere as closely as possible to the timelines and benchmarks described in Section 6, depending on the availability of staff and funding. One way the City can leverage its resources for restoration projects is to include measures such as vegetation enhancement or the addition of in-channel habitat features with recreation improvements or public works projects. Another key strategy is to partner with other agencies and organizations on large or complex projects that have regional benefits to salmon recovery.

5.1 Sources of Funding and Technical Assistance

A number of state and federal agencies provide opportunities for grant funding, particularly efforts related to salmon recovery. Technical assistance is also available for programs such as buffer planting on agricultural lands. Appendix A provides a summary of the major funding and technical assistance resources available to the City of Snohomish and its residents.

5.2 Voluntary Restoration on Private Lands

Portions of the shoreline area in the City lie within private properties. Public outreach and voluntary restoration actions are a key component of the success of this plan. Private property owners often serve as the best stewards for their land and will voluntarily enhance or restore conditions. As stated in Chapter 1, the Shoreline Restoration Plan is a non-regulatory and voluntary program undertaken by the City and environmental partners willing to improve habitat and existing conditions within the shoreline jurisdiction.

Voluntary actions may include citizens assisting a public agency or stewardship group with plantings or other measures on public lands such as parks or open space. Voluntary actions may also include restoration undertaken on private properties by land owners to improve habitat and water quality or stabilize streams. This section addresses the types of actions that a private property owner can undertake to restore conditions in the shoreline jurisdiction.

Voluntary restoration on private properties may range from minor projects that do not require permitting in and of themselves (such as removal of weeds) to larger-scale improvements that require permit approval (such as grading, culvert removal, or

streambank stabilization). Expert assistance is required to design and permit large-scale restoration projects on private properties. Expertise needed may include engineering, fisheries biology, wetland or wildlife science or geotechnical. Minor restoration may not require expert assistance and can be accomplished with general information provided by the City, Snohomish County, or state government.

The following web sites provide information for shoreline land owners for voluntary restoration actions:

- Water quality – aquatic plants, algae and lakes: (http://www.ecy.wa.gov/programs/wq/links/plants.html)
- Protecting Your Stream - Ten Actions for Streamside Property Owners (WSU Extension Office, Clark County, 2008) (available at: http://clark.wsu.edu/volunteer/ws/faqs.html)
- Washington Department of Fish and Wildlife Backyard Wildlife Sanctuary Program (http://wdfw.wa.gov/living/backyard/)
- National Wildlife Federation Garden for Wildlife Program (http://www.nwf.org/Get-Outside/Outdoor-Activities/Garden-for-Wildlife.aspx)

Examples of restoration actions that private property owners can implement are listed below. These actions typically do not require special equipment or expertise but can have significant benefits to shoreline functions, especially if undertaken by a community or group of landowners.

1. **Remove invasive non-native plants and install native trees and shrubs.**

Invasive non-native plants like Himalayan blackberry, Japanese Knotweed, English ivy, reed canarygrass, morning glory, holly, and butterfly bush can occupy habitat in the riparian zone along rivers, streams and lakes. These plants limit the habitat for native bird and wildlife species which do not typically use these plants. Often, invasive plants are fast-growing and shallow rooted, and make slopes and stream banks susceptible to erosion. Native trees and shrubs in the shoreline provide shade, shelter and food necessary for both terrestrial and aquatic species. Native vegetation along shoreline lakes and streams also stabilizes banks, reduces erosion and filters pollutants from runoff.

2. **Remove debris, refuse and derelict structures from the shoreline.**

Removing man-made debris from the shorelines helps keep lakeshores and streams free of harmful substances and materials. Removal of tires and other man-made debris improves the health of the shoreline for fish and wildlife as well as the long-term quality of water. Work within water may require permits.

3. **Reduce use of fertilizers and pesticides.**

Minimizing use of fertilizers and pesticides within 200 feet of shorelines will improve water quality, reduce the risk of algae and nuisance aquatic plants (especially in lakes) and avoid impacts to downstream habitats.

5.3 Challenges to Implementation

There are a number of potential complicating factors between the development of a shoreline restoration plan and on-the-ground implementation of its programs and projects. Some of these challenges are briefly summarized below:

- Lack of funding: Designing, carrying out, and monitoring the success of restoration efforts can be an expensive undertaking, particularly at larger (e.g., watershed or reach) scales. In general, funding for restoration is limited and competition for funds extensive.

- Landowner participation: Landowners in areas identified as priorities for restoration efforts may be unwilling or unable to participate in those efforts, while others may be willing to participate in future projects.

- Project permitting: Obtaining necessary permits from local, state, and federal regulatory agencies can require substantial time and effort. Although encouraged and allowed by the SMP, complicated restoration projects may take a year or more to permit.

- Climate change: Changes in regional weather conditions have the potential to dramatically alter seasonal storms and flooding. Depending on the scale of change and time period over which changes occur, restoration priorities could shift substantially within a relatively short period of time.

- Urban Growth Area: Restoration opportunities which are located in the UGA pose a challenge to the City since it has no authority with those properties. When pursuing a restoration project the City would need to coordinate with Snohomish County on the permitting process. Another option would be to wait until properties in the UGA are annexed into the City before implementing a project.

6.0 TIMELINES AND BENCHMARKS

A suggested timeline for implementation of this restoration plan is as follows. The accomplishment of this timeline depends largely on the availability of funding.

Within 2 years of adoption of this plan:

- Identify at least two restoration projects and assign staff to establish a schedule and explore funding options and partnerships.
- Assign staff and dedicate funding to a shoreline public education program and City-sponsored web page.

Within 5 years of adoption of this plan:

- Complete at least two of the identified restoration projects.
- Hold at least three public workshops on voluntary shoreline restoration measures.
- Have a shoreline restoration program web page online.

Within 7 years of adoption of this plan:

- Complete a feasibility study and begin conceptual design for at least one of the long-term restoration projects identified in Table 5.

Over time restoration efforts must be evaluated against a set of benchmarks to determine if adequate progress is being made. One way to assess progress will be to track and report the following general benchmarks:

- Acres of riparian enhancement
- Acres of reconnected floodplain
- Acres of wetland restored in the shoreline jurisdiction
- Acres of native vegetation planted
- Performance in meeting water quality criteria as measured in the state water quality assessment
- Number of restoration actions implemented in conjunction with other project partners

More specific benchmarks should be developed for specific projects. For example, the benchmarks for a riparian revegetation project could include reduction in cover of non-native plants, survival of installed plants, and increase in cover of native plants along the shoreline.

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APPENDIX A. SOURCES OF FUNDING AND TECHNICAL ASSISTANCE

A variety of outside funding sources are available for restoration projects in the Puget Sound basin. Funding opportunities have generally increased since the implementation of Governor Gregoire's Puget Sound Initiative in 2005, though the process by which organizations are able to obtain funds is typically quite competitive. Sources listed here do not represent an exhaustive list of potential funding opportunities, but are meant to provide an overview of the types of opportunities available.

Washington Department of Fish & Wildlife (WDFW)
600 Capitol Way North
Olympia, WA 98501-1091
360-902-2806.
http://wdfw.wa.gov/volunter/vol-7.htm

Grant programs administered by WDFW are described below.

- *Aquatic Lands Enhancement Account (ALEA) Volunteer Cooperative Projects Program*: The WDFW accepts grant applications from individuals and volunteer groups conducting local projects to benefit fish and wildlife. Grants have ranged from $300 to $75,000 in past years to help volunteers pay for materials necessary for projects approved by the agency. Funding cannot be used for wages or benefits. Examples of past projects include habitat restoration, improving access to fish and wildlife areas for disabled people, fish and wildlife research, public education and fish-rearing projects that can benefit the public.
- *Landowner Incentive Program*: The Landowner Incentive Program (LIP) is a competitive grant program designed to provide financial assistance to private landowners for the protection, enhancement or restoration of habitat to benefit species at risk on privately owned lands. At risk species depend on specific ecosystems for survival. These ecosystems include riparian areas, wetlands, oak woodlands, prairies and grasslands, shrub steppe and nearshore environments. Through Washington's LIP, individual landowners are eligible to apply for up to $50,000 in assistance. In addition, $50,000 is typically set aside for small grants. Any individual applying for these small grant funds may apply for up to $5,000. A 25% non-federal contribution is required, which may include cash and/or in-kind (labor, machinery, materials) contribution.

National Fish and Wildlife Foundation
1120 Connecticut Avenue, NW, #900
Washington, DC 20036
Kathleen Pickering 202-857-0166
www.nfwf.org

Non-profit organizations, local, state or federal government agencies are eligible to apply for funds for community-based projects that improve and restore native salmon habitat, remove barriers to fish passage, or for the acquisition of land/ conservation easements on private lands where the habitat is critical to salmon species. Specific grant programs are listed below.

- Bring Back the Natives: A Public-Private Partnership for Restoring Populations of Native Aquatic Species: The Bring Back the Natives initiative (BBN) funds on-the-ground efforts to restore native aquatic species to their historic range. Projects should involve partnerships between communities, agencies, private landowners, and organizations that seek to rehabilitate streamside and watershed habitats. Projects should focus on habitat needs of species such as fish, invertebrates, and amphibians that originally inhabited the waterways across the country. Twelve to fifteen grants averaging $60,000 are awarded annually.

- Five-Star Restoration Matching Grants Program: The Five-Star Restoration Program provides modest financial assistance on a competitive basis to support community-based wetland, riparian and coastal habitat restoration projects that build diverse partnerships and foster local natural resource stewardship through education, outreach and training activities.

- The Migratory Bird Conservancy: The MBC will fund projects that directly address conservation of priority bird habitats in the western hemisphere. Acquisition, restoration, and improved management of habitats are program priorities. Education, research, and monitoring will be considered only as components of actual habitat conservation projects.

- Community Salmon Fund: NFWF has established local partnerships throughout Washington State through the Community Salmon Fund program to engage landowners, community groups, tribes, and businesses in stimulating smaller-scale, community-oriented habitat restoration and protection projects to aid in salmon recovery. Grants made under this program are administered by NFWF. There are currently three Community Salmon Fund partnership programs. NFWF has partnered with the Washington State Salmon Recovery Funding Board (SRFB) to administer a statewide Community Salmon Fund program that is coordinated with the individual Lead Entity groups. In addition to this SRFB Community Salmon Fund program, NFWF has partnered with both King and Pierce Counties to administer county-specific Community Salmon Fund programs in those counties.

Salmon Recovery Funding Board (SRFB)
Lead Entity Coordinator: Mary Jorgensen
(206) 296-8067
mary.jorgensen@metrokc.gov

The Salmon Recovery Funding Board supports salmon recovery by funding habitat protection and restoration projects. It also supports related programs and activities that produce sustainable and measurable benefits for fish and their habitat. SRFB distributes funds through two grant programs: SRFB grants, and Family Forest Fish Passage Program grants. The grants from SRFB range from $10,000 to nearly $900,000. They have been awarded to organizations in 28 counties for work ranging from planting trees along streams to cool the water for salmon, to replacing culverts that prevent salmon from migrating to spawning habitat, to restoring entire floodplains.

Depending on the grant program, eligible applicants may include municipal subdivisions (cities, towns, counties, and special districts such as port, conservation, utility, park and recreation, and school), tribal governments, state agencies, nonprofit organizations, regional fisheries enhancement groups, and private landowners. To be considered for funding, projects must be operated and maintained in perpetuity for the purposes for which funding is sought. All projects require lead entity approval and must be a high priority in the lead entity strategy or regional recovery plan.

Grants are awarded by the Salmon Recovery Funding Board based on a public, competitive process that weighs the merits of proposed projects against established program criteria.

NOAA Restoration Center
Community-based Restoration Program
Northwest Region
Jennifer Steger, Director
Jennifer.Steger@noaa.gov
http://www.nmfs.noaa.gov/

The NOAA Community-based Restoration Program (CRP) is a financial and technical assistance program that helps communities implement restoration projects. Specific opportunities are listed below.

- *NOAA CRP 3-Year Partnership Grants*: These grants fund national and regional habitat restoration partnerships for up to 3 years that provide sub awards for individual grass-roots restoration projects. Typical awards range from $100,000 to $2,000,000.
- *NOAA CRP Project Grants*: These grants fund grass-roots marine and coastal habitat restoration projects that will benefit anadromous fish species, commercial and recreational resources, and endangered and threatened species. Typical awards range from $30,000 to $250,000.

- *American Sportfishing Association's FishAmerica Foundation Grants*: Since 1998, NOAA CRP has partnered with the FishAmerica Foundation to provide funding for fisheries habitat restoration projects nationwide. Grants will fund marine and anadromous fish habitat restoration projects that benefit recreationally fished species. Typical awards range from $5,000 to $50,000.
- *National Fish & Wildlife Foundation/National Association of Counties Coastal Counties Restoration Initiative*: In partnership with NOAA CRP, this grant program funds innovative, high quality county-led or supported projects that support wetland, riparian and coastal habitat restoration projects. Typical awards range from $25,000 to $100,000.

Washington State Department of Ecology
Post Office Box 47600
Olympia, Washington 98504-7600
jrus461@ecy.wa.gov
www.ecy.wa.gov/programs/wq/plants/grants/index.html

Grant programs administered by Washington State Department of Ecology are described below.

- Water Quality Program: The Department of Ecology's Water Quality Program administers three major funding programs that provide low-interest loans and grants for projects that protect and improve water quality in Washington State. Ecology acts in partnership with state agencies, local governments, and Indian tribes by providing financial and administrative support for their water quality efforts. As much as possible, Ecology manages the three programs as one; there is one funding cycle, application form, and offer list. The three programs are: The Centennial Clean Water Fund, The State Revolving Loan Fund (SRF), and The Section 319 Nonpoint Source Grants Program (Section 319). Local governments, Native American tribes, special purpose districts, and non-profit groups are eligible for funding. Grants and loans are available for point source and nonpoint source projects. This includes, but is not limited to, treatment facilities, stream and salmon habitat restoration, and water quality monitoring.

- Coastal Protection Fund: This account is funded primarily by oil spill penalties levied against responsible parties. Restoration efforts undertaken with these funds are diverse and include fish barrier removal, and environmental education projects.

- Coastal Zone Management Administration/Implementation Awards: This program assists states in implementing and enhancing Coastal Zone Management (CZM) programs that have been approved by the Secretary of Commerce. Funds are available for projects in areas such as coastal wetlands management and protection, natural hazards management, public access improvements, reduction of marine debris, assessment of impacts of coastal growth and development,

special area management planning, regional management issues, and demonstration projects with potential to improve coastal zone management.

Washington Department of Transportation (WSDOT)
City Fish Passage Grant Program
Cliff Hall
(360) 705-7499
hallcli@wsdot.wa.gov

The City Fish Passage Barrier Removal and Habitat Restoration Grant Program provides $2 million to be used towards City fish passage barrier removal projects, with complementing habitat restoration and stormwater components. The intent of the City Fish Passage Barrier Removal and Habitat Restoration Grant program is to integrate clean water with salmon restoration efforts and compliments the WSDOT ESA response. Grant funding may vary from year to year; check with the Program Manager at WSDOT for more detailed information.

Environmental Protection Agency (EPA)
Region 10: Pacific Northwest
Grants Administration Unit
Bob Phillips
phillips.bob@epa.gov
(206) 553-6367

The Environmental Protection Agency funds a variety of projects that aim to safeguard the natural environment and protect human health. Potential opportunities specific to watershed protection and restoration are listed below.

- *The Clean Water State Revolving Fund Program*: Under this program, EPA provides grants or "seed money" to all 50 states plus Puerto Rico to capitalize state loan funds. The states, in turn, make loans to communities, individuals, and others for high-priority water-quality activities. Projects funded by the low-interest loans may include wetlands protection and restoration, estuary management efforts – including wildlife habitat restoration – and development of streambank buffer zones.
- *Nonpoint Source Implementation Grant (319) Program*: Clean Water Act Section 319(h) funds are provided only to designated state and tribal agencies to implement their approved nonpoint source management programs. State and tribal nonpoint source programs include a variety of components, including technical assistance, financial assistance, education, training, technology transfer, demonstration projects, and regulatory programs. Each year, EPA awards Section 319(h) funds to states in accordance with a state-by-state allocation formula that EPA has developed in consultation with the states.
- *Wetland Protection, Restoration, and Stewardship Discretionary Funding*: This program provides support for studies and activities related to implementation of Section 404 of the Clean Water Act for both wetlands and sediment management.

Projects can support regulatory, planning, restoration or outreach issues. Typical grant awards range from $5,000 to $20,000.

U.S. Fish & Wildlife Service (USFWS)
Nell Fuller
911 NE 11th Avenue
Portland, OR 97232-4181
(503) 231-2014
Nell_Fuller@fws.gov

Grant programs administered by USFWS are described below.

- *Partners for Fish and Wildlife Program*: This program provides technical and financial assistance to private landowners and Tribes who are willing to work with USFWS and other partners on a voluntary basis to help meet the habitat needs of Federal Trust Species. The Partners Program can assist with projects in all habitat types which conserve or restore native vegetation, hydrology, and soils associated with imperiled ecosystems such as longleaf pine, bottomland hardwoods, tropical forests, native prairies, marshes, rivers and streams, or ecosystems that otherwise provide an important habitat requisite for a rare, declining or protected species. The typical grant award is approximately $25,000.
- *Puget Sound Program*: The Puget Sound Program was established to protect, restore, and enhance the natural resources of Washington's coastal ecosystems. USFWS works closely with the U.S. Environmental Protection Agency's National Estuary Program, and their State partner, the Puget Sound Water Quality Action Team to conserve fish and wildlife and their habitats in Puget Sound, an "estuary of national significance." Partnerships with other agencies, Native American Tribes, citizens, and organizations are emphasized.
- *National Fish Passage Program*: Each year the Service solicits and inputs select fish passage projects into the Fisheries Operational Needs System database. Projects are prioritized and selected based upon the benefits to species and the geographical area. Typical projects include barrier culvert removal or replacement with a fish passable culvert or bridge, and re-opening oxbow and off channel habitats. Typical funding amounts range from $30,000 to $110,000 with a minimum 25% cost share requested.
- *Cooperative Endangered Species Conservation Fund*: Grants offered through the Cooperative Endangered Species Conservation Fund support participation in a wide array of voluntary conservation projects for candidate, proposed and listed species. These funds may in turn be awarded to private landowners and groups for conservation projects.
- *North American Wetlands Conservation Act Grants Program*: The North American Wetlands Conservation Act of 1989 provides matching grants to organizations and individuals who have developed partnerships to carry out wetlands conservation projects in the United States, Canada, and Mexico for the benefit of wetlands-associated migratory birds and other wildlife. The Standard

Grants Program supports projects in Canada, the United States, and Mexico that involve long-term protection, restoration, and/or enhancement of wetlands and associated uplands habitats. The Small Grants Program operates only in the United States; it supports the same type of projects and adheres to the same selection criteria and administrative guidelines as the U.S. Standard Grants Program. However, project activities are usually smaller in scope and involve fewer project dollars. Grant requests may not exceed $75,000, and funding priority is given to grantees or partners new to the Act's Grants Program.

U.S. Army Corps of Engineers
Basinwide Restoration New Starts General Investigation
Bruce Sexauer
P.O. Box 3755
Seattle, WA 98134
(206) 764-6959

Funding for projects related to coastal ecosystems, fish and wildlife, flood management, land management and planning, outdoor recreation, general restoration, riparian areas, water quality, and wetlands is provided through this program at a 65:35 cost share. Studies on the same topics are funded at a 50:50 cost share.

Interagency Committee for Outdoor Recreation
Washington Wildlife Recreation Program
1111 Washington St. SE
PO Box 40917
Olympia, WA 98504
360-902-3000, info@iac.wa.gov

The WWRP provides funds for the acquisition and development of recreation and conservation lands. WWRP funds are administered by account and category. The Habitat Conservation Account includes critical habitat, natural areas, and urban wildlife categories. The Outdoor Recreation Account includes local parks, state parks, trails, and water access categories. Letters of intent are usually due March 1 of each year. Applications are usually due May 1.

Trout Unlimited
Embrace-A-Stream
406-543-1192
www.tu.org

Embrace-A-Stream (EAS) is the flagship grant program for funding Trout Unlimited's conservation efforts to conserve, protect, and restore coldwater fisheries and their watersheds. Trout Unlimited annually raises money from TU members, corporate and agency partners, and foundations to distribute as small grants to local TU projects. The goal of EAS is to conserve coldwater fisheries through innovative grassroots conservation projects. Successful projects are based on sound science, benefit the resource, strengthen the local TU chapter and council, and help build the constituency for

protecting trout and salmon. TU volunteers are actively involved in project work and are expected to provide matching funds. An Embrace-A-Stream Committee comprised of TU volunteer representatives and scientific advisors evaluates all proposed projects.

Natural Resources Conservation Service
Conservation Reserve Program
http://www.nrcs.usda.gov/programs/crp/

The Conservation Reserve Program (CRP) provides technical and financial assistance to eligible farmers and ranchers to address soil, water, and related natural resource concerns on their lands in an environmentally beneficial and cost-effective manner. The program provides assistance to farmers and ranchers in complying with federal, state, and tribal environmental laws, and encourages environmental enhancement. It encourages farmers to convert highly erodible cropland or other environmentally sensitive acreage to vegetative cover, such as grasses, wildlife plantings, trees, filterstrips, or riparian buffers. Farmers receive an annual rental payment for the term of the multi-year contract. Cost sharing is provided to establish the vegetative cover practices.

APPENDIX B. MAPS