

FINAL

CITY OF ARLINGTON
GRANT No.G1000035

SHORELINE RESTORATION PLAN

**for the City of Arlington's Shoreline: South Fork and
Mainstem Stillaguamish River and Portage Creek**

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October 2011

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090105

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This report was funded
in part through a grant
from the Washington
Department of Ecology

Cite this document as:

The Watershed Company. October 2011. Final Shoreline Restoration Plan for the City of
Arlington's Shoreline: South Fork and Mainstem Stillaguamish River and Portage Creek.

Prepared for the City of Arlington, Arlington, WA.

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SHORELINE RESTORATION PLAN

CITY OF ARLINGTON'S SHORELINE: SOUTH FORK AND MAINSTEM STILLAGUAMISH RIVER AND PORTAGE CREEK

1 INTRODUCTION

The City of Arlington's (City's) Shoreline Master Program (SMP) applies to activities in the City's shoreline jurisdiction. Activities that have adverse affects on the ecological functions and values of the shoreline must be mitigated. By law, the proponent of an activity is required to return the subject shoreline to a condition equivalent to the baseline level at the time the activity takes place. It is understood that some uses and developments cannot always be mitigated fully, resulting in incremental and unavoidable degradation of the baseline condition. The subsequent challenge is to improve the shoreline over time in areas where the baseline condition is degraded, severely or marginally.

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

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

Degraded shorelines are not just a result of pre-SMP activities, but also of unregulated activities and exempt development. The Guidelines also require that "[l]ocal master programs shall include regulations ensuring that exempt development in the aggregate

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

will not cause a net loss of ecological functions of the shoreline.” While some actions within shoreline jurisdiction are exempt from a permit, the SMP should clearly state that those actions are not exempt from compliance with the Shoreline Management Act (SMA) or the local SMP. Because the shoreline environment is also affected by activities taking place outside of a specific local master program’s jurisdiction (e.g., outside of city limits, outside of the shoreline area within the city), assembly of out-of-jurisdiction actions, programs, and policies can be essential for understanding how the City fits into the larger watershed context. The latter is critical when establishing realistic goals and objectives for dynamic and highly inter-connected environments.

Restoration of shoreline areas, in relation to shoreline processes and functions, commonly refers to methods such as re-vegetation, removal of invasive species or toxic materials, and removal of bulkhead structures, piers, and docks. Consistent with the Washington State Department of Ecology’s (Ecology’s) definition, use of the word “restore,” or any variations, in this document is not intended to encompass actions that reestablish historic conditions. Instead, it encompasses a suite of strategies that can be approximately delineated into four categories:

- Creation (of a new resource)
- Restoration (of a converted or substantially degraded resource)
- Enhancement (of an existing degraded resource)
- Protection (of an existing high-quality resource)

As directed by the Guidelines, the following discussions provide a summary of baseline shoreline conditions, list restoration goals and objectives, and discuss existing or potential programs and projects that positively impact the shoreline environment. In total, implementation of the SMP (with mitigation of project-related impacts) in combination with this Restoration Plan (for restoration of lost ecological functions that occurred prior to a specific project) should result in a net improvement in the City’s shoreline environment in the long term.

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

2 SHORELINE INVENTORY SUMMARY

2.1 Introduction

The original SMP for the City was approved in 1974 and has not had a major update in over 10 years. The current SMP process represents an effort to update to the City's existing SMP. Much has changed along the City's shorelines since the existing SMP was adopted. The existing SMP consists of the goals and policies in the city's Comprehensive Plan and provisions in the Arlington Municipal Code.

In January 2011 the City completed a comprehensive inventory and analysis of its shorelines as an element of its SMP update. The purpose of the shoreline inventory and analysis was to gain a greater understanding of the existing condition of the City's shoreline environment to ensure the updated SMP policies and regulations are well-suited in protecting ecological processes and functions. The document describes existing physical and biological conditions in the shoreline zones within City limits and includes recommendations for restoration of ecological functions where they are degraded. The inventory and analysis, titled *Shoreline Analysis Report for the City of Arlington's Shoreline: South Fork and Mainstem Stillaguamish River and Portage Creek* (TWC 2011), is summarized below.

2.2 Shoreline Jurisdiction

As defined by the SMA, shorelines include certain waters of the state plus their associated "shorelands." At a minimum, the waterbodies designated as shorelines of the state are streams whose mean annual flow is 20 cubic feet per second (cfs) or greater. Shorelands are defined as:

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

The entirety of the South Fork and mainstem Stillaguamish River within City limits and the urban growth area (UGA) is a regulated Shoreline and is considered a Shoreline of Statewide Significance ($\geq 1,000$ cubic feet per second). Additionally, Portage Creek is also considered a shoreline stream. Associated wetlands, floodway, and contiguous floodplains are also considered within shoreline jurisdiction.

Note that the City’s existing shoreline management area includes only the shorelines of the South Fork and mainstem Stilliguamish River. This shoreline management area has been adjusted to include Portage Creek (subject to City Council and Ecology approval) concurrent with this SMP update. A detailed discussion of the entire jurisdiction assessment and determination process can be reviewed in full in the *Shoreline Analysis Report for City of Arlington’s Shoreline – Appendix C (TWC 2011)*).

2.3 Inventory and Analysis

The shoreline inventory and analysis includes all land within the City’s proposed shoreline jurisdiction (see the *Shoreline Analysis Report for City of Arlington’s Shoreline – Appendix C (TWC 2011)*). The total area subject to the City’s updated SMP, not including aquatic area, is approximately 198.43 acres (0.31 square miles), and encompasses approximately 9,808 linear feet of shoreline.

In order to break down the shoreline into manageable units and to help evaluate differences between discrete shoreline areas, the City’s shorelines have been divided into assessment units based on biological character, dominant land use, and location within City limits or the UGA, as follows:

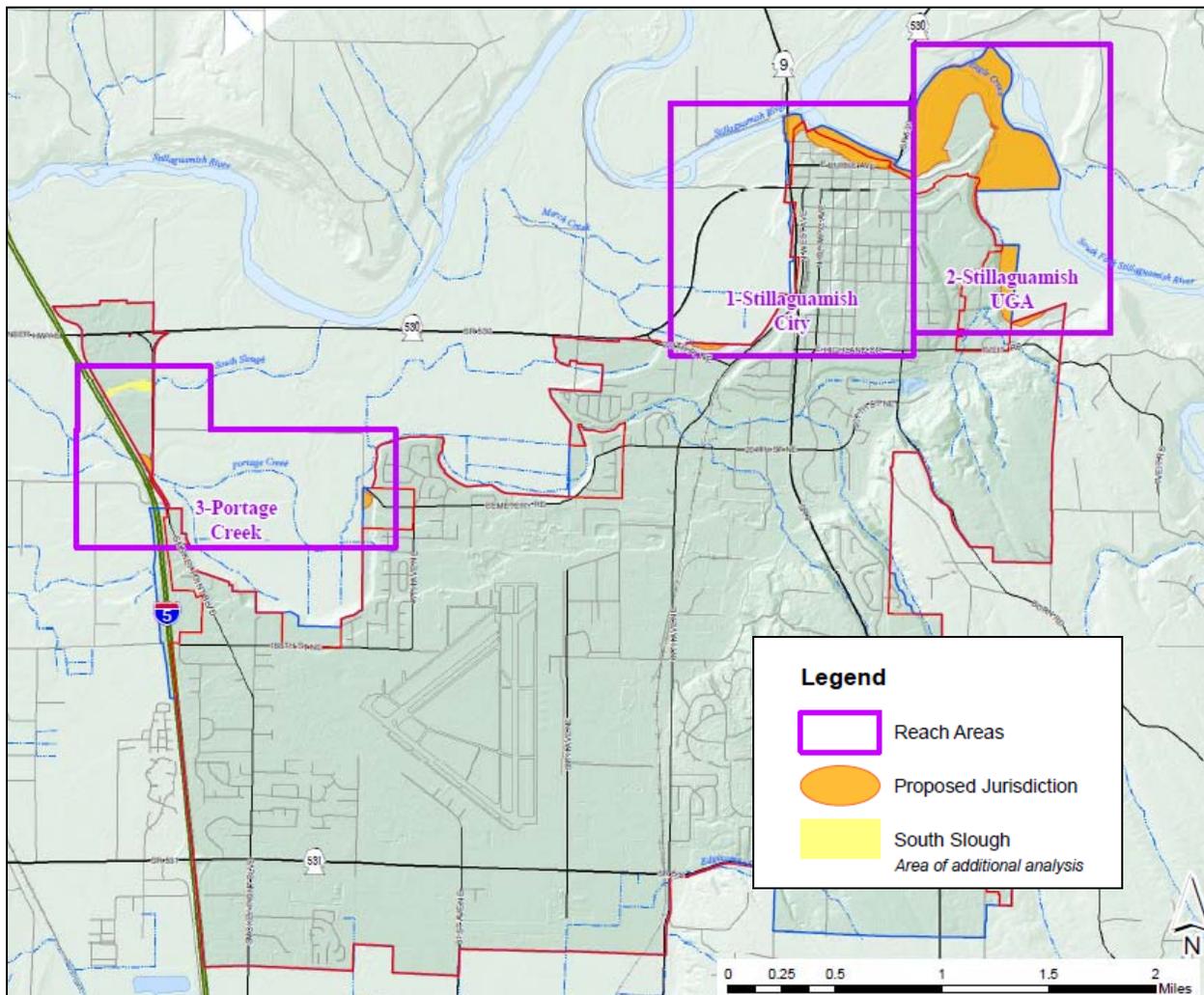
- Stillaguamish River – City
- South Fork Stillaguamish River – UGA
- Portage Creek

Table 2-1, below, shows the breakdown of jurisdictional dimensions for each shoreline reach. Figure 2-1, below, depicts the shoreline reaches.

Table 2-1. Summary of Proposed Shoreline Jurisdiction.

Shoreline Reach	Total Jurisdictional Area (acres)	Total Jurisdictional Area (square miles)	Total Jurisdictional Area (linear feet)
South Fork and mainstem Stilliguamish (City)	30.25	0.05	2,885
Mainstem Stilliguamish (UGA)	159.78	0.25	6,849
Portage Creek	8.40	0.01	74
Total	198.43	0.31	9,808

Figure 2-1. Shoreline Reaches.



2.3.1 Land Use and Physical Conditions

The City of Arlington is located in Snohomish County in the Puget Sound Region, and contains freshwater shorelines associated with Washington State’s Water Resource Inventory Area (WRIA) 5 - Stillaguamish. The Stillaguamish River Basin includes more than 4,618 miles of streams and rivers (Stillaguamish Technical Advisory Group (STAG) 2000) and drains an area of 684 square miles, making it the fifth largest basin draining to Puget Sound. It extends from the Cascade Mountains along the eastern boundary to Port Susan (Puget Sound) near Stanwood in the west. Elevations within the watershed range from sea level at Stanwood to 6,854 feet at the summit of Three Fingers. Unlike most eastside Puget Sound river basins, the Stillaguamish Basin does not extend all the way to the Cascade Crest, but is rather bordered to the east and surrounded by two other Puget Sound basins, the Snohomish and Skagit.

In the Stillaguamish River – City reach, land use was historically connected to timber-related industries. Currently, 51% of this reach is zoned Parks/Semi-Public (P/SP). The P/SP district is intended to accommodate public and semi-public uses, such as schools, government services and facilities, public utilities, community facilities, parks, etcetera, on publicly owned land. Forty-one percent of this reach is zoned Old Town Business District 3 (OTBD-3). The OTBD zones are designed to accommodate a mix of a wide variety of commercial activities and high density residential uses in a pedestrian-oriented environment. Seven percent of the reach is zoned Low to Moderate Density Residential (RLMD). RLMD-zoned areas are designed primarily to accommodate detached single-family residential development and recreational, quasi-public, and public uses that customarily serve residential development in areas served by public sewer and water facilities. Some types of two-family residences are allowed in this district on larger lots. 1% of this reach is zoned High Density Residential (RHD). RHD-zones areas are designed primarily to accommodate higher density multi-family developments and recreational, quasi-public, and public uses that customarily serve residential development in areas served by public sewer and water facilities. Only 2 or 3 small lots in this reach remain undeveloped. While the return of timber-related industry is unlikely, a canoe or kayak facility is a potential future use. The potential for future subdivisions of over four lots is very low. However, there are two lots where an old farm house and a trailer park are currently located, which may be converted into a commercial business providing some public access to the shoreline. Current land use in this reach is summarized in Table 2-2 below. Haller Park and Twin Rivers Park (in Snohomish County, across the river from the City) currently provide shoreline public access to the Stillaguamish River. Haller Park is due for upgrades to improve public access, including repair of the existing boat launch.

Table 2-2. Current Land Uses in the Stillaguamish River – City Reach.

Land Uses	Approximate Number of Parcels
Executive, Legislative & Judicial Functions	1
Four Family Residence (Four Plex)	1
Manufactured Home (Owned Site)	1
Mobile Home Park 1 – 20 Units	1
Parks – General Recreation	1
Religious Activities (Churches, Synagogues, etc.)	1
Rivers, Streams, or Creeks	4
Single Family Residence Condominium	4
Single Family Residence – Detached	16
Three Single Family Residences	1
Trails (Centennial, et al)	1
Two Family Residence (Duplex)	2
Undeveloped (Vacant) Land	10 ¹

¹ Not all parcels are developable lots due to site constraints.

When the *Shoreline Analysis Report for the City of Arlington’s Shoreline: South Fork and Mainstem Stillaguamish River and Portage Creek* (TWC 2011) was prepared, 96% of the South Fork Stillaguamish River – UGA reach was zoned Low to Moderate Density Residential (RLMD). However, the majority of this area, including the Country Charm Recreation and Conservation Area (County Charm), has had the zoning changed from RLMD to Public/Semi-Public (P/SP). Approximately two percent of this reach is currently zoned High Density Residential (RHD). However, approximately 15 acres of upland that was not purchased by the City for the County Charm Recreation and Conservation area has been pre-zoned RHD. When the rezoning process occurs, the City will consider an Urban Horticulture zoning, which may provide incubator business opportunities associated with enhanced public access. Approximately one percent of the reach is zoned Suburban Residential (SR), which is designed primarily to accommodate detached single-family residential development and recreational, quasi-public, and public uses that customarily serve residential development in areas served by public sewer and water facilities. Some types of two-family residences are allowed in this district on larger lots. Approximately one percent of the reach is zoned Moderate Density Residential (RMD), which is designed primarily to accommodate detached or attached single-family residential uses at medium densities and recreational, quasi-public, and public uses that customarily serve residential development in areas served by public sewer and water facilities. Some types of two-family residences are allowed in this district on larger lots. Current land use in this reach is summarized in Table 2-3 below. Country Charm will provide shoreline public access to the Stillaguamish River in the future.

Table 2-3. Current Land Uses in the South Fork Stillaguamish River – UGA Reach.

Land Use	Approximate Number of Parcels
Nursery, Primary & Secondary School	1
Open Space Agriculture RCW 84.34	1
Single Family Residence – Detached	4
Undeveloped (Vacant) Land	6

Seventy-nine percent of the Portage Creek reach is zoned Highway Commercial (HC). The HC zone is designed to accommodate the widest range of commercial activities. Uses allowed here include those allowed in other commercial districts, but also those that require highway access or that should be separated from residential uses. Twenty-one percent of this reach is zoned Low to Moderate Density Residential (RLMD). Land in this reach is currently used for private farm operations (including on the single vacant lot). Possible future uses for the creek buffer in this area include public viewing, stormwater management, and increased landscaping. Current land use in this reach is

summarized in Table 2-4 below. Portage Creek does not currently have public access or recreation sites within the City’s shoreline jurisdiction, though some viewing opportunities are available from the adjacent roadway.

Table 2-4. Current Land Uses in the Portage Creek Reach.

Land Use	Approximate Number of Parcels
Open Space Agriculture RCW 84.34	1
Undeveloped (Vacant) Land	1

Table 2-5 provides a breakdown by reach of zoning designations. Summary details for impervious surface and vegetative cover are shown in Table 2-6.

Table 2-5. Zoning Designations by Shoreline Reach.

Shoreline Reach	Zoning									
	Type ¹	%	Type	%	Type	%	Type	%	Type	%
Stillaguamish River – City	P/SP	51	OTBD-3	41	RLMD	7	RHD	1		
South Fork Stillaguamish River – UGA	RLMD	±8 ²	RHD	2	SR	1	RMD	<1	P/SP	±88 ³
Portage Creek	HC	79	RLMD	21						

¹ P/SP = Public/Semi-Public, OTBD = Old Town Business District, RLMD = Low/Moderate Density Residential, RHD = High Density Residential, SR = Suburban Residential, RMD = Moderate Density Residential, HC = Highway Commercial

² Percentage approximate. A rezoning since the *Shoreline Analysis Report for City of Arlington’s Shoreline* was prepared has yielded the 96% figure presented in that report obsolete.

³ Percentage approximate. A rezoning since the *Shoreline Analysis Report for City of Arlington’s Shoreline* was prepared has yielded the 1% figure presented in that report obsolete.

Table 2-6. Impervious Surface and Vegetated Area by Shoreline Reach.

Shoreline Reach	Impervious Surfaces (acres)	Impervious Surfaces (%)	Vegetation (acres)	Vegetation (%)
Stillaguamish River – City	8.47	28	2	6.6
South Fork Stillaguamish River – UGA	Approx. 1	<1	94	59
Portage Creek	0.50	6	2	24
Total	9.97	5	98	49

No reservoirs occur along either fork of the Stillaguamish River or the mainstem, and flows in the basin are essentially unregulated. While diking of the lower mainstem of the river is prevalent throughout the Stillaguamish Flood Control District, entirely west of Interstate 5, no diking is known to occur within the City’s shoreline jurisdiction. Some diking does occur in unincorporated Snohomish County along the south bank of the mainstem just downstream (west) of the City (e.g. the Dike Road/Johnson levee).

2.3.2 Biological Resources and Critical Areas

The City’s critical areas regulations include frequently flooded areas, aquifer recharge areas, geologically hazardous areas (areas susceptible to erosion, landslides, seismic events, liquification, and other geologic events), wetlands, fish and wildlife conservation areas, and streams, creeks, lakes, and other surface water. The inventory of critical areas was based on a wide range of information sources, including City GIS, critical area inventories, Washington Department of Fish and Wildlife (WDFW) databases, and other relevant maps and literature obtained from the Washington Department of Natural Resources, Ecology, National Marine Fisheries Service, and the US Fish and Wildlife Service.

The northernmost end of the City is located on the South Fork and mainstem Stillaguamish River, and Portage Creek runs through a portion of the City in the west section. Shoreline jurisdiction includes these areas, as well as associated wetlands totaling 2.01 acres along the South Fork and mainstem Stillaguamish in the City, 102.24 acres along the South Fork Stillaguamish within the UGA, and 1.77 acres along Portage Creek (Table 2-7).

Table 2-7. Extent of Wetlands by Shoreline Reach.

Shoreline Reach	Wetland Area (acres) ¹	Wetland Area as Percent of Shoreline
Stillaguamish River – City	2.01	7.6
South Fork Stillaguamish River – UGA	102.24	64.0
Portage Creek	1.77	21.1
Total	106.02	53.5

¹Wetland areas are based on GIS data and should be regarded as approximate.

Geologically hazardous areas within shoreline jurisdiction mapped by the City’s GIS include ground shake, lahars, liquification susceptibility, and landslides. Additionally, the Federal Emergency Management Agency identifies floodplains and floodways along the South Fork and mainstem Stillaguamish, and floodplain along Portage Creek.

WDFW mapping of Priority Habitat and Species indicates the presence of Fish and Wildlife Habitat Conservation Areas within and adjacent to the shoreline zone. These includewinter eagle concentrations, swan winter feeding, riparian and wetland areas,

and bull trout, Chinook salmon, chum salmon, Coho salmon, cutthroat trout, pink salmon, and steelhead.

Stream outfalls are shown in Table 2-8, below.

Table 2-8. Stream Outfalls by Shoreline Reach.

Shoreline Reach	Stream Outfalls
Stillaguamish River – City	0
South Fork Stillaguamish River – UGA	1
Portage Creek	Not available
Total	1

3 RESTORATION GOALS AND OBJECTIVES

Goals for restoring the City’s shoreline are derived from analysis of watershed function, water quality, salmon recovery, habitat and other ecological studies. General goals are as follows:

- Goal 1** Where possible, allow natural ecosystem processes to occur.
- Goal 2** Where possible, restore the elements of naturally occurring landscape conditions that can mature over time.
- Goal 3** Involve landowners and volunteer groups to assist with the restoration and monitoring of shoreline conditions.
- Goal 4** Reduce the potential for pollutants to enter the Stillaguamish River and Portage Creek.

These goals provide direction and guidance for the plan’s objectives. Objectives refer to specific actions, ideally measurable, that can be taken to achieve the stated goals. For example, to meet the goal of improving water quality, an objective would be to remove creosote pilings. By translating the restoration goals into objectives, the objectives for this Restoration Plan are:

- Objective 1** Prevent the need for further armoring or diking along shoreline areas by not allowing activities that would require additional flood protection.
- Objective 2** Where possible, remove armoring to allow natural processes to occur.

- Objective 3** Protect riparian forests from further degradation so they may provide large woody debris (LWD) recruitment in the future.
- Objective 4** Do not remove LWD from shoreline areas so it can perform natural stabilization and habitat functions.
- Objective 5** Restore native vegetation where landscape is dominated by invasive species that do not allow for natural recruitment of LWD.
- Objective 6** Restore native vegetation in residential riparian areas when uses change from residential to commercial or other uses.
- Objective 7** Restore wetlands in areas where soils indicate they historically occurred.
- Objective 8** Restore small streams and side channel morphology.
- Objective 9** Restore LWD to areas within and along shorelines to expedite the return of functions needed by wildlife.
- Objective 10** Reduce the potential for outside influences such as light and noise to interfere with breeding and migration patterns.
- Objective 11** Maintain a list of restoration opportunities and invite volunteers to participate in scheduled events.
- Objective 12** Implement a landowner education program that provides private landowners along the shoreline best management practices (BMPs) specific to their location.
- Objective 13** Seek out long-term volunteers to act as adopt-a-park stewards for ongoing education, maintenance, and protection activities.
- Objective 14** Require and assist with restoration of riparian buffer functions, including the retention of forest duff for the capture and treatment of pollutants.
- Objective 15** Require that any new or re-development provide stormwater treatment as required to prevent introduction of pollutants to the Stillaguamish River or Portage Creek.
- Objective 16** Provide sufficient restroom facilities at all public or private shoreline recreation areas.
- Objective 17** Provide sufficient garbage and recycling facilities at all public and private shoreline recreation areas.

Table 3-1. Restoration Goals and Objectives Addressing Ecological Functions in the City.

Restoration goal	Objective(s)	Ecological function(s) addressed	Potential metrics
Where possible, allow natural ecosystem processes to occur.	#1 Prevent further armoring or diking	<ul style="list-style-type: none"> ▪ Maintain flood storage ▪ Provide flood refuge for fish ▪ Provide stream bank riparian habitat conditions ▪ Allow channel migration when practical 	<ul style="list-style-type: none"> ▪ Net flood storage following development ▪ Available side channel habitat ▪ Total forested riparian area
	#2 Remove armoring	<ul style="list-style-type: none"> ▪ Allow channel migration when practical ▪ Provide stream bank riparian habitat condition 	<ul style="list-style-type: none"> ▪ Available side channel habitat ▪ Total forested riparian area
	#3 Protect riparian forests from further degradation	<ul style="list-style-type: none"> ▪ Provide LWD recruitment for fish habitat ▪ Provide natural bank stabilization ▪ Reduced overland flow of stormwater ▪ Wildlife habitat ▪ Aesthetics 	<ul style="list-style-type: none"> ▪ LWD counts along stream bank ▪ Eroding banks/landslides ▪ Riparian survey of herb, shrub, and tree cover (spherical densitometer) ▪ Wildlife use survey¹ ▪ Impervious surface monitoring
	#4 Do not remove LWD from shoreline areas	<ul style="list-style-type: none"> ▪ Provide LWD recruitment for fish habitat ▪ Provide natural bank stabilization ▪ Wildlife habitat 	<ul style="list-style-type: none"> ▪ LWD counts along stream bank ▪ LWD counts in riparian buffer ▪ Wildlife use survey¹
Where possible, restore the elements of naturally occurring landscape conditions that can mature over time.	#5 Restore native vegetation where invasive species do not allow recruitment	<ul style="list-style-type: none"> ▪ LWD recruitment ▪ Stream bank stabilization ▪ Wildlife habitat ▪ Improved water quality 	<ul style="list-style-type: none"> ▪ Riparian survey ▪ Eroding banks ▪ Wildlife use survey¹ ▪ Stream temperature
	#6 Restore native vegetation in riparian areas when uses change from residential to commercial or other uses	<ul style="list-style-type: none"> ▪ LWD recruitment ▪ Stream bank stabilization ▪ Wildlife habitat ▪ Improved water quality 	<ul style="list-style-type: none"> ▪ Riparian survey ▪ Eroding banks ▪ Wildlife use survey¹ ▪ Stream temperature

Restoration goal	Objective(s)	Ecological function(s) addressed	Potential metrics
	#7 Restore wetlands where soils indicate they historically occurred	<ul style="list-style-type: none"> ▪ Water quality treatment ▪ Water quantity storage ▪ Fish habitat ▪ Wildlife habitat ▪ Amphibian habitat 	<ul style="list-style-type: none"> ▪ Water quality sampling ▪ Area of additional water storage created ▪ Fish use monitoring ▪ Wildlife use survey¹ ▪ Amphibian pitfall trap survey
	#8 Restore small stream and side channel morphology	<ul style="list-style-type: none"> ▪ Fish flood refugia ▪ Fish migration, rearing, and spawning ▪ Sediment management ▪ Reduced flow velocities 	<ul style="list-style-type: none"> ▪ Fish use monitoring ▪ Eroding banks ▪ Restoration project totals
	#9 Restore LWD within and along shoreline areas	<ul style="list-style-type: none"> ▪ LWD recruitment ▪ Stream bank stabilization ▪ Wildlife habitat 	<ul style="list-style-type: none"> ▪ LWD counts ▪ Restoration project totals ▪ Wildlife use surveys¹ ▪ Eroding banks
	#10 Reduce outside influences such as light and noise	<ul style="list-style-type: none"> ▪ Fish and wildlife migration ▪ Wildlife reproduction ▪ Fish and wildlife juvenile rearing 	<ul style="list-style-type: none"> ▪ Fish use monitoring ▪ Wildlife monitoring ▪ Wildlife surveys¹
Involve landowners and volunteer groups to assist with the restoration and monitoring of shoreline conditions	#11 Maintain a list of restoration opportunities	<ul style="list-style-type: none"> ▪ Riparian planting and maintenance ▪ Water quality sampling ▪ Monitoring from the potential metrics 	<ul style="list-style-type: none"> ▪ Restoration project totals ▪ Water quality data ▪ Other metrics as scheduled
	#11 Invite volunteers to participate in events	<ul style="list-style-type: none"> ▪ Set up annual calendar with seasonal actions for volunteers to accomplish ▪ Set up annual calendar with seasonal actions for landowners to accomplish 	<ul style="list-style-type: none"> ▪ Metric appropriate to seasonal calendar by site ▪ Metric appropriate to specific landowner project
	#12 Implement a landowner education program	<ul style="list-style-type: none"> ▪ Provide site specific technical information and BMPs 	<ul style="list-style-type: none"> ▪ Select several sites to monitor success of protection or maintenance activity
	#13 Seek out long-term volunteers to act as adopt-a-park stewards	<ul style="list-style-type: none"> ▪ Set up annual calendar with seasonal actions 	<ul style="list-style-type: none"> ▪ Metric appropriate to seasonal calendar by site
Reduce the potential for pollutants to enter the Stillaguamish River and	#14 Require and assist with restoration of riparian functions	<ul style="list-style-type: none"> ▪ Uptake of nutrients by riparian vegetation ▪ Capture and bioremediation of urban pollutants by forest duff ▪ Storage of stormwater by vegetation and duff 	<ul style="list-style-type: none"> ▪ Riparian survey ▪ Water quality data ▪ Stream bank erosion ▪ Impervious surface monitoring

Restoration goal	Objective(s)	Ecological function(s) addressed	Potential metrics
Portage Creek.	#15 Require that new or re-development provide stormwater treatment	<ul style="list-style-type: none"> ▪ Water storage ▪ Sediment storage ▪ Toxic compound removal ▪ Nutrient removal 	<ul style="list-style-type: none"> ▪ Water quality data ▪ Impervious surface monitoring
	#16 Provide sufficient restroom facilities	<ul style="list-style-type: none"> ▪ Fecal coliform ▪ Endocrine disrupters 	<ul style="list-style-type: none"> ▪ Water quality data ▪ Soil sampling
	#17 Provide sufficient garbage and recycling facilities	<ul style="list-style-type: none"> ▪ Plastics in food chain ▪ Acute injury to people and wildlife ▪ Fecal coliform ▪ Nutrients ▪ Invasive species ▪ Toxic compounds 	<ul style="list-style-type: none"> ▪ Garbage collection totals and frequency ▪ Riparian surveys ▪ Soil sampling

[†] Wildlife surveys may include avian, mammal, insect, fish and amphibians.

4 EXISTING AND ONGOING PROJECTS AND PROGRAMS

The following series of existing and ongoing projects and programs includes those related to a variety of entities, including the City, Snohomish County, and other organizations that are active in and around the Arlington area.

4.1 City of Arlington

Several City projects and programs contribute to shoreline restoration efforts. These projects and programs include:

- Comprehensive plan
- Environmentally critical areas regulations
- Stormwater projects and programs
- Capital projects

4.1.1 Comprehensive Plan

The City of Arlington Comprehensive Plan contains several provisions applicable to shorelines. Key goals and policies are included below (City of Arlington 2005).

From Overall Goals and Policies:

- GO-2 Provide effective stewardship of the environment, protect environmentally sensitive areas and the natural wildlife that utilizes those areas, and conserve land, air, water, and energy resources for current and future generations.

From Land Use Goals and Policies, Resource Protection:

- GL-19 To safeguard community environmental conditions and resources the City shall encourage the effective stewardship of the environment and protect critical areas and conserve land, air, water and energy resources.
- PL-19.5 Use local resources whenever possible to encourage local involvement in community actions.
- PL-19.7 Protect and enhance the natural environment while planning for growth.
- PL-19.8 Maintain or restore aquatic ecosystems and associated habitats and aquifers through the development and implementation of a comprehensive protection program.
- PL-19.9 Protect and maintain elements of the environment including clean water, natural vegetation and habitat corridors through adopted development regulations and a variety of educational, voluntary, and incentive programs.

From Parks and Recreation Goals and Policies:

- GP-1 Maintain and support existing and future recreational and cultural activities.
- PP-1.10 Volunteerism is a significant source of energy and ideas. The City must continue to tap and improve existing opportunities to involve the community in its own programs. The City should formalize a volunteer program, which could include programs such as "adopt a park" and "adopt a trail."
- PP-1.11 Each community park should have restroom facilities.
- GP-5 Preserve and enhance open space, natural, and cultural resources.
- PP-5.3 Plan, locate and manage park and recreation facilities so that they enhance wildlife habitat, minimize erosional impacts, and complement natural site features.
- PP-5.9 Certain open space lands should be managed as native growth areas and kept in a natural state to maintain existing habitat value. In the case of degraded or impacted lands, these areas may be enhanced to provide a higher value.

- GP-7 Develop park and trail design and development standards.
- PP-7.4 Develop standards for delineating usable private and public property from critical areas and their buffers.
- GP-8 Remain a Tree City.
- PP-8.2 Consider implementing a voluntary neighborhood tree planting program.

4.1.2 Environmentally Critical Areas Regulations

The City's environmentally critical areas regulations are found in Arlington Municipal Code, Chapter 20.88. These regulations are based on best available science, and provide protection to environmentally critical areas in the City outside of shoreline jurisdiction, including streams, lakes, wetlands, frequently flooded areas, geologically hazardous areas, and fish and wildlife conservation areas. Management of the City's critical areas using these regulations should help ensure that ecological functions and values are not degraded and impacts to critical areas outside of shoreline jurisdiction are mitigated. These environmentally critical areas regulations are important tools that will help the City meet its restoration goals.

4.1.3 Stormwater Projects and Programs

The Stormwater Comprehensive Plan presents the current conditions of the stormwater infrastructure in the City and UGA, identifies issues and challenges facing stormwater utility management (infrastructure, operations, regulations, compatibility with landscape processes), and presents capital improvement project options for stormwater management (City of Arlington 2010).

The City Natural Resources Department included resource protection projects in the stormwater comprehensive planning process. Although not all resource projects made the final funding list, future funding possibilities will continue to be pursued.

The 2011 Stormwater Management Program addresses NPDES Phase II permit requirements. The NPDES permit requires the City to develop and implement a Stormwater Management Program that addresses permit conditions grouped according to the following components:

- Public Education and Outreach
- Public Involvement
- Illicit Discharge Detection and Elimination
- Runoff Control for New Development, Redevelopment and Construction Sites
- Pollution Prevention for Municipal Operations and Maintenance

- Total Maximum Daily Loads (TMDLs), also known as water clean-up plans (City of Arlington 2011)

Additionally, the City has a stormwater utility that provides commercial property owners the opportunity to request fee reductions based on the stormwater treatment and retention their system provides. If a business installs a stormwater system that infiltrates 100% of the stormwater flows 100% of the time, property owners can achieve up to a 50% reduction in stormwater fees.

In order to assess the appropriate fee a business is charged, the City tracks the total impervious area of commercial properties. The City can utilize this information to assess the net loss or gain of impervious area within shoreline areas with commercial properties, particularly in the Historic Shoreline Business District environment designation.

4.1.4 Capital Projects

Listed below in Table 4-1 are capital projects that are planned for implementation by the City. The projects can be grouped as follows:

- Sanitary Sewer/Reclaimed (R)
- Water (W)
- Stormwater (S).

Table 4-1. Projects to be Implemented with Environmental Restoration Components in or Impacting Shoreline Areas.

Project/Location	Environmental component(s)	Implementation status
S2 – Stillaguamish City	Stormwater trunk line improvements	Future
S3 – Stillaguamish City	Stormwater Outfall repair	Future
S4 – Stillaguamish City (future)	Old Town stormwater wetland completion	In-process
S7 – Stillaguamish City	Centennial trail storm re-direction	Future
S8 – Stillaguamish City	Haller park outfall improvements	Future
S9 – Stillaguamish City	Haller park bacterial control	Future
S20 – Portage Creek	Portage Creek WQ Investigation	Future
S20 – Portage Creek	Lower Portage Flood Mitigation	Future
S21 – Portage Creek	Lower Portage Wetland Restoration	Future
S22 – Portage Creek	Lower Portage Wetland Restoration	Future
S47 – Stillaguamish UGA	Graafstra Riparian Area	In-process
S54a – Stillaguamish UGA	Eagle Wetland #SH0888	In-process
S54b – Stillaguamish UGA	Eagle Clay Cliff Ponds #SH0860	Future
R EX7 – WWTP→WWRF Upgrade Arlington City	Improve the effluent from Sanitary sewer system being released to the Stillaguamish River	Complete

Project/Location	Environmental component(s)	Implementation status
W WM2 – Portage Creek	Water main improvement 204 th with creek crossing	Future
WM3 – Stillaguamish City	Source Water protection program	In-process
WF2 - Stillaguamish City	Utility parks building at Haller Park	In-process
WF5 - Stillaguamish City	Haller well field improvements	Future

The City’s Natural Resources Department developed a capital plan for restoration of stream and wetland areas in response to Endangered Species Act (ESA) concerns in 2000. Although the plan was never adopted, it has been utilized to prioritize and implement restoration projects in some areas of the shoreline. The Natural Resources Department also developed the ESA “Framework to Recovery.” While not yet adopted by the City Council, this document was used in the development of the Stormwater Management Plan.

4.2 Stillaguamish Watershed Council

The mission of the Stillaguamish Watershed Council (SWC) is to “maintain a healthy, functioning Stillaguamish Watershed by providing a local forum in which agencies, organizations, communities, and the public can engage in a collaborative watershed based process of decision making and coordination.” WRIA 5 participation is accomplished through the SWC.

The SWC is a non-regulatory, grassroots group currently with twenty-six members (the SWC may grow to include more stakeholders). The SWC includes the Stillaguamish Technical Advisory Group (STAG), which develops technical recommendations for salmon conservation.

The City of Arlington Natural Resources Manager has been Chair or Co-Chair of the SWC since the year 2000. Additionally, the City plays a major role in representing the Stillaguamish Watershed at the Puget Sound Salmon Recovery Council, and as the alternate representative to the Ecosystems Board that guides the Puget Sound Partnership. The City also participates in the STAG.

The Stillaguamish Implementation Review Committee (SIRC), the former name of the SWC, prepared the Stillaguamish Watershed Chinook Salmon Recovery Plan (Chinook Plan) in 2005. The purpose of the document is to provide guidance to local stakeholders in a collaborative effort to restore and protect Chinook salmon populations in the Stillaguamish River watershed (WRIA 5).

The Chinook Plan identifies six habitat limiting factors for Chinook salmon population in the Stillaguamish Watershed: riparian, estuarine, large wood, floodplain, sediment, and hydrology. The limiting factors are not prioritized as they all have significant impacts on various life stages of Chinook. The plan indicates that the City has the

opportunity to improve four of the limiting factors, as shown in the top row of Table 4-2 below.

Table 4-2. Relationship of Chinook Salmon Habitat Protection to Limiting Factors.

Jurisdiction/ Agency	Riparian	Estuary	Large Woody Debris	Floodplain	Sediment	Hydrology
City of Arlington	✓			✓	✓	✓
City of Stanwood		✓		✓		
Snohomish County	✓	✓		✓		✓
Skagit County	✓			✓		
WA State Department of Ecology		✓		✓	✓	✓
WA Department of Fish and Wildlife		✓	✓			✓
WA Department of Natural Resources	✓		✓	✓	✓	✓
US Forest Service	✓		✓	✓	✓	✓

The plan provides the following general recommendation that applies to the City:

- All cities, counties, state and federal agencies, tribes, and other stakeholder organizations in the Stillaguamish Watershed should adopt policies and objectives to protect and restore salmon habitat and watershed processes. Specific actions supporting these policies and objectives may include:
 - Support low-density/low impact land uses in rural areas outside of urban growth areas;
 - Protect and restore appropriate riparian areas;
 - Maintain and restore natural streambank conditions;
 - Protect and restore natural watershed functions in the floodplain and channel migration zone;
 - Retain large woody debris in stream to support salmon habitat and restore natural watershed processes;
 - Eliminate existing fish passage barriers such as culverts and tide gates and prevent the creation of new barriers;

- Achieve no net loss of wetland functions and values, and restore degraded wetlands where possible;
- Avoid cumulative adverse impacts to streams, riparian corridors, and wetlands throughout the watershed; and
- Address salmon habitat protection in management plans for natural areas and open spaces (SIRC 2005).

There is also a three-year work plan listing potential projects, Habitat Work Schedule, and annual Salmon Recovery Funding Board (SRFB) processes that provide opportunities for Arlington to continue to add projects for consideration of funding.

Table 4-3 below lists existing and future City projects or programs that assist in the implementation of the Chinook Plan.

Table 4-3. Existing and Future City Projects or Programs that Assist in the Implementation of the Chinook Plan.

Project Type	Project/Program	Description	Status/Funding
Protection/Acquisition	Country Charm Recreation and Conservation Area	City purchased 150 acres of floodplain farm with assistance from the SRFB to pay for buffer area (39 acres).	Purchase complete, 30-year contract
Protection/Acquisition	Rasar Island	City accepted the dedication of Rasar Island adjacent to the Country Charm from Dan Rasar.	Gift
Water quality	Upgrade wastewater plant	City upgraded the sanitary sewer system to a more modern water reclamation facility with the installation of a membrane bioreactor to improve the condition of effluent being released.	Funded through rates and Public Trust Fund Loan
Water quality	Old Town stormwater wetland	Construction of a 9-acre naturalized stormwater wetland that will treat and desynchronize 270 acres of Old Town Arlington that was developed prior to stormwater management systems.	Funded through Ecology grants and stormwater fees
Floodplain/Wetlands	Stormwater Comprehensive Plan wetland projects	There are several wetland restoration projects that are identified in the Stormwater Comprehensive Plan that were identified in the 1997 Ecology characterization.	Ongoing with some complete, and others not yet funded
Floodplain/Wetlands	South Slough	South Slough has been in a degraded state since the construction of Highway 530 and Interstate 5. It was historically a functional side channel/wetland, and the desire is to restore a portion of historic function.	Public/Private partnership being developed
Riparian	Volunteer plantings in Arlington urban growth area	The City partners with Sound Salmon Solutions, Stillaguamish Tribe Banksavers, Snohomish County Big Trees project.	SRFB and Arlington General Fund
Chapter 3 of this document lists goals and objectives that will guide shoreline restoration activity. Goals 5, 6, 7, 8, 9, 11, 12 and 14 all call for specific restoration actions to occur that will address limiting factors found in the Chinook Plan.			

The SWC is also responsible for oversight of the Stillaguamish Capacity Fund used to support activities that contribute to the implementation of habitat protection and restoration capital projects consistent with the Chinook Plan. Funds are disseminated through a criteria-based process to a wide variety of uses which may include participating members as well as community members at-large.

4.3 Snohomish County

The City coordinates with Snohomish County on shoreline management through Washington State Growth Management Act planning and the Stillaguamish Watershed Council.

Additionally, the City co-manages Twin Rivers Park (which is on the right bank of the river across from the Historic Shoreline Business District environment designation) with Snohomish County Parks and Recreation.

The Portage Creek reach has restoration opportunities that would need to be coordinated with Snohomish County as the the immediate upstream and downstream reaches are in County jurisdiction.

4.3.1 *Stillaguamish River Comprehensive Flood Hazard Management Plan*

The Stillaguamish River Comprehensive Flood Hazard Management Plan was developed by the Snohomish County Surface Water Management Division with input from the public and an advisory committee comprised of agency staff and public officials and representatives. The City had a representative on the advisory committee.

The purpose of the plan was to “identify areas that may contribute to increased flood damages and determine actions that can be taken to reduce those damages while preserving the positive environmental effects of flooding.”

Plan goals include:

1. Save lives and reduce public exposure to risk;
2. Reduce or prevent damage to public and private property;
3. Reduce historic and prevent future adverse natural resource impacts of flood hazard management;
4. Reduce the costs associate with flood hazard management; and
5. To the maximum extent possible, allow and encourage natural floodplain processes.

Chapter 7 of the plan includes recommended actions to address hazards and hazard mitigation opportunities. Table 4-4 below lists recommended actions that involve the City and may achieve restoration goals (Snohomish County 2003).

Table 4-4. Recommended Actions in the Snohomish Surface Water Management Flood Hazard Management Plan that involves the City and may Achieve Restoration Objectives.

Location	Recommended Action (RA)	Description	Notes
Basin-wide	RA-1 Conduct a Flood Insurance Re-Study	Conduct a Flood Insurance Re-Study for the Stillaguamish River basin and pursue federal or state cost-sharing.	
Basin-wide	RA-13 Develop a Landslide Hazard Homeowner Education Program	Develop an education program that provides homeowners who live above or below geologically hazardous areas information on the risks of landslides and the benefits of retaining healthy vegetation on slopes.	
Basin-wide	RA-16 Participate in Habitat Restoration Projects that Provide Cumulative Flood Reduction Opportunities	Participate in future habitat restoration projects (developed post-plan adoption) that may provide the added benefit cumulative flood reduction opportunities in the basin.	
Mainstem	RA -31 Conduct and Avulsion Risk Assessment of the Dike Road Dike and Berm and Implement Findings.	Conduct a study to determine the risk of an avulsion through the abandoned channel behind the Dike Road Dike and berm and develop solutions to prevent such an event from occurring. Include City of Arlington to address that portion of the dike they own.	Study complete, implementation incomplete
Mainstem	RA-33 Investigate Methods for Flood Hazard Reduction Benefits as Part of the Restoration Activities in Portage Creek	Determine methods to use Portage Creek for flood reduction that support on-going efforts to restore the County-owned Wildlife Reserve.	

4.3.2 Critical Areas Monitoring and Adaptive Management Program

The monitoring and adaptive management program was developed to support implementation of Snohomish County’s critical area regulations in order to meet the requirements of the GMA. The program goal is to determine the effectiveness of the regulations in conserving the functions and values of the county's critical areas.

The City provides Snohomish County with information relevant to status reports. Currently the STAG reviews annual assessments of watershed recovery goals from the Chinook Plan. Elements of this monitoring that may be reflected in the monitoring within Arlington designated areas include riparian conditions, floodplain armoring and

side channel connectivity, LWD, hydrology, water quality, and sediment. The City or partners in restoration also submit the amount of riparian work that has been completed so that can be tracked over time.

The most current example of a City project being included in the County status report is the Graafstra/Country Charm acquisition of 137 acres of floodplain. The area is to be retained in open space by the changing of proposed zoning from residential to Public/Semi-Public for habitat and recreational uses.

Other local projects are likely to be included in future versions of the status report. One project was the installation of two log jams and flood fencing in the Arlington UGA reach by Snohomish County that occurred in summer of 2011. Another project was the construction of a stormwater wetland immediately downstream of the Stillaguamish River – City reach by the City in 2011.

4.4 Snohomish Conservation District

The Snohomish Conservation District (SCD) is a political subdivision of the State of Washington (authorities, powers, and structure contained in RCW 89.08). The mission of the SCD is “to work cooperatively with others to promote and encourage conservation and responsible use of natural resources.” The SCD covers most of Snohomish County and Camano Island, which is part of Island County. The total area that the SCD covers is 2,112 square miles of mainland and 40 square miles on Camano Island.

The SCD has no direct jurisdiction and authority over natural resources. Its responsibility lies primarily in working with owners and users of land and resources. The SCD, however, does work with administrators of public land on works affecting land and resources. In such activities, the SCD works with the public and private sectors on mutual problems and opportunities where respective interests need to be correlated.

The City annexed into the SCD in 2005 so landowners could benefit from SCD services. The SCD is coordinating with the City’s Natural Resources Department and Stormwater Department in providing assistance to landowners to implement Low Impact Development (LID) alternatives for reducing stormwater impacts. The two main features of the program include the installation of rain gardens and rainwater collection systems. The SCD is able to provide design assistance in partnership with the City.

4.5 Washington State Department of Ecology

The City continues to utilize Ecology staff as a resource for technical support and regulatory assistance when needed.

The City continues with implementation of the Phase II National Pollution Discharge Elimination System (NPDES) permit. The City participated in the development of the

total maximum daily load (TMDL) which identifies a specific allocation of pollutants which the City must take actions to stay within.

Ecology has provided excellent grant support over the past several years by providing funding towards the water reclamation facility, Old Town stormwater wetland, wetland restoration, and NPDES implementation.

5 INVOLVEMENT OF OTHER AGENCIES AND ENTITIES

5.1 Puget Sound Partnership

The Puget Sound Partnership (Partnership) consists of representatives from a variety of interests from the Puget Sound region including business, agriculture, the shellfish industry, environmental organizations, local governments, tribal governments, and the Washington state legislature. Some of the Partnership's key tasks are as follows:

- Develop a set of recommendations for the Governor, the Legislature and Congress to preserve the health of Puget Sound by 2020 and ensure that marine and freshwaters support healthy populations of native species as well as water quality and quantity to support both human needs and ecosystem functions.
- Engage citizens, watershed groups, local governments, tribes, state and federal agencies, businesses and the environmental community in the development of recommendations.
- Review current and potential funding sources for protection and restoration of the ecosystem and, where possible, make recommendations for the priority of expenditures to achieve the desired 2020 outcomes.

The Partnership, through the Leadership Council, released an Action Agenda in December 2008. Implementation of this Action Agenda has resulted in state and federal funding of restoration and protection initiatives and projects. This includes integrating the work of the Puget Sound Nearshore Restoration Project to increase focus on completing work necessary to request Puget Sound restoration funds under the Water Resources Development Act slated for 2012.

On an annual basis, each of the watershed groups representing the fourteen watershed chapters of the Puget Sound Salmon Recovery Plan, including the Stillaguamish Watershed Council, develop three-year work program updates to describe the watershed's accomplishments during the previous year, identify the current status of recovery actions, and to propose future actions in the next three years necessary to

implement the Salmon Recovery Plan. These work programs are intended to provide a road map for policy and technical decision makers across the Puget Sound region on priorities for implementing the salmon recovery plan, inform and support funding requests, and establish a recovery trajectory within each watershed and the region.

Additionally, the Stillaguamish Watershed Council is involved with the Puget Sound Partnership through the following:

- Monitoring and Adaptive Management Plan
- Whidbey Action Area Local Integration
- Ecosystems Recovery Board
- Puget Sound Salmon Recovery Council

6 STRATEGIES TO ACHIEVE LOCAL RESTORATION GOALS

This section discusses programmatic measures for the City designed to foster shoreline restoration and achieve a net improvement in shoreline ecological processes, functions, and habitats. With projected budget and staff limitations, the City is limited in its ability to implement restoration projects or programs on its own. However, the City's SMP represents an important vehicle for facilitating and guiding restoration projects and programs that can be achieved in partnership with private and/or non-profit entities. The City can provide direction and leadership to assure that restoration designs meet the identified goals of the various plans. The discussion of restoration mechanisms and strategies below highlights programmatic measures that the City may potentially implement as part of the proposed SMP, as well as parallel activities that would be managed by other governmental and non-governmental organizations.

6.1 Capital Facilities Program

The City's Natural Resources Department could develop shoreline restoration as a new section of the City's Capital Facilities Program (CFP) to facilitate implementation. The City could review the various elements of previously adopted plans and determine what projects have yet to be implemented in shoreline areas and develop a prioritized schedule. Examples include the riparian plantings projects or log jams to be installed at Country Charm.

6.2 Development Opportunities

When shoreline development occurs, the City has the ability to look for opportunities to conduct restoration in addition to minimum mitigation requirements as part of the SMP. Development may present timing opportunities for restoration that would not otherwise occur and may not be available in the future. Mitigation may also be allowed through the use of a fee-in-lieu-of or exchange of land for “banking” opportunities. In certain cases, on-site mitigation opportunities are limited due to building site constraints, limited potential ecological gains, or other site-specific factors. In these instances, the City shoreline administrator could identify an off-site restoration site within the immediate sub-basin that could be contributed to in lieu of on site mitigation.

The City can also provide coordination of the various non-profit groups or citizen volunteers that can assist with the installation and monitoring of restoration projects. The City strongly encourages the participation of the citizens to build a strong sense of stewardship that comes through their investment of time, money, or materials in to the project.

6.3 Development Incentives

Through the SMP, the City may provide development incentives for restoration, including the waiving of some or all of the development application fees, infrastructure improvement fees, parks mitigation fees, or stormwater fees. This may serve to encourage developers to try to be more imaginative or innovative in their development designs to include more access and preservation. Examples of development actions that could be incentivized include the building of trails, installation of rain gardens or other LID features above and beyond DOE requirements, shared parking, exceeding landscape or open space requirements, or other innovative measures that benefit the environment and the citizenry.

6.4 Tax Relief / Fee System

A tax relief/fee system to directly fund shoreline restoration measures may be investigated under the SMP. One possibility is to have the City work with the county to craft a preferential tax incentive through the Public Benefit Rating System administered by the County under the Open Space Taxation Act (RCW 84.34) to encourage private landowners to preserve natural shore-zone features for "open space" tax relief. Ecology has published a technical guidance document for local governments who wish to use this tool to improve landowner stewardship of natural resources. More information about this program can be found at <http://www.ecy.wa.gov/biblio/99108.html>. The guidance in this report provides technically based property selection criteria designed to augment existing open space efforts with protection of key natural resource features that directly benefit the watershed. Communities can choose to use any portion, or all, of

these criteria when tailoring a Public Benefit Rating System to address the specific watershed issues they are facing.

A second possibility is a Shoreline Restoration Fund. A chief limitation to implementing restoration is local funding, which is often required as a match for state and federal grant sources. To foster ecological restoration of the City's shorelines, the City may establish an account that may serve as a source of local match monies for non-profit organizations implementing restoration of the City's shorelines. This fund may be administered by the City shoreline administrator and be supported by a levy on new shoreline development proportional to the size or cost of the new development project. Monies drawn from the fund would be used as a local match for restoration grant funds, such as the SRFB, Aquatic Lands Enhancement Account, or another source.

6.5 Resource Directory

Development of a resource list would be helpful in aiding property owners who want to be involved in restoration. Examples of grant programs that could be included are:

Landowner Incentive Program: This is a competitive grant process to provide financial assistance to private individual landowners for the protection, enhancement, or restoration of habitat to benefit species-at-risk on privately owned lands.

SRFB Grant Programs: SRFB administers two grant programs for protection and/or restoration of salmon habitat. Eligible applicants can include municipal subdivisions (cities, towns, and counties, or port, conservation districts, utility, park and recreation, and school districts), tribal governments, state agencies, nonprofit organizations, and private landowners.

Recreation and Conservation Office is a Washington State entity that hosts a variety of grant programs that range from recreation to watershed recovery.

The Tulalip Tribes and the Stillaguamish Tribe of Indians are developing various grant programs that may support access and trails that would provide social benefits to the citizens.

6.6 Volunteer Coordination

The City will continue to emphasize and accomplish restoration projects by using community volunteers and coordinate with organizations such as the Stilly/Snohomish Fisheries Enhancement Task Force, Evergreen Fly-fishing Club, Stillaguamish Tribe of Indians, local churches, Kiwanis, Rotary International, the Chamber of Commerce, and the Arlington School District.

Probably the most important volunteer is the landowner that acts as the steward of the land following the completion of a project. The City may have to provide ongoing

assistance and resources to landowners that need additional plantings, equipment use, or other materials to maintain their restoration project.

6.7 Regional Coordination

The City will continue its association and active involvement with the SWC, Puget Sound Salmon Recovery Council, Partnership, Snohomish County, and fellow stakeholders in the Whidbey Action Area. The City may also look for other time-sensitive opportunities for involvement in regional restoration planning and implementation.

7 PROPOSED IMPLEMENTATION TARGETS AND MONITORING METHODS

7.1 Project Evaluation

When a restoration project is proposed for implementation by the City, other agency, or by a private party, the project should be evaluated to ensure that the project's objectives are consistent with those of this Restoration Plan and, if applicable, that the project warrants implementation above other candidate projects. It is recognized that, due to funding sources or other constraints, the range of any individual project may be narrow. It is also expected that the list of potential projects may change over time, that new projects will be identified and existing opportunities will become less relevant as restoration occurs and as other environmental conditions, or our knowledge of them, change.

When evaluating potential projects, priority should be given to projects most meeting the following criteria:

- Restoration meets the goals and objectives for shoreline restoration listed in Chapter 3.
- Restoration or protection of processes is generally of greater importance than restoration of functions.
- Restoration avoids residual impacts to other functions or processes.
- Addresses a known degraded condition or limiting factor for salmon recovery.
- Conditions that are progressively worsening are of greater priority.
- Restoration addresses multiple functions or processes.

- Restoration has a high benefit to cost ratio.
- Restoration has a high probability of success.
- Restoration is feasible, such as being located on and accessed by public property or private property that is cooperatively available for restoration.
- Restoration project design should consider impacts to adjacent property owners.
- There is public support for the project.
- The project is supported by, and consistent with, other restoration plans.

The City should consider developing a project “scorecard” as a tool to evaluate projects consistent with these criteria.

7.2 Monitoring and Adaptive Management

In addition to project monitoring required for individual restoration and mitigation projects, the City should conduct system-wide monitoring of shoreline conditions and development activity, to the degree practical, recognizing that individual project monitoring does not provide an assessment of overall shoreline ecological health. The following three-prong approach is suggested:

1. Track information using the City’s geographic information system (GIS) and permit system (tracking should include high-quality aerial photo documentation for future analysis) as activities occur (development, conservation, restoration, and mitigation). Such activities might include:
 - New shoreline development
 - Shoreline variances (including the nature of the variance)
 - Compliance issues
 - New impervious surface area
 - New and existing Critical Area Protection Easements
 - Removal of fill or armoring
 - Addition of fill or armoring
 - Installation of riparian buffers
 - Vegetation retention/loss

- Installation of LWD projects
- Locations where in-lieu-of mitigation program has been utilized (both the sending and receiving locations of impact)

The City may require project proponents to monitor as part of project mitigation, which may be incorporated into this process. Regardless, as development and restoration activities occur in the shoreline area, the City should seek to monitor shoreline conditions to determine whether both project-specific and overall-SMP goals are being achieved.

2. Periodically review and provide input to regional ongoing monitoring programs, such as:
 - SWC adaptive management of Chinook Plan
 - Ecology monitoring programs
 - Puget Sound Partnership monitoring programs

Through this coordination with regional agencies, the City should seek to identify any major environmental changes that might occur.

3. Re-review status of environmental processes and functions at the time of periodic SMP updates to, at a minimum, validate the effectiveness of the SMP. Re-review should consider what restoration activities actually occurred compared to stated goals, objectives and priorities, and whether restoration projects resulted in a net improvement of shoreline resources.

Under the SMA, the SMP is required to result in no net loss of shoreline ecological functions. If this standard is found to not be met at the time of review, Arlington will be required to take corrective actions. The goal for restoration is to achieve a net improvement. The cumulative effect of restoration over time between reviews should be evaluated along with an assessment of impacts of development that is not fully mitigated to determine effectiveness at achieving a net improvement to shoreline ecological functions.

Evaluation of shoreline conditions, permit activity, GIS data, and policy and regulatory effectiveness should occur at varying levels of detail consistent with the comprehensive plan update cycle. A complete reassessment of conditions, policies and regulations should be considered every eight years. To conduct a valid reassessment of the shoreline conditions every eight years, it is necessary to monitor, record and maintain key environmental metrics to allow a comparison with baseline conditions. As monitoring occurs, the City should reassess environmental conditions and restoration objectives. Those ecological processes and functions that

are found to be worsening may need to become elevated in priority to prevent loss of critical resources. Alternatively, successful restoration may reduce the importance of some restoration objectives in the future.

7.3 Reporting

Chapter 4 describes project opportunities to restore shoreline conditions. The restoration opportunities included are based upon a detailed inventory and analysis of shoreline conditions by many sources. Nonetheless, exhaustive scientific information about shoreline conditions and restoration options is cost prohibitive at this stage. Additionally, restoration is at times experimental. Monitoring must be an aspect of all restoration projects. Information from monitoring studies will help demonstrate what restoration is most successful. Generally, conservation of existing natural areas is the least likely to result in failure.

This Restoration Plan does not provide a comprehensive scientific index of restoration opportunities that allows the City to objectively compare opportunities against each other. If funding was available, restoration opportunities could be ranked by which opportunities are expected to have the highest rates of success, which address the most pressing needs, and other factors. Funding could also support a long-term monitoring program that evaluates restoration over the life of the SMP (as opposed to independent monitoring for each project). However, the following table (Table 7-1) outlines a possible schedule and funding sources for implementation of a variety of efforts that could improve shoreline ecological function, and are described in previous sections of this report.

Table 7-1. Implementation Schedule and Funding for Restoration Projects, Programs and Plans.

Restoration Project/Program	Schedule	Funding Source or Commitment
SMP – overall plan effectiveness	8-year review	Arlington General fund and Ecology grant
SWC annual review of adaptive management (AM)	Annual	Arlington General Fund, County, Tribal and State funding
SWC five-year review of AM, and recommended actions to meet goals	5-year review	Arlington General Fund, County, Tribal and State Funding
Stormwater Comprehensive Plan	As prioritized in adopted plan	Stormwater fees, grant funds
Privately funded projects	1-, 5-, and 10-year review	Private, in-lieu-of, grant funding or volunteer monitoring
Stakeholder partnerships	Annual	Arlington General fund, stormwater fund or volunteer monitoring
Tree City report	Annual	Arlington General fund

City planning staff is encouraged to track all land use and development activity, including exemptions, within shoreline jurisdiction, and may incorporate actions and programs of the other departments as well. A report may be assembled through the use of "Permit Trax" the City permit computer tracking system that provides basic project information, including location, permit type issued, project description, impacts, mitigation (if any), and monitoring outcomes as appropriate. Examples of data categories might include square feet of non-native vegetation removed, square feet of native vegetation planted or maintained, reductions in chemical usage to maintain turf, linear feet of eroding stream bank stabilized through plantings, or linear feet of shoreline armoring removed. The report would also outline implementation of various programs and restoration actions (by the City or other groups) that relate to watershed health.

The staff report may be assembled to coincide with comprehensive plan updates and may be used, in light of the goals and objectives of the SMP, to determine whether implementation of the SMP is meeting the basic goal of no net loss of ecological functions relative to the baseline condition established in the *Shoreline Analysis Report for the City of Arlington's Shoreline*. In the long term, the City should be able to demonstrate a net improvement in the City's shoreline environment.

8 REFERENCES

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9 LIST OF ACRONYMS AND ABBREVIATIONS

BMP.....	Best management practice
City.....	City of Arlington
Chinook Plan	Stillaguamish Watershed Chinook Salmon Recovery Plan
Country Charm	Country Charm Recreation and Conservation Area
Ecology	Washington State Department of Ecology
ESA.....	Endangered Species Act
GMA.....	Growth Management Act
Guidelines	Shoreline Master Program Guidelines (WAC 173-26, Part III)
HC	Highway Commercial (City zoning designation)
LID.....	Low impact development
LWD	Large woody debris
NPDES	National Pollution Discharge Elimination System
OTBD	Old Town Business District (City zoning designation)
P/SP	Parks/Semi-Public (City zoning designation)
RLMD	Low to Moderate Density Residential (City zoning designation)
RHD	High Density Residential (City zoning designation)
RMD.....	Moderate Density Residential (City zoning designation)
SCD	Snohomish Conservation District
SIRC.....	Stillaguamish Implementation Review Committee
SMA	Shoreline Management Act

- SMPShoreline Master Program
- SRSuburban Residential (City zoning designation)
- SRFBSalmon Recovery Funding Board
- STAG.....Stillaguamish Technical Advisory Group
- SWC.....Stillaguamish Watershed Council
- TMDL.....Total maximum daily load
- WAC.....Washington Administrative Code
- WDFWWashington Department of Fish and Wildlife
- WRIAWater Resource Inventory Area