

CLEAR/CLARKS CREEK BASIN PLAN

EXECUTIVE SUMMARY

ES.1 Introduction and Purpose

The Clear/Clarks Creek Basin Plan (Basin Plan) is intended to serve as a comprehensive guide to storm drainage and surface water management in unincorporated parts of the Roosevelt Ditch drainage area, Clear Creek drainage basin, Clarks Creek drainage basin, and the Potholes drainage area. The Basin Plan addresses many aspects of surface water management with emphasis on flooding, erosion, water quality, and habitat problems and solutions to the problems identified.

The purpose of the Clear/Clarks Creek Basin Plan is to establish the actions Pierce County Public Works and Utilities, Water Programs Division will take over the next ten years to reduce flood hazards, to protect water quality, and to protect associated riparian and aquatic habitat in the basin. Recommended actions are based on the physical characteristics of the basin; the laws, policies, and regulations that apply to storm drainage and surface water management in unincorporated Pierce County; the preferences of citizens in the County and in the Clear/Clarks Creek Basin; and the character of existing land use and planned growth as set out in the Comprehensive Plan for Pierce County, Washington. The Basin Plan will guide annually updated work plans for capital improvement projects and programmatic measures of Water Programs. (“Programmatic” refers to non-structural actions, such as changes to regulations, policies, programs, and how they are administered.) The Basin Plan also identifies key supportive actions needed from other parts of county government and other jurisdictions to ensure that flooding, habitat, and water quality issues in this basin are addressed in a coordinated manner. Water Programs managers will convey these needs to appropriate programs (e.g., Transportation Division, Planning and Land Services Department, Tacoma-Pierce County Health Department, Pierce Conservation District, community planning boards and forums, and Washington State Department of Transportation).

This Basin Plan has been developed as part of Water Program’s basin planning program. The program updates the *Pierce County Storm Drainage and Surface Water Management* (1991 Plan) by developing ten basin-specific plans. The 1991 Plan has guided storm drainage and surface water management facilities and services for over a decade and much of the 1991 Plan has been implemented. The 1991 Plan studied the Clear/Clarks Creek Basin and recommended \$11.2 million dollars in improvements, many that have been constructed. Clear/Clarks Creek is one of 26 Pierce County drainage basins (see *Figure ES-1*).

The Basin Plan supports or furthers Pierce County’s:

- Compliance with its federal "Clean Water Act" National Pollution Discharge Elimination System (NPDES) municipal stormwater permit
- Compliance with the "Endangered Species Act" (ESA) by eliminating or reducing existing or potential habitat issues that could cause “jeopardy” for protected species
- Upgrade to a "Class 4," rating or better under the Federal Emergency Management Agency’s (FEMA) "Community Rating System" (CRS)

ES.2 Goals of the Clear/Clarks Creek Basin Plan

Specific goals and objectives of the Clear/Clarks Creek Basin Plan are as follows:

Reduce Flood Hazards

- Incidents of property loss and repeat damage are reduced
- Streams will not be adversely affected by flood events
- Pierce County's standing under the FEMA Community Rating System is improved
- New development is located outside of flood prone areas

Improve Water Quality

- State Surface Water Quality Standards (WAC 173-201a) are met or exceeded
- Number of impaired (303d listed) water bodies is reduced
- Pierce County is in compliance with its NPDES permit for stormwater by meeting permit terms and conditions to the maximum extent practicable
- Risk of groundwater contamination is reduced
- Rates of erosion are reduced

Improve Associated Fish and Wildlife Habitat

- Number of stream miles available for wild, native fish populations is increased
- Population numbers of species listed as "endangered" or "threatened" under the Federal Endangered Species Act are maintained or increased
- Quality and quantity of available wetland, riparian, and upland habitat is improved

Demonstrate coordinated and responsible use of public resources

- Cost of maintaining stormwater facilities is reduced
- Project value is favorable when measured against costs and benefits
- Polls demonstrate that public awareness of flooding, habitat, and water quality issues has increased
- Monitoring and enforcement programs demonstrate an increase in services per dollar spent
- Basin plan implementation also implements elements of other Pierce County plans.
- Basin plan findings are used by other agencies and jurisdictions in planning their activities.

Influence location and methods for new development

- New development in flood-prone, riparian, or significant habitat areas is prohibited.
- Low Impact Development techniques are widely used.
- Effective storm drainage best management practices (BMPs) are identified and widely used.

ES.3 Basin Description

The Clear/Clarks Creek Basin is composed of the drainage areas tributary to the south side of the Puyallup River between River Mile- (RM)-2.8 and RM-7. Like the Mid-Puyallup Basin, it excludes the main stem of the Puyallup River (see *Figure ES-2*). The main stem of the Puyallup River is covered in the Puyallup River Comprehensive Flood Control Management Plan. Major flooding concerns related to the levee system along the lower Puyallup River are principally addressed in the Puyallup River Comprehensive Flood Control Management Plan.

The entire Clear/Clarks Creek Basin encompasses 32.9 square miles of which 27.4 square miles (83%) exist within unincorporated Pierce County. The remaining 5.5 square miles (17%) lay within the cities of Tacoma and Puyallup. For a description of the roles of the cities and the Puyallup Tribe in the Basin and in this Basin Plan, refer to Chapter 3, Stakeholder Involvement.

The Clear/Clarks Creek Basin is part of Washington State Water Resource Inventory Area (WRIA) 10, the Puyallup-White River Basin. Clear/Clarks Creek Basin contains two major tributaries plus a small area called the Roosevelt Ditch drainage area and an area that is internally drained called the Potholes. The Clear/Clarks Creek Basin Plan includes the Roosevelt Ditch and Potholes drainage areas because they are adjacent areas that do not fall logically into any other drainage basin, they are not large enough for the cost-efficient preparation of individual basin plans, and the areas were included in the Clear/Clarks Creek study area of the 1991 Plan.

ROOSEVELT DITCH DRAINAGE AREA: Flows into the City of Tacoma & the T Street drainage

CLEAR CREEK BASIN: Swan Creek
Squally Creek
Clear Creek
Canyon Creek

CLARKS CREEK BASIN: Rody Creek
Diru Creek
Woodland Creek
Clarks Creek

POTHOLES:

- Afdem
- Black Swamp
- Capital
- Heritage Glen
- Tip Top
- 128th Street
- Meridian Street
- 135th Street
- Candlewood-Manorwood
- 117th Street
- Lower 144th Street
- Alderwood
- Upper 144th Street
- Springfield
- South Central
- 110th Avenue

**Figure ES-1
Study Area**

repeat of County figure 1-2 from Chapter 1

ES.4 Problems, Proposed Solutions and the Prioritization Process

Problems identified in the Basin Plan include: flooding of property and roads, impaired water quality, stream channel incising, erosion and sedimentation, loss of floodplain, and degraded aquatic habitat. The Basin Plan addresses the adverse effects of these problems and issues, such as: property damage from flooding; violations of federal, state, and local regulations; and threats to public health and safety. It explores the causes behind the problems

Each potential Capital Improvement Project (CIP) and programmatic recommendation was evaluated for its net natural resource management benefit and then prioritized based on cost-to-benefit considerations.

In determining net benefit, each project and program was scored using a system that assigned points for the project or program's potential for various aspects of flood reduction, water quality protection or improvement, natural resource improvement, and other factors such as economic development, multiple use, education, and recreation. Each project and program was reviewed and scored using approximately 40 specific criteria. Recommended CIPs and programs were then put in rank order, based on their numeric benefit score, and grouped by "High," "Medium," and "Low" priority order. In total, the Basin Plan recommends \$65,557,000 of projects, programs, and studies for the Clear/Clarks Creek Basin. This includes \$33,114,000 of "High Priority" projects; \$27,612,000 of "Medium Priority" projects; and \$4,607,000 of "Low Priority" projects. Additionally, the Basin Plan recommends gathering more information in various studies estimated to cost \$224,000.

ES.4.1 Recommended Actions

The Clear/Clarks Creek Basin Plan contains 65 capital improvement projects, 12 programmatic measures, and four studies to remedy flooding, erosion, water quality, and stream habitat problems resulting from surface water runoff in the Basin.

<i>Project Type</i>	<i>High Priority</i>	<i>Medium-Priority</i>	<i>Low-Priority</i>
Capital Improvement Projects	\$30,474,000	\$27,591,000	\$4,585,000
Programmatic Measures	\$2,716,000	\$21,000	\$22,000
Studies	\$224,000		
Total Estimated Cost	\$65,595,000		

Capital improvement projects and programmatic measures have been divided into “High-Priority,” “Medium-Priority,” and “Low-Priority”¹ groups. Priorities were not established for studies. Estimated costs of recommendations by priority group are as follows:

Table ES-2

HIGH-PRIORITY RECOMMENDED PROJECTS			
ID Code	Project Title	Rating Score	Estimated Cost
PRG00-02	Update Stormwater Management Standards (Manual)	380	\$6,200 *
PRG00-01	Low-Impact Development	346	27,600 *
PRG00-11	Enhanced Cooperative Arrangements with Cities & Other Jurisdictions	315	38,000 *
PRG00-08	Establish a BMP Manual for Surface Water Maintenance Activities	427	43,600 *
PRG00-09	Invasive Species Management Program	420	43,600 *
PRG00-04	Land Management Program for Flood Hazard Reduction & Storm Drainage Practices Impact Mitigation	389	56,000 *
PRG00-06	Create an Education, Outreach, & Technical Assistance Program	325	212,000 *
PH-IP01	128 th Street East Infiltration Pond	346	469,000
PRG00-05	Riparian & Wetland Restoration Program to Restore Flood Storage & Maintain Water Quality	325	692,000 *
PRG00-07	Surface Water Monitoring Program		985,000 *
	Clear/Clarks Creek Basin Monitoring	244	422,000
CL-RST01	Clear Creek Stream Corridor Restoration	261	Segment 1: 402,000 Segment 2: 402,000 Segment 3: 402,000 TOTAL: 1,207,000
RY-RST01	Rody Creek Stream Corridor Restoration	303	Segment 1: 410,000 Segment 2: 410,000 Segment 3: 410,000 TOTAL: 1,231,000
PRG00-03	Increase Enforcement Inspections	398	1,272,000 *
PH-PL04	144th and 94th Avenue Pipeline	252	1,282,000

¹ “Low-Priority” does not mean “not a priority.” “No Priority” actions have already been excluded from this Basin Plan. Rather, “Low-Priority” means the project rated lower than other needs in the Basin. Examples of these include projects with only a single-benefit; the rating system is weighted toward multiple benefits.

HIGH-PRIORITY RECOMMENDED PROJECTS - continued			
ID Code	Project Title	Rating Score	Estimated Cost
SW-AC01	Swan Creek at 112th Street Floodplain Storage/Headwaters Preservation	302	Segment 1: 343,000 Segment 2: 442,000 Segment 3: 442,000 TOTAL: 1,306,000
WO-RST01	Woodland Creek Stream Corridor Restoration	265	Segment 1: 490,000 Segment 2: 490,000 Segment 3: 490,000 TOTAL: 1,470,000
CY-RST01	Canyon Creek Stream Corridor Restoration	238	Segment 1: 472,000 Segment 2: 472,000 Segment 3: 472,000 Segment 4: 472,000 Segment 5: 472,000 Segment 6: 472,000 TOTAL: 2,834,000
CK-RST01	Clarks Creek Stream Corridor Restoration	231	Segment 1: 470,000 Segment 2: 470,000 Segment 3: 470,000 Segment 4: 470,000 Segment 5: 470,000 Segment 6: 470,000 Segment 7: 470,000 TOTAL: 3,287,000
RD-DP01	Portland Avenue Regional Detention Facility, Roosevelt Ditch Area	276	3,884,000
CL-AC01	Clear Creek Floodplain Repetitive Loss Land Acquisition	345	6,455,000
SW-DP01	Swan Creek Regional Detention Facility	259	6,455,000
Total Estimated Cost			\$33,152,200

* indicates the Clear/Clarks Creek Basin share (21.2%) of the estimated cost of a program of County-wide applicability

Table ES-3

MEDIUM-PRIORITY RECOMMENDED PROJECTS			
ID Code	Project Title	Rating Score	Estimated Cost
PRG00-12	Stormwater Facility Design Process	206	21,200 *
SW-SBS03	Swan Creek 64th Street East Culvert Outfall Repair .	152	24,000
RD-SWL01	20th Avenue East Drainage Swale, Roosevelt Ditch	214	29,000
CL-SBS03	Clear Creek Streambank Stabilization in vicinity of 49th Street	194	35,000
CL-SBS04	Clear Creek Streambank Stabilization on West Fork Clear Creek Downstream of 64th Street E	194	35,000
DU-SBS01	Diru Creek Streambank Stabilization at 72nd St East	164	35,000
RY-SBS01	Rody Creek Streambank Stabilization at 72nd Street East	155	35,000
CL-CR01	Clear Creek 88th Street E Culvert Replacement	161	53,000
CL-VC01	Clear Creek at 104th Street E Vegetation Control	203	54,000
RY-SBS02	Rody Creek Streambank Stabilization at 80th Street East	160	66,000
CK-SP01	Clarks Creek State Hatchery Sedimentation Basin Retrofit	174	73,000
CL-SBS05	Clear Creek Streambank Stabilization 5000 block of Vickery Avenue East	153	92,000
SW-SBS01	Swan Creek Streambank/Channel Stabilization at 72nd Street E Outfall	157	100,000
SQ-VC01	Squally Creek at Pioneer Way E Vegetation Control	165	150,000
CL-SBS02	Clear Creek Streambank Stabilization on East Fork Downstream of 72nd Street E	194	161,000
CY-SBS03	Canyon Creek Streambank Stabilization on Reach Upstream of Second Canyon Road Crossing	163	161,000
CY-SBS01	Canyon Creek Streambank Stabilization on Reach Downstream of 80th Street East	158	161,000
CY-SBS02	Canyon Creek Streambank Stabilization on Reach Downstream of 72nd Street East	153	161,000
CK-PL01	112th Street East Drainage Improvement (Woodland Elementary School)	133	180,000

MEDIUM-PRIORITY RECOMMENDED PROJECTS - continued			
ID Code	Project Title	Rating Score	Estimated Cost
CL-SBS01	Clear Creek Streambank Stabilization on West Fork Downstream of 72nd Street E	194	187,000
CK-AC01	Clarks Creek Property Acquisition at 104th Street East	168	188,000
SW-SBS02	Swan Creek Streambank/Channel Stabilization from 72nd Street E to 64th St E	203	283,000
WO-SBS01	Woodland Creek Streambank/Channel Stabilization at 84th Street East	150	305,000
CY-SBS04	Canyon Creek Streambank Stabilization Downstream of Second Canyon Road Crossing	163	322,000
WO-SBS02	Woodland Creek Streambank Stabilization at 80th Street E	142	357,000
PH-PL05	Springfield Pothole Pipeline	124	379,000
CK-PL02	Fruitland Avenue Drainage Improvement - 104th Street E to 96th Street E, Clarks Creek	164	399,000
PH-PL03	136 th Street Pipeline, 135 th Street Pothole	190	509,000
CY-SL01	Canyon Creek 58th Avenue East Setback Levee	165	552,000
SW-SBS04	Swan Creek Streambank Stabilization Downstream of 64th Street East	222	Segment 1: 380,000 Segment 2: 380,000 Segment 3: 380,000 TOTAL: 1,140,000
DU-RST01	Diru Creek Stream Corridor Restoration Downstream of Pioneer Way East	226	Segment 1: 410,000 Segment 2: 410,000 Segment 3: 410,000 TOTAL: 1,231,000
RY-DP01	Rody Creek Regional Detention Facility Expansion	123	1,313,000
CY-DP02	Canyon Creek 90th Street East Detention (D138-003)	184	1,586,000
PH-PL06	South Hill Pump Station Pipeline to Puyallup River	181	2,466,000
WO-DP01	Woodland Avenue Flood Control Phase II CIP	155	2,960,000
CL-DP01	West Fork Clear Creek Regional Detention	163	3,021,000
CY-DP01	Canyon Creek Regional Detention	174	3,930,000
CL-DP02	East Fork Clear Creek Regional Detention	163	4,858,000
Total Estimated Cost			\$27,612,200

* indicates the Clear/Clarks Creek Basin share (21.2%) of the estimated cost of a program of County-wide applicability

Table 9.4

LOW-PRIORITY RECOMMENDED PROJECTS			
ID Code	Project Title	Rating Score	Estimated Cost
RY-SWL01	62nd Avenue East Drainage Swale, Rody Creek	32	17,000
RY-CR01	Rody Creek at Pipeline Road & 96th Street East Culvert Replacement	65	19,000
PRG00-10	Flood Disclosure Statements on Property Titles	128	22,400 *
WO-CR02	Woodland Creek at 80th Street East Culvert Replacement	88	27,000
RY-CR02	Rody Creek at 98th Street East Culvert Replacement	89	31,000
PH-PL01	92nd Ave East Storm Drainage Pipeline, Black Swamp Pothole	115	34,000
SW-PL01	84th Street East Pipeline Storm Drain Replacement, Swan Creek	99	74,000
RY-RD01	90th Street East at Rody Creek Raise Roadway	84	75,000
CY-FP01	Canyon Creek Driveway Culvert Replacement	108	89,000
WO-CR01	Woodland Creek & 72nd Avenue East Culvert Replacement - 93rd Street East to 96th Street East	105	102,000
SW-CR01	Swan Creek 80th Street E Culvert Replacement	82	110,000
CY-RD02	104th Street East Road Raising & Culvert Replacement - East Fork of Canyon Creek	99	113,000
CY-RD01	116th Street East Road Raising - West Fork of Canyon Creek	97	137,000
CY-AC01	Canyon Creek Property Acquisition at 5600 block of 104th Street E	73	204,000
PH-PL02	156th Street East Regional Pipeline	120	288,000
RY-DIV01	85th Street East Diversion, Rody Creek	120	288,000
DU-DP01	Diru Creek Regional Detention	105	2,977,000
Total Estimated Cost			\$4,607,400

* indicates the Clear/Clarks Creek Basin share of the estimated cost of a program of County-wide applicability

ES.4.2 Programmatic Recommendations

Most of the recommended programs apply county-wide. Cost estimates for implementing the programs in the Clear/Clarks Creek Basin have been calculated based on a 21.2% share of the county-wide costs over ten years. A period of ten years was chosen for estimating costs although many programs are expected to continue indefinitely. *Table ES-4* presents the programmatic recommendations. Estimated costs with an asterisk denote the Clear/Clarks Creek Basin share of estimated countywide costs for the program.

ES.4.2 Capital Improvement Project Recommendations

Tables ES-2, ES-3, and ES-4 summarize the recommended Capital Improvement Projects (CIP). Descriptions of each CIP are provided in [Chapter 9, Basin Plan](#).

TABLE ES-5

Recommended CIP Projects for Clear/Clarks Creek Basin By Project Type																
Subbasin	Acquisition	Streambank/Channel Stabilization	Culvert Replacement	Detention Pond	Diversion	Infiltration Pond	Fish Passage	Raise Roadway	Pipeline	Setback Levee	Sedimentation Pond	Stream Corridor Restoration	Swale	Vegetation Control	Total Number of Projects	Est. Cost
Swan Creek	1	3	2	1					1						8	\$ 10,086,000
Squally Creek														1	1	\$ 150,000
Clear Creek	1	5	1	2								1		1	11	\$ 16,158,000
Canyon Creek	1	4		2			1	2		1		1			12	\$ 10,250,000
Rody Creek		2	2	1				1				1	1		8	\$ 2,787,000
Diru Creek		1		1								1			3	\$ 4,243,000
Woodland Crk		2	2	1								1			6	\$ 5,221,000
Clarks Creek	1								2		1	1			5	\$ 4,127,000
Potholes						1			6						7	\$ 5,427,000
Roosevelt Ditch				1	1			1					1		4	\$ 4,276,000
Basin Total	4	17	7	9	1	1	1	4	9	1	1	6	2	2	65	\$ 65,595,000

Table ES-6

CIP Solutions to Problems Cross-Reference		
RECOMMENDED CAPITAL IMPROVEMENTS		PROBLEMS ADDRESSED
HIGH-PRIORITY		
PH-IP01	128 th Street East Infiltration Pond	PH-1 (Flooding, also Water Quality - instream flows)
CL-RST01	Clear Creek Stream Corridor Restoration	CL-1 (Flooding), CL-16 (Water Quality)
RY-RST01	Rody Creek Stream Corridor Restoration	RY-16 (Habitat), RY-19 (Water Quality)
PH-PL04	144th and 94th Avenue Pipeline	PH-14 (Flooding), PH-15 (Flooding), PH-18 (Flooding)
SW-AC01	Swan Creek at 112th Street Floodplain Storage/Headwaters Preservation	SW-5 (Flooding), SW-10(Flooding), SW-27 (Water Quality-Instream Flow), SW-30 (Flooding)
WO-RST01	Woodland Creek Stream Corridor Restoration	WO-23 (Water Quality, Habitat), WO-29 (Habitat), WO-30 (Habitat), WO-31 (Water Quality)
CY-RST01	Canyon Creek Stream Corridor Restoration	CY-25 (Water Quality, Habitat), CY-26 (Habitat)
CK-RST01	Clarks Creek Stream Corridor Restoration	CK-1 (Flooding), CK-12 (Water Quality), CK-13 (Water Quality, Habitat), CK-14 (Water Quality, Habitat), CK-16 (Flooding), CK-21 (Water Quality)
RD-DP01	Portland Avenue Regional Detention Facility, Roosevelt Ditch Area	RD-7 (Flooding)
CL-AC01	Clear Creek Floodplain Repetitive Loss Land Acquisition	CL-1 (Flooding)
SW-DP01	Swan Creek Regional Detention Facility	SW-3 (Habitat), SW-4 (Flooding), SW-6 (Flooding), SW-21 (Water Quality, Habitat), SW-22 (Water Quality, Habitat), SW-23 (Water Quality, Habitat), SW-30 (Flooding), SW-35 (Water Quality, Habitat), SW-36 (Water Quality), SW-37 (Water Quality)

MEDIUM-PRIORITY		
SW-SBS03	Swan Creek 64th Street East Culvert Outfall Repair	SW-21 (Water Quality, Habitat), SW-23 (Water Quality, Habitat),
RD-SWL01	20th Avenue East Drainage Swale, Roosevelt D	RY-5 (Flooding), RY-6 (Flooding)
CL-SBS03	Clear Creek Streambank Stabilization in vicinity of 49th Street	CL-17 (Habitat, Water Quality), CL-21 (Habitat, Landslide)
CL-SBS04	Clear Creek Streambank Stabilization on West Fork Clear Creek Downstream of 64th Street E	CL-17 (Habitat, Water Quality), CL-22 (Habitat, Water Quality)
DU-SBS01	Diru Creek Streambank Stabilization at 72nd St East	DU-11 (Landslide, Habitat, Water Quality)
RY-SBS01	Rody Creek Streambank Stabilization at 72nd Street East	RY-14 (Habitat, Water Quality)
CL-CR01	Clear Creek 88th Street E Culvert Replacement	CL-5 (Flooding)
CL-VC01	Clear Creek at 104th Street E Vegetation Control	CL-4 (Flooding, Water Quality)
RY-SBS02	Rody Creek Streambank Stabilization at 80th Street East	RY-3 (Water Quality, Habitat)
CK-SP01	Clarks Creek State Hatchery Sedimentation Basin Retrofit	CK-14 (Habitat, Water Quality), CK-15 (Habitat, Water Quality)
CL-SBS05	Clear Creek Streambank Stabilization 5000 block of Vickery Avenue East	CL-33 (Habitat, Water Quality)
SW-SBS01	Swan Creek Streambank/Channel Stabilization at 72nd Street E Outfall	SW-3 (Habitat, Water Quality), SW-21 (Habitat, Water Quality), SW-35 (Habitat)
SQ-VC01	Squally Creek at Pioneer Way E Vegetation Control	SQ-4 (Habitat, Water Quality), SQ-6 (Flooding, Habitat, Water Quality)
CL-SBS02	Clear Creek Streambank Stabilization on East Fork Downstream of 72nd Street E	CL-17 (Habitat, Water Quality), CL-20 (Habitat, Water Quality)
CY-SBS03	Canyon Creek Streambank Stabilization on Reach Upstream of Second Canyon Road Crossing	CY-20 (Habitat, Water Quality), CY-23 (Habitat, Water Quality)
CY-SBS01	Canyon Creek Streambank Stabilization on Reach Downstream of 80th Street East	CY-18 (Habitat, Water Quality), CY-23 (Habitat, Water Quality)
CY-SBS02	Canyon Creek Streambank Stabilization on Reach Downstream of 72nd Street East	CY-22 (Habitat, Water Quality), CY-23 (Habitat, Water Quality)
CK-PL01	112th Street East Drainage Improvement (Woodland Elementary School)	CK-9 (Flooding)
CL-SBS01	Clear Creek Streambank Stabilization on West Fork Downstream of 72nd Street E	CL-17 (Habitat, Water Quality), CL-10 (Habitat, Water Quality)
CK-AC01	Clarks Creek Property Acquisition at 104th Street East	CK-2 (Flooding)
SW-SBS02	Swan Creek Streambank/Channel Stabilization from 72nd Street E to 64th St E	SW-4 (Habitat, Water Quality), SW-21 (Habitat, Water Quality)
WO-SBS01	Woodland Creek Streambank/Channel Stabilization at 84th Street East	WO-24 (Habitat, Water Quality), WO-25 (Habitat, Water Quality), WO-26 (Habitat, Water Quality)

MEDIUM-PRIORITY - <i>continued</i>		
CY-SBS04	Canyon Creek Streambank Stabilization Downstream of Second Canyon Road Crossing	CY-21 (Habitat, Water Quality), CY-23 (Habitat, Water Quality),
WO-SBS02	Woodland Creek Streambank Stabilization at 80th Street E	WO-26 (Habitat, Water Quality), WO-27 (Habitat, Water Quality),
PH-PL05	Springfield Pothole Pipeline	PH-7 (Flooding)
CK-PL02	Fruitland Avenue Drainage Improvement - 104th Street E to 96th Street E, Clarks Creek	CK-10 (Flooding)
PH-PL03	136 th Street Pipeline, 135 th Street Pothole	PH-3 & PH-4 (Flooding)
CY-SL01	Canyon Creek 58th Avenue East Setback Levee	CY-1 (Flooding), CY-5 (Flooding), CY-6 (Flooding)
SW-SBS04	Swan Creek Streambank Stabilization Downstream of 64th Street East	SW-21 (Habitat, Water Quality), SW-24 (Habitat, Water Quality), SW-35 (Habitat, Water Quality)
DU-RST01	Diru Creek Stream Corridor Restoration Downstream of Pioneer Way East	DU-9 (Water Quality), DU-10 (Water Quality, Habitat)
RY-DP01	Rody Creek Regional Detention Facility Expansion	RY-14 (Water Quality, Habitat)
CY-DP02	Canyon Creek 90th Street East Detention (D138-003)	CY-1 (Flooding), CY-6 (Flooding), CY-18 (Habitat, Water Quality)
PH-PL06	South Hill Pump Station Pipeline to Puyallup River	PH-23 (Flooding)
WO-DP01	Woodland Avenue Flood Control Phase II	WO-1 (Flooding), WO-2 (Flooding), WO-5 (Flooding), WO-24 (Habitat, Water Quality), WO-25 (Habitat, Water Quality), WO-26 (Habitat, Water Quality)
CL-DP01	West Fork Clear Creek Regional Detention	CL-5 (Flooding), CL-17 (Habitat, Water Quality, Flooding), CL-19 (Habitat, Water Quality), CL-21 (Habitat, Water Quality), CL-22 (Habitat, Water Quality)
CY-DP01	Canyon Creek Regional Detention	CY-1 (Flooding), CY-6 (Flooding), CY-18 (Habitat, Water Quality)
CL-DP02	East Fork Clear Creek Regional Detention	CL-17 (Habitat, Water Quality, Flooding), CL-20 (Habitat, Water Quality), CL-21 (Habitat, Water Quality), CL-22 (Habitat, Water Quality)

LOW-PRIORITY		
RY-SWL01	62nd Avenue East Drainage Swale, Rody Creek	RY-5 (Flooding), RY-6 (Flooding)
RY-CR01	Rody Creek at Pipeline Road & 96th Street East Culvert Replacement	RY-7 (Flooding)
WO-CR02	Woodland Creek at 80th Street East Culvert Replacement	WO-8 (Flooding, Habitat)
RY-CR02	Rody Creek at 98th Street East Culvert Replacement	RY-8 (Flooding)
PH-PL01	92nd Ave East Storm Drainage Pipeline, Black Swamp Pothole	PH-6 (Flooding)
SW-PL01	84th Street East Pipeline Storm Drain Replacement, Swan Creek	SW-16 (Flooding)
RY-RD01	90th Street East at Rody Creek Raise Roadway	RY-17 (Flooding)
CY-FP01	Canyon Creek Driveway Culvert Replacement at Pioneer Way East	CY-28 (Habitat)
WO-CR01	Woodland Creek & 72nd Avenue East Culvert Replacement - 93rd Street East to 96th Street East	WO-6 (Flooding)
SW-CR01	Swan Creek 80th Street E Culvert Replacement	SW-1 (Flooding, Habitat)
CY-RD02	104th Street East Road Raising & Culvert Replacement - East Fork of Canyon Creek	CY-10 (Flooding)
CY-RD01	116th Street East Road Raising - West Fork of Canyon Creek	CY-3 (Flooding)
CY-AC01	Canyon Creek Property Acquisition at 5600 block of 104th Street E	CY-30 (Flooding)
PH-PL02	156th Street East Regional Pipeline	PH-15 (Flooding)
DU-DP01	Diru Creek Regional Detention	DU-9 (Habitat, Water Quality)

ES.4.3 Implementation Strategy

Implementation of the recommended actions will generally follow the prioritization groupings of high, medium, and low and a logical order of sequencing.

To ensure that the full benefits of all projects are realized, implementation will not follow the exact sequence of the first project to the last project in the High category, followed by the first action in the Medium category, and so forth.

Several factors exist that will result in implementation of actions that are not in the exact sequence as depicted in the projects and programs prioritized by the benefit and ranked by cost table. These factors include the following:

- Available funds
- Contingent projects²
- Available staff and professional service needs
- Cooperation from private landowners
- The best implementer may be an agency other than Pierce County Public Works and Utilities
- New information, regulations or emerging issues
- Coordination with other agencies and/or jurisdictions

Economic Development Criteria

Implementing projects and programs recommended in the Basin Plan is expected to reduce flood hazards, and preserve or protect water quality and floodplain habitat. Collectively and individually, these projects are aimed at protecting Pierce County's quality of life. Projects and programs in the Basin Plan will:

- Afford resource protection as the community develops
- Preserve, enhance or protect natural floodplain functions
- Balance structural and nonstructural approaches
- Reduce potential County environmental liabilities
- Help achieve environmental compliance and long term sustainability

Collectively, these attributes help make Pierce County a livable community where quality of life and natural amenities and functions offer economic incentives to businesses and individuals to locate or stay in the County.

² Contingent projects include projects such as stream restoration projects intended to reduce flood hazards and improve aquatic habitat, and culvert replacement projects intended to improve fish passage. These projects will provide their full benefit after all downstream fish passage barriers are removed, and should be sequenced accordingly.

In addition to the preceding factors, Water Programs will consider the following criteria in developing its annual proposed capital facilities plan updates:

- Is the project located in an employment center zone (or handle flow from those zones)?
- Is the project located in another type of commercial zone (or handle flow from those zones)?
- Will the project reduce permitting timelines for industrial/commercial projects?
- Will the project assure access to an employment center via road and /or rail?
- Will the project increase the supply of developable property?
- Will the project reduce overall development costs?
- Are there partners willing to contribute to the development costs of the project?
- Does the project allow / provide for land development?

In light of these and other factors, following action on the Basin Plan, Pierce County will develop an implementation strategy designed to sequence, schedule, and assign resources for the various recommended actions. This implementation strategy will be developed in collaboration and coordination with other potential implementers and in consideration of available financial and staff resources. The implementation strategy will include performance measurements and provide for periodic evaluation of progress.

