

November 2009

City of Marysville

SURFACE WATER COMPREHENSIVE PLAN UPDATE

Analysis through February 2009

Prepared for:
City of Marysville
80 Columbia Avenue
Marysville, WA 98270



Prepared by:
Otak, Inc.
10230 NE Points Drive,
Suite 400
Kirkland, WA 98033
Otak Project No. 31099A



Table of Contents

Executive Summary

Chapter 1: Introduction and Overview

1.1 Document Map	1 - 1
1.1.1 Components	1 - 1
1.2 Background and Process	1 - 2
1.2.1 History of the Surface Water Program	1 - 2
1.2.2 Project Objective	1 - 3
1.2.3 Process for Creating the Plan	1 - 3

Chapter 2: Surface Water Capital Improvement Program 2 - 1

2.1 Overview of the City's Basins	2.1 - 1
2.1.1 Introduction.....	2.1 - 1
2.1.2 Assessment Process.....	2.1 - 1
2.1.2.1 Review Existing Information	
2.1.2.2 Input from City Staff and the Public	
2.1.2.3 Site Reconnaissance	
2.1.2.4 Selection of Analysis Areas	
Land Use Assessment	
Hydrologic Analysis	
Hydraulic Analyses	
2.1.3 Existing Conditions	2.1 - 3
2.1.3.1 Topography	
2.1.3.2 Surface Water and Stormwater System	
2.1.3.3 Land Use	
2.1.3.4 Soils	
2.1.3.5 Climate	
2.1.3.6 Groundwater	
2.1.3.7 Wetlands	
2.1.3.8 Fish Habitat and Buffers	
2.1.3.9 Water Quality	
2.1.3.10 Hazard Areas	
2.1.3.11 Open Water Restrictions	
2.1.4 Deficiencies.....	2.1 - 8
2.1.4.1 Naming Convention	
2.1.4.2 Categorization and Prioritization of Deficiencies	
2.1.4.3 Ranking of Stormwater System Deficiencies	
2.1.4.4 Stormwater Maintenance Deficiencies	
2.1.5 Prioritized CIP Projects	2.1 - 12
2.1.6 CIP Project Implementation Schedule.....	2.1 - 13
2.2 Quilceda Creek Basin	2.2 - 1
2.2.1 Introduction.....	2.2 - 1
2.2.2 Existing Conditions—Quilceda Creek Basin	2.2 - 1

2.2.2.1 Topography	
2.2.2.2 Surface Water and Stormwater System	
2.2.2.3 Land Use and Soils	
2.2.2.4 Critical Areas	
2.2.3 Deficiencies and Proposed Solutions	2.2 - 3
2.2.4 Analysis of Stormwater System Deficiencies.....	2.2 - 3
2.2.4.1 Hydrologic and Hydraulic Analysis	
2.2.5 Proposed CIPs	2.2 - 4
2.3 Allen Creek Basin.....	2.3 - 1
2.3.1 Introduction.....	2.3 - 1
2.3.2 Existing Conditions—Allen Creek Basin.....	2.3 - 1
2.3.2.1 Topography	
2.3.2.2 Surface Water and Stormwater System	
2.3.2.3 Land Use and Soils	
2.3.2.4 Critical Areas	
2.3.3 Deficiencies and Proposed Solutions	2.3 - 2
2.3.4 Analysis of Stormwater System Deficiencies.....	2.3 - 3
2.3.4.1 Hydrologic and Hydraulic Analysis	
2.3.5 Proposed CIPs	2.3 - 3
2.4 Sunnyside Creek Basin.....	2.4 - 1
2.4.1 Introduction.....	2.4 - 1
2.4.2 Existing Conditions—Sunnyside Creek Basin.....	2.4 - 1
2.4.2.1 Topography	
2.4.2.2 Surface Water and Stormwater System	
2.4.2.3 Land Use and Soils	
2.4.2.4 Critical Areas	
2.4.3 Deficiencies and Proposed Solutions	2.4 - 2
2.4.4 Proposed CIPs	2.4 - 2
2.5 Ebey Slough Basin	2.5 - 1
2.5.1 Introduction.....	2.5 - 1
2.5.2 Existing Conditions—Ebey Slough Basin	2.5 - 1
2.5.2.1 Topography	
2.5.2.2 Surface Water and Stormwater System	
2.5.2.3 Land Use and Soils	
2.5.2.4 Critical Areas	
2.5.3 Deficiencies and Proposed Solutions	2.5 - 2
2.5.4 Analysis of Stormwater System Deficiencies.....	2.5 - 2
2.5.5 Proposed CIPs	2.5 - 3
Chapter 3: Regulatory Compliance	3 - 1
3.1 Stormwater Management Requirements	3.1 - 1
3.1.1 Chapter Overview.....	3.1 - 1
3.1.1.1 Background	
3.1.2 NPDES Phase II Stormwater Permit.....	3.1 - 2
3.1.2.1 Background	

3.1.2.2 Permit Coverage	
3.1.2.3 Permit Timeline	
3.1.2.4 Permit Requirements	
3.1.2.5 Major Program Elements	
3.1.2.6 Key Milestones	
3.1.2.7 Reporting Requirements	
3.1.3 Underground Injection Control (UIC) Rule.....	3.1 - 8
3.1.3.1 Applicability	
3.1.3.2 Timeline	
3.1.3.3 Reporting Requirements	
3.1.4 Endangered Species Act & Water Resource Inventory	
Area Planning	3.1 - 9
3.1.4.1 Applicability	
3.1.4.2 Timeline	
3.1.4.3 Reporting Requirements	
3.1.5 The Puget Sound Water Quality Management Plan and the 2007-2009 Puget Sound Conservation and Recovery Plan	3.1 - 11
3.1.5.1 Applicability	
3.1.5.2 Timeline	
3.1.5.3 Reporting Requirements	
3.1.6 Conclusions	3.1 - 13
3.1.6.1 National Pollutant Discharge Elimination System Phase II Permit	
3.1.6.2 Underground Injection Control Rule	
3.1.6.3 Endangered Species Act and Water Resource Inventory Area Planning	
3.1.6.4 2000 Puget Sound Water Quality Management Plan and 2007-2009 Puget Sound Conservation and Recovery Plan	
3.2 City's Existing Surface Water Management Program	3.2 - 1
3.2.1 Section Overview.....	3.2 - 1
3.2.2 Background Conditions and Surface Water Planning.....	3.2 - 1
3.2.3 Methods of Analysis	3.2 - 1
3.2.3.1 Data and Documents	
3.2.3.2 Stormwater Questionnaire	
3.2.3.3 Staff Interviews and Regular Conference Calls	
3.2.4 History and SWM Program Evolution.....	3.2 - 2
3.2.4.1 SWM Program Development: 2003 and 2008 Updates	
3.2.4.2 Utility Formation	
3.2.4.3 Organization and Staffing Analysis	
3.2.5 City's Existing Surface and Stormwater Program.....	3.2 - 4
3.2.5.1 Activities and Services Introduction	
3.2.5.2 Existing SWM Facilities	
3.2.5.3 SWM Program Management, Direction, and Implementation	
3.2.5.4 Annual Funding and Budget	
3.2.5.5 Ordinances and Legal Authorities	
SWM Program and Utility	
Water Quality	

Construction Inspection and Maintenance of Facilities Enforcement	
3.2.5.6 Existing SWM Program	
3.2.6 Summary of Existing Program Strengths and Opportunities for Enhancement	3.2 - 18
3.2.6.1 Major Program Strengths	
3.2.6.2 Opportunities for Enhancement	
3.3 Regulatory Gap Analysis.....	3.3 - 1
3.3.1 Chapter Overview.....	3.3 - 1
3.3.2 Methods of Analysis	3.3 - 1
3.3.2.1 Overview	
3.3.2.1 Credit for Existing Activities	
3.3.2.2 Identifying and Addressing the Gaps	
3.3.2.3 Staff Time and Consulting Services	
3.3.2.4 Needed Staff Resources and Costs	
3.3.2.5 Total Program Costs	
3.3.2.6 Annual Inflation Factor and Proposed Rates	
3.3.3 Gap Analysis Results: Program Elements 1–10	3.3 - 3
3.3.4 Gap Analysis Results: SWM Program Elements 11–17	3.3 - 17
3.4 Program Activities and Costs	3.4 - 1
3.4.1 Section Overview	3.4 - 1
3.4.2 Programmatic Observations and Solutions	3.4 - 1
3.4.3 Summary of Results	3.4 - 5
3.4.4 Urban Growth Annexation Impacts of SWM Program	3.4 - 6

List of Appendices

Appendix 2.1

- Appendix 2.1.A: City Staff-Identified Problem Areas
- Appendix 2.1.B: Public-Identified Problem Areas
- Appendix 2.1.C: Selection of Analysis Areas (Meeting Minutes)

Appendix 2.2

- Appendix 2.2.A: Quilceda Basin - CIP Project Summary Sheets, Cost Estimates and Schematics

Appendix 2.3

- Appendix 2.3.A: Sunnyside Neighborhood – Hydrologic and Hydraulic Analysis
- Appendix 2.3.B: Allen Basin - CIP Project Summary Sheets, Cost Estimates and Schematics

Appendix 2.4

- Appendix 2.4.A: Sunnyside Basin - CIP Project Summary Sheet, Cost Estimate and Schematic

Appendix 2.5

- Appendix 2.5.A: Downtown – Hydrologic and Hydraulic Analysis

Appendix 3.1

- Appendix 3.1.A: Stormwater Management Program Regulatory Requirements and Milestone Dates

Appendix 3.2

- Appendix 3.2.A: Data Request List
- Appendix 3.2.B: Stormwater Activity Questionnaire
- Appendix 3.2.C: Summary of Existing Surface Water Management Program
- Appendix 3.2.D: Staffing Allocations Across Accounts
- Appendix 3.2.E: 2008 Financial Information

Appendix 3.3

- Appendix 3.3.A: Surface Water Management Program Gap Analysis and Costs
- Appendix 3.3.B: Budget Model Integration 2009

List of Figures

Figure E.1: Capital Improvement Projects.....	ES - 7
Figure 2.1.A: Watershed Map.....	2.1 - 17
Figure 2.1.B: Location Map.....	2.1 - 18
Figure 2.1.C: Topographic Map.....	2.1 - 19
Figure 2.1.D: Mapped Stormwater System, North.....	2.1 - 20
Figure 2.1.E: Mapped Stormwater System, South.....	2.1 - 21
Figure 2.1.F: Existing Land Use Map.....	2.1 - 22
Figure 2.1.G: Future Land Use Map.....	2.1 - 23
Figure 2.1.H: Soils Map—Hydric Group.....	2.1 - 24
Figure 2.1.I: Soils Map—NRCS.....	2.1 - 25
Figure 2.1.J: Known or Delineated Wetlands and Stream Buffers.....	2.1 - 26
Figure 2.1.K: Landslide Hazard Areas.....	2.1 - 27
Figure 2.1.L: Map of Ranked Deficiencies.....	2.1 - 28
Figure 2.1.M: Marysville Subbasins.....	2.1 - 29
Figure 2.1.N: Capital Improvement Projects.....	2.1 - 30
Figure 2.2.A: Model Coverage – Quilceda Creek.....	2.2 - 5
Figure 2.3.A: Model Coverage – Allen Creek.....	2.3 - 5
Figure 2.5.A: Model Coverage – Ebey Slough.....	2.5 - 5
Figure 3.1.A: Phase II Permit Requirement Implementation Schedule.....	3.1 - 7
Figure 3.2.A: Watershed Map.....	3.2 - 21
Figure 3.2.B: SWM Program Resource Allocation Chart.....	3.2 - 5
Figure 3.2.C: Mapped Stormwater System, North.....	3.2 - 22
Figure 3.2.D: Mapped Stormwater System, South.....	3.2 - 23
Figure 3.2.E: CIP Project Location Map.....	3.2 - 24

List of Tables

Table E.1: CIP Project Implementation Schedule.....	ES - 3
Table E.2: Programmatic Observations and Solutions.....	ES - 5
Table E.3: Total SWM Program Costs.....	ES - 6
Table 2.1.A: Hydrologic Soil Group Characteristics.....	2.1 - 5
Table 2.1.B: Stream Type Definitions.....	2.1 - 6

Table 2.1.C: Category 4 and 5 Waters	2.1 - 7
Table 2.1.D: Watershed and Subbasin Abbreviations	2.1 - 9
Table 2.1.E: Prioritized Deficiencies.....	2.1 - 10
Table 2.1.F: Maintenance Projects.....	2.1 - 12
Table 2.1.G Prioritized CIP Projects.....	2.1 - 12
Table 2.1.H: CIP Project Implementation Schedule	2.1 - 15
Table 2.2.A: Quilceda Creek Maintenance Projects.....	2.2 - 3
Table 2.2.B: Quilceda Creek CIPs	2.2 - 4
Table 2.3.A: Allen Creek Maintenance Projects	2.3 - 2
Table 2.3.B: Allen Creek CIPs.....	2.3 - 4
Table 2.4.A: Sunnyside Creek CIPs.....	2.4 - 2
Table 2.5.A: Ebey Slough Basin Maintenance Projects.....	2.5 - 2
Table 3.1.A: Report Submittals & Compliance Dates.....	3.1 - 8
Table 3.2.A: Existing SWM Program Staffing and Expenditures Summary	3.2 - 10
Table 3.2.B: CIP Projects Funded in 2008.....	3.2 - 17
Table 3.2.C: Summary of Additional Activities	3.2 - 18
Table 3.4.A: Total SWM Program Costs	3.4 - 5
Table 3.4.B: Additional Staffing and Expense Needed with UGA Annexation for 2010-2015.....	3.4 - 7

Executive Summary

Introduction and Background

For the past several years, the City of Marysville has been actively encouraging new businesses to relocate into the City and take advantage of the regionally available transportation, economic development support services, local business opportunities, a trained and educated work force, attractive property values and a comfortable and neighborly community life style.

Due to its unique geology, groundwater, and naturally occurring wetlands and fish habitat features, the City has taken the initiative to continue to assist new local development by updating the city-wide, Surface Water Comprehensive Plan. The following document is an update to the City's existing Surface Water Management Plan (2003); the emphasis of this most current stormwater planning effort was to:

- Address the new requirements of the National Pollution Discharge Elimination System (NPDES) Western Washington Municipal Phase II Permit (Phase II Permit) for municipal stormwater,
- Identify the type, size location and cost of capital projects to address local flooding, water quality, and habitat issues and document the capital facilities needed to support ultimate development within the City of Marysville (including possible future areas of annexation), and
- Define the future costs and funding mechanisms needed to support the implementation of the new plan and its capital projects on an annual basis.
- This analysis is based on data received through February 2009.

The City of Marysville intends to use this document as a guide to make decisions regarding program implementation, funding, staffing, budgeting, and scheduling capital improvement projects to help ensure that the City will continue to address Phase II Permit requirements and support continued development throughout their Urban Growth Area. Additional goals include the reduction of flooding incidents, and to plan for the impact of future growth on the City's stormwater system. This document is to be used in concert with the City's existing land use, transportation, water, and wastewater infrastructure planning documents, as outlined in the City's Comprehensive Plan.

Surface Water Capital Improvement Program

The Surface Water Capital Improvement Program (CIP) in Chapter 2 presents an analysis of Marysville's surface water systems and deficiencies, and identifies CIP projects to correct the deficiencies. Chapter 2 provides a general overview of each of the City's basins: Quilceda Creek, Allen Creek, Sunnyside Creek, and Ebey Slough. All four basins are located within Washington State Water Resource Inventory Area (WRIA) 7—Snohomish River Watershed. All four basins reach the Snohomish River in Possession Sound via Ebey Slough.

The planning process began with a review of the City's existing surface water system map, past studies, reports, and relevant information to identify problem areas. Following the review of existing information, City staff (Engineering, Planning, and Maintenance) were interviewed to confirm problem locations identified in previous studies and to identify any additional problem areas. Accounts were also solicited from the community via a questionnaire available in two forms: a public mailer and an online survey. All problem areas were observed in the field.

Surface water deficiencies were identified and ranked on a scale of 1 to 5 with 5 being the highest priority deficiencies. Surface water CIP projects were developed and prioritized for all deficiencies ranked "3" or higher.

CIP Implementation Schedule

A CIP Implementation schedule has been developed that identifies planning, design, permitting, and construction periods for CIPs through the year 2015. This schedule is intended to be a planning tool for the City and should be updated each year to reflect changes in project durations, priorities, and budgets. Table E.1 shows a CIP project implementation schedule through the year 2015; these CIPs are shown on Figure E.1 along with CIPs that will be implemented after 2015. A CIP summary for each CIP is included in Appendices 2.2.A, 2.3.B, and 2.4.A.

Most CIPs are large enough that they will be implemented over two or more years. The majority of the proposed CIP projects are funded by the City's stormwater utility. However, a couple CIP projects propose regional stormwater facilities that provide both a benefit to the general public and accommodate future private development (identified with note 2). Funding for the design and permitting of these regional facilities will be fronted by the City's stormwater utility, but those funds plus the construction costs will be reimbursed by developers in the form of "in lieu of" fee prior to breaking ground for construction. An estimated schedule for developer "in lieu of" fee collection is included at the bottom of Table E.1.

Cash Flow

The City has the ability to carry over remaining funds for use in the next year's CIP budget. In 2009, the City postponed the construction of a regional pond expansion estimated to cost approximately \$6.35M; these funds remain available for the City to spend on CIP projects. Since developer reimbursement is anticipated for regional facility CIPs, the proposed CIP costs exceed the assumed budget from the surface water utility. As shown in the bottom line of Table E.1, the \$6.35M mentioned above is available to help satisfy the cash flow needs until the City is far enough along with the design of the regional facilities that reimbursement from developers can be collected. Reimbursement from developers needs to begin in 2010 (and continue until all costs, approximately \$36.5M, have been collected) in order for the City to maintain positive cash flow.

CIP Project Overlap

Several CIP projects (identified with note 3) overlap with improvements proposed by regional CIP MQ-EC-13. These overlapping CIPs have been left on the implementation schedule just in case MQ-EC-13 is significantly delayed or cancelled. Overlapping

Table E.1 CIP Project Implementation Schedule										
CIP Project	Year 2 2008	Year 3 2009	Year 4 2010	Year 5 2011	Year 6 2012	Year 7 2013	Year 8 2014	Year 9 2015	Notes	
Downtown Master Drainage Plan	\$ 70,000								1	
Inter-fund Transfer	\$ 27,900								1	
Stormwater Renewal	\$ 50,000								1	
MQ-HH-32 North Marysville Master Drainage Plan (Hayho Creek)	\$ 66,000	\$ 140,500	\$ 625,000	\$ 3,147,000	\$ 3,147,000	\$ 313,500	\$ 3,146,500		2	
152nd St. Conveyance	\$ 177,700	\$ 750,000							1, 2	
AC-JC-09 Jones Creek Flood Damage Repairs - Sunnyside Neighborhood	\$	\$ 619,000								
MQ-HH-37 Breach Hayho bank at Railroad Culvert			\$ 22,000	\$ 52,000						
MQ-HH-16 Channel Realignment and Floodplain Restoration (Hayho Creek)			\$ 121,000	\$ 792,000						
MQ-HH-1 Install Fish Screen at 165th Ave NE			\$ 69,000	\$ 140,000					2	
MQ-HH-58 Erosion Control Measures - Railroad culverts to 47th Dr. NE (Hayho Creek)			\$ 197,000	\$ 674,000	\$ 674,000					
MQ-HH-36 Marysville Drainage Inventory			\$ 10,000							
MQ-EC-13 North Marysville Master Drainage Plan (Edgecomb Creek)	\$ 66,000	\$ 140,500		\$ 1,100,000	\$ 7,639,000	\$ 7,639,000	\$ 552,000	\$ 7,638,000	2	
MQ-MQ-07 Culvert Replacement at 152nd St. NE (Olaf Strad Creek)					\$ 70,000	\$ 207,000			3	
WQ-WQ-08 Culvert Modifications at 104th St. (West Quilceda Tributary)					\$ 25,000	\$ 50,000				
WQ-WQ-09 Culvert Replacement at 103rd St. (West Quilceda Tributary)					\$ 97,000	\$ 258,000				
AC-AC-10 Storm Drain Replacement and Erosion Control Measures at 88th St. NE					\$ 60,000	\$ 116,000				
MQ-HH-09 Flooding at 43rd Ave., Emerald Hills Estates (Hayho Creek)						\$ 43,000				
MQ-EC-01 Culvert Replacement at 152nd St. NE (Edgecomb Creek)						\$ 58,000	\$ 203,000		3	
MQ-QC-12 Culvert Replacement at Railroad (Quilceda Creek)							\$ 224,000	\$ 758,000		
AC-AC-15 Brashler's Industrial Park Flooding							\$ 355,000	\$ 1,401,000		
AC-JC-11 Storm Drain Replacement at 60th Pl. NE - Sunnyside Neighborhood							\$ 105,000	\$ 352,000		
MQ-QC-09 Culvert Replacement at State Ave. (Quilceda Creek)							\$ 594,000	\$ 3,370,000		
MQ-HH-10 Upper Channel conveyance enhancement/Hayho Restoration Plan							\$ 747,000	\$ 2,999,000		
AC-AC-13 Culvert Replacement at 80th St. NE (Allen Creek)								\$ 85,000	4	
									Total \$ Yr 2-9	
Subtotal CIP	\$ 457,600	\$ 1,650,000	\$ 1,044,000	\$ 5,905,000	\$ 11,712,000	\$ 8,684,500	\$ 5,926,500	\$ 16,003,000	\$ 51,385,000	
0.51 FTE (as determined by the GAP analysis in Chapter 3.3)	\$ 39,539	\$ 40,974	\$ 42,206	\$ 43,473	\$ 44,777	\$ 46,120	\$ 47,504	\$ 48,929	\$ 354,000	
Total Funding Need	\$ 497,000	\$ 1,691,000	\$ 1,087,000	\$ 5,949,000	\$ 11,757,000	\$ 8,731,000	\$ 5,975,000	\$ 16,052,000	\$ 51,739,000	
Assumed Budget from Surface Water Utility Rate (see Chapter 3.3)	\$ 497,000	\$ 8,041,000	\$ 722,000	\$ 1,231,000	\$ 1,318,000	\$ 1,209,000	\$ 1,361,000	\$ 1,457,000	\$ 15,896,000	
Assumed Budget - Total Funding Need	\$ -	\$ 6,350,000	\$ (365,000)	\$ (4,718,000)	\$ (10,439,000)	\$ (7,462,000)	\$ (4,614,000)	\$ (14,595,000)	\$ (35,843,000)	
Developer "In Lieu of" fee collection			\$ 1,828,000	\$ 4,593,500	\$ 10,786,000	\$ 7,953,000	\$ 3,699,000	\$ 7,638,000	\$ 36,497,500	
Cash Flow	\$ -	\$ 6,350,000	\$ 7,813,000	\$ 7,688,500	\$ 8,035,500	\$ 8,526,500	\$ 7,611,500	\$ 654,500	\$	

Notes:
1 CIP identified and completed by the City prior to the completion of this report.
2 City anticipates Developer "In Lieu of" fee for this CIP.
3 This CIP is not needed if MQ-EC-13 goes forward.
4 Construction occurs outside of the planning period.

Color Key:
Planning
Design and Permitting
Construction
Design and Construction

CIPs should be cancelled if MQ-EC-13 is implemented and funds should be reallocated to another CIP.

Surface Water Management Program for Regulatory Compliance

One of the major objectives of this Surface Water Management (SWM) planning effort was to document the City's existing SWM Program, compare it with the various requirements of the Phase II Permit and make recommendations for activities, staffing, equipment, and funding that allow the City to take credit for its existing SWM Program, and add only those new activities needed to achieve compliance with the minimum requirements of the City's Permit. The results of this "regulatory compliance gap analysis" are presented in Chapter 3 of the following Updated SWM Plan.

Regulatory Requirements

Marysville's SWM Program is currently subject to the requirements of the following:

- Phase II Permit issued January 17, 2007 and reissued with edits on June 17, 2009,
- Lower Snohomish River Tributaries Fecal Coliform Total Maximum Daily Load (TMDL) June 2003,
- Endangered Species Act (ESA) and associated salmon recovery planning, and
- 2000 Puget Sound Water Quality Management Plan, as defined in the 2007 to 2009 Puget Sound Conservation and Recovery Plan.

The Phase II Permit outlines SWM program activities and implementation milestones that Marysville must follow beginning February 16, 2007 in order to comply with federal law (i.e. The Clean Water Act). All Phase II Permit communities are expected to develop a surface water program that includes all of the required activities, implement those activities within the required timeframes over the five year permit cycle (i.e. 2007 through 2012), and submit annual reports to Ecology to document progress toward complete program implementation. Regulatory requirements of each stormwater-related obligation and applicable milestone completion dates are discussed in more detail in Section 3.1. Section 3.2 summarizes the City's current SWM program.

Gap Analysis

A SWM Program gap analysis was conducted by first comparing the City of Marysville's existing SWM Program to required activities, as described in the Phase II Permit and the City's other SWM-related obligations. The existing program is defined as the activities and staffing levels in place during the 2008 calendar year. The resulting gap analysis identifies the shortfalls in the existing program and estimates additional activities and resources required for full compliance with the Permit through the due date of 2011 and funding of the program and CIP through 2015. Results are presented in a multi-year implementation plan that reflects the various Phase II Permit due dates and ensures that Marysville meets its other regulatory obligations, such as ESA and WRIA planning.

The analysis shows that Marysville's SWM Program currently performs many of the SWM activities required by the Phase II Permit. A number of new and/or expanded activities, however, will need to be undertaken by Marysville over the next few years to achieve its full compliance with regulatory obligations. In the following report, the gap between existing and required activities has been correlated with the need for

increased staff time or material expenses. Some regulatory activities will require the purchase of new equipment, additional staff training, software purchases, or other ongoing expenses. These specific activities help Marysville meet its SWM Program priorities and needs consistent with Phase II Permit requirements. CIP demands are proposed in Section 3.4 and summarized below in Table E.2.

Element	Primary Activity	Existing (2008) Program	New / Expanded Program
1	Program Implementation	X	X
2	Public Education and Outreach	X	X
3	Public Involvement and Participation	X	X
4	Illicit Discharge Detection and Elimination	X	X
5	Controlling Runoff from New Development, Redevelopment, and Construction Sites	X	X
6	Pollution Prevention and Operation and Maintenance for Municipal Operations	X	X
7	Total Maximum Daily Load Allocations	X	X
8	Monitoring		X
9	Lower Snohomish River Tributaries TMDL	X	X
10	Reporting ¹	X	X
11	Underground Injection Control (UIC)	N/A	N/A
12	Endangered Species Act (ESA)	X	X
13	Puget Sound Salmon Plan	X	X
14	WRIA #7 Salmon Habitat Recovery	N/A	N/A
15	2007-2009 Puget Sound Conservation and Recovery Plan		X
16	Capital Improvement Projects (CIP)	X	X
17	Additional Activities (City Specific)	X	X

1. Annual Reporting to Ecology on the Phase II Permit

Conclusions

While the City of Marysville has an established, well-funded and well-staffed SWM Program, it is underfunded and understaffed in some areas including: program implementation, public education and outreach, controlling runoff, pollution prevention, monitoring and implementation of the Lower Snohomish River Tributary requirements. SWM Program descriptions, milestones, staffing needs, costs, programmatic annual activities, capital appropriations, and administrative recommendations are summarized to provide a thorough analysis of Marysville's SWM Program needs and their respective costs. Staff time and funding in addition to the City's current levels are needed to meet the Permit requirements as summarized in Table E.3 below.

Table E.3: Total SWM Program Costs (in thousands)

Program Categories	Exist- ing Year 2 2008	Year 3 2009	Year 4 2010	Year 5 2011	Year 6 2012	Year 7 2013	Year 8 2014	Year 9 2015	Total \$ Yr 2-9
Staffing Level (FTE)	9.07	10.23	9.71	9.69	9.91	9.97	10.10	10.24	—
Regulatory Program Activities*	\$676	\$828	\$833	\$853	\$945	\$954	\$991	\$1,030	\$7,109
CIP*	\$497	\$8,041**	\$722	\$1,231	\$1,318	\$1,269	\$1,361	\$1,457	\$15,896
Additional Activities*	\$1,463	\$1,722	\$1,557	\$1,587	\$1,557	\$1,750	\$1,782	\$1,814	\$13,232
Totals	\$2,636	\$10,591	\$3,112	\$3,671	\$3,820	\$3,973	\$4,134	\$4,301	\$36,238

*Includes expenses, labor and benefit costs

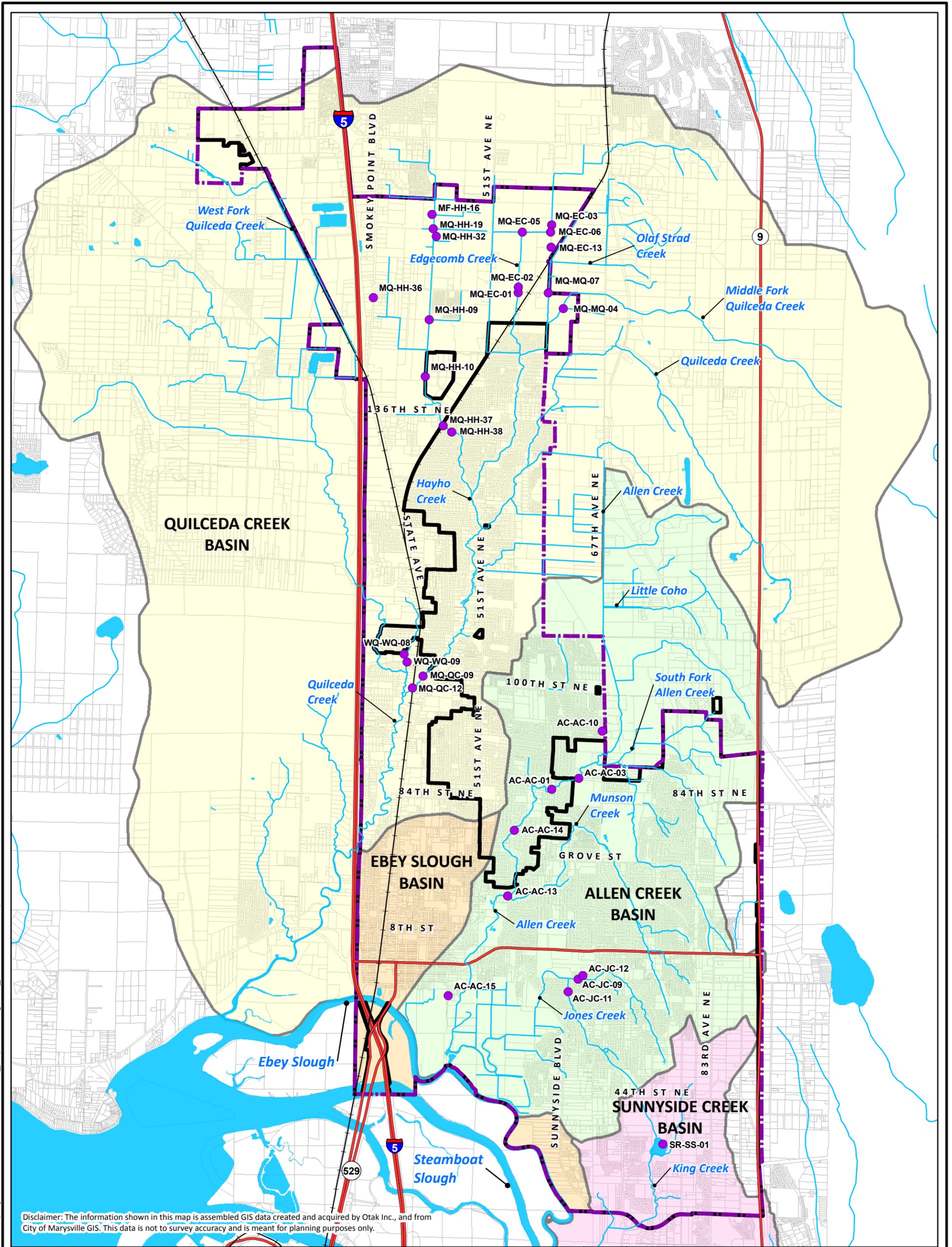
**Includes \$6.5 million for design and construction of a regional pond expansion in the Quilceda Basin which has been delayed.

This planning analysis shows that compared to what Marysville is currently allocating for surface water management, by Year 2015, through the end of the planning period, the City will need to:

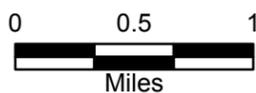
- Increase staff by 1.17 FTE from 9.07 FTE to 10.24 FTE
- Increase annual regulatory compliance funding by \$354K from \$676K to \$1.03M
- With the exception of Year 3 (2009), fund CIP construction at an annual average level of approximately \$1.2 million.
- Continue to fund annual administrative, professional services, and overhead costs amounting to approximately \$1.81 million by 2015.

Through the end of the first Phase II Permit cycle, by Year 5 (2011), this SWM Program Gap Analysis indicates that annual funding needed for regulatory compliance and staff needs will need to rise to \$853K, a 26% increase over 2008. Also, by 2011 the City's annual SWM Program will need to increase staff by 7% by approximately 0.62 FTE from 9.07 FTE to 9.69 FTE, and increase annual total SWM Program funding by roughly 39% from about \$2.6M to about \$3.7M, in order to achieve regulatory compliance, meet CIP needs, and meet the obligations of other Marysville SWM Program activities.

A funding plan is not included in this Surface Water Comprehensive Plan. A funding plan is being developed by the City of Marysville.



N



LEGEND

- CAPITAL IMPROVEMENT PROJECT (CIP)
- STREAMS
- RAILROAD
- MARYSVILLE CITY LIMITS (2008)
- URBAN GROWTH BOUNDARY
- PARCEL BOUNDARY

- WATERBODIES
- SUNNYSIDE CREEK BASIN
- ALLEN CREEK BASIN
- QUILCEDA CREEK BASIN
- EBHEY SLOUGH BASIN

Note: For a large scale map, please refer to fold out maps in the back of the report.

CITY OF MARYSVILLE

STORMWATER COMPREHENSIVE PLAN

FIGURE E.1

CAPITAL IMPROVEMENT PROJECTS



Chapter 1: Introduction and Overview

On January 16, 2007, the City of Marysville (City) received an NPDES Phase II Permit from the Washington State Department of Ecology. In addition to the need to comply with this and other surface water management (SWM) related regulations and obligations, the City is also facing significant infrastructure needs associated with water quality, flood control, and habitat enhancement. To update the City's 2003 Surface Water Management Plan, Marysville has developed this Surface Water Comprehensive Plan (SWM Plan); which includes a review and update to the Capital Improvement Program as well as updates to the Surface Water Management Program activities. The resulting SWM Plan addresses the City's existing and future SWM infrastructure needs and is consistent with the requirements of the Phase II Permit. This chapter includes an overview of the contents of this Plan and documents the process and methodologies used to support the creation of this Plan.



1.1 Document Map

The City of Marysville can use this document as a guide for making decisions regarding program implementation, staffing, budgeting, and scheduling capital improvement projects to help ensure that the City will continue to address the existing and future infrastructure needs. This SWM Plan also outlines activities necessary to reduce the “gap” between their current surface water program and the activities needed to gain full compliance with the Phase II Permit.

1.1.1 Components

The components of the Marysville Surface Water Comprehensive Plan are as follows:

- **Chapter 1: Introduction and Overview**, summarizes the components of this plan, provides a history of the current Marysville surface water program, explains project rationale, and describes the process used to create this plan update.
- **Chapter 2: Surface Water Capital Improvement Program**, documents the existing conditions, assessment methodology, stormwater system deficiencies, and proposed solutions in the form of Capital Improvement Program (CIP) projects. This chapter is broken into five sections such that the elements listed above can be addressed both at a city-wide level in Section 2.1, as well as a basin-specific level for each of Marysville's four basins in Sections 2.2 through 2.5. CIP project sum-

1.1 Document Map.....	Page 1 - 1
1.1.1 Components.....	Page 1 - 1
1.2 Background and Process.....	Page 1 - 2
1.2.1 History of the Surface Water Program.....	Page 1 - 2
1.2.2 Project Objective.....	Page 1 - 3
1.2.3 Process for Creating the Plan.....	Page 1 - 3

mary sheets documenting existing deficiencies, proposed solutions along and cost estimates are included in the Appendices.

- **Chapter 3: Surface Water Management Program for Regulatory Compliance**, summarizes the regulatory requirements that apply to Marysville, documents and evaluates the City's existing surface water program and identifies those areas where the City can receive credit toward regulatory compliance, identifies gaps in the existing program, and provides recommended programmatic activities to close the gap and gain regulatory compliance. Please note that the Phase II Permit currently applies within the City limits and not the Urban Growth Boundary. The analyses in Chapter 3 were completed as of February 2009, with the exception of the dollars available for CIP, which was update in August 2009.
- **Appendices** providing additional technical data, and documentation of assumptions made during the planning process are included at the end of the report.
- **Full Size Maps** of selected figures (Ranked Stormwater Deficiencies and Capital Improvement Projects) are included in the back of this document. The full size figures are created at a scale that better reflects important detail than the 11x17-inch figures inserted in the document and are useful for group discussions and meetings.
- A **Compact Disk**, containing the contents listed above is included in the back of this document to provide the City with an electronic version of this plan as well as reproduction capabilities.

1.2 Background and Process

1.2.1 History of the Surface Water Program

The City of Marysville has had an ongoing surface water management (SWM) program for over twenty years. A Surface Water Utility, including lands within the City of Marysville, was originally formed by Snohomish County in 1991 and funds were remitted to the City of Marysville on a quarterly basis under an interlocal agreement. The County continued billing and collecting utility fees until January of 2007 when the City took over the billing and administrative functions. Today the City's SWM Utility is administered by the City of Marysville's Public Works Department. The purpose of the Utility is to finance, acquire, construct, develop, improve, maintain, and operate public stormwater facilities to help prevent flooding, reduce local drainage problems, improve water quality and habitat, and meet regulatory requirements. At that time, the initial monthly rate was set at \$2.85 for the average homeowner. The residential surface water fee was increased to \$6.00 per month in 2004 and increased again in to \$7.00 per month in 2005. In 2006, the residential surface water fee was increased to \$8.00 per month, where it remained through 2008. Rates for nonresidential customers varied and were based on land use codes. In 2007, the City of Marysville changed the billing structure to an Equivalent Residential Unit (ERU) basis. A single ERU is based on 3,200 square feet of impervious area. The current monthly SWM utility fee is \$8.00/ERU/month for residences. Commercial businesses pay a rate based on the amount of impervious area on their parcel. In Fall 2009, a new stormwater rate will be presented to the City Council.



Marysville's SWM Program is still primarily funded through this SWM Utility fee. In 2008, the annual revenue collections amounted to \$2.65M. To date, utility and developer fees, along with occasional revenue bonds and periodic grants, have been used to cover the annual costs of the various SWM Program activities and capital improvement projects.

This document updates the City of Marysville's Surface Water Comprehensive Plan regarding policies, legal authorities, regulatory compliance, resources, organization, and capital improvement projects.

In 2003, Marysville conducted an analysis and prepared a report called "City of Marysville Surface Water Management Plan and Surface Water Rate Study." This document provided a review of Marysville's existing surface water management program and recommended a Surface Water Management Plan for the City. The document presented capital facility improvements needed to accommodate existing and future growth, and proposed a regulatory compliance strategy to address federal and state stormwater requirements that were in effect at the time; including the Puget Sound Water Quality Management Plan. The report included a series of recommended enhancements, an estimate of needed resources, costs and funding mechanism(s), and a prioritized implementation plan for activities and projects. The 2003 report also outlined a future vision for Marysville to work in cooperation with the County and adjacent agencies in order to respond to the needs of future development throughout the region.

1.2.2 Project Objective

This current SWM Program analysis is part of Marysville's ongoing effort to routinely review and update its SWM Program. The emphasis has been on both developing an updated capital improvement program and addressing the requirements of the Phase II Permit.

One of the primary objectives of this study was to develop a citywide Surface Water Comprehensive Plan that complies with federal, state, regional, and local surface water related requirements, as described in:

- The State's NPDES Phase II Permit, with its associated water quality requirements related to the Lower Snohomish Tributary Total Maximum Daily Load (TMDL).
- The Puget Sound Water Quality Management Plan; 2007-2009 Conservation Plan.
- The Endangered Species Act (ESA), as described by Marysville's participation in local and regional salmon conservation plans through local Watershed Resource Inventory Areas (WRIAs).

This current analysis provides the guidance needed to ensure Marysville complies with current regulatory requirements. Included are recommendations for staffing and expenses needed to achieve compliance and provide support for continued local economic development. Overall, this document updates the City of Marysville's Surface Water Comprehensive Plan regarding policies, legal authorities, regulatory compliance, resources, organization, and capital improvement projects.

1.2.3 Process for Creating the Plan

Through an analysis of existing surface water data and existing and projected future stormwater issues, a recommended update to the City's Surface Water Comprehensive Plan was developed. The following steps provide an overview of the process used to

gather, summarize, analyze and interpret data in order to develop the recommendations and policies presented in the updated Plan.

Updated Surface Water Capital Improvement Program

A prioritized list of recommended surface water CIP projects is included in Chapter 2: Surface Water Capital Improvement Plan of this Surface Water Comprehensive Plan. These CIPs address existing drainage problems in Marysville's stormwater conveyance system and future development needs. The associated cost estimates will be used by Marysville when considering modifications to their stormwater utility rate.

The surface water engineering study started with as-built data and existing mapping grade GIS inventory data provided by the City, as well as the Snohomish County Drainage Needs Report (DNR) drainage inventory data and the City of Marysville's Surface Water map. After reviewing drainage complaints within the City limits and Urban Growth Area (UGA) and conducting interviews with Marysville staff (Engineering, Planning, and Maintenance) to identify additional drainage problem locations, the team prepared a surface water deficiencies map of Marysville's drainage systems, identifying locations of reported drainage problems.

A review of the surface water deficiencies map and future land use plans (highlighting areas most likely to be developed/redeveloped) pinpointed areas that require additional analysis in the form of hydrologic and hydraulic modeling. The team updated existing HSPF hydrologic models and XP-SWMM models, as available, and created new models as needed to support the hydraulic analyses for existing and 20-year (ultimate build out) land use within selected subbasins. The team used this data to identify and analyze problems in the selected surface water systems and to identify priority CIP projects for existing conveyance based on existing land use and conveyance and regional surface water improvements for future land use. Project descriptions, schematics, and cost estimates for each CIP are included in the Appendices.

Updated Surface Water Management Program for Regulatory Compliance

Marysville currently has in place a Surface Water Comprehensive Plan from 2003 which is funded by a stormwater utility. The Plan may not be able to address all of the City's local drainage needs, regulatory requirements and local capital needs, especially the replacement of an aging drainage infrastructure. This document provides the City of Marysville with an updated citywide Stormwater Comprehensive Plan, including an expanded capital improvement program, in order to meet its required stormwater related responsibilities and associated deadlines over the next six years (2009-2015).

To update the City's existing SWM Program, a Regulatory Gap Analysis was performed. A SWM Program update was conducted to evaluate Marysville's existing Surface Water Program, and then a Surface Water Comprehensive Plan/Compliance matrix was created to identify and address the City's stormwater needs and costs, while giving Marysville regulatory "credit" for its existing stormwater activities and initiatives. This analysis included the review, evaluation, and optimization of existing resources and funding. In addition, the team reviewed recommended future resource needs in terms of staff, equipment, and cost. The recommendations for updating the City's Stormwa-

ter Comprehensive Plan are presented in a six-year annualized implementation plan. Sections 3.1 through 3.4 present the details of this analysis.



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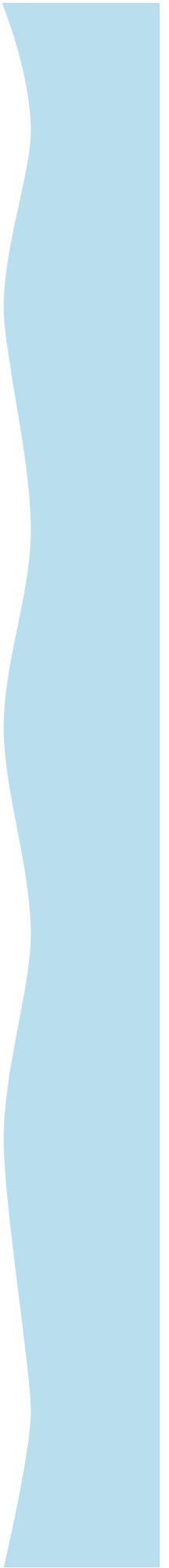
Chapter 2

Table of Contents

Chapter 2: Surface Water Capital Improvement Program 2 - I

2.1 Overview of the City's Basins	2.1 - 1
Table 2.1.A: Hydrologic Soil Group Characteristics	2.1 - 5
Table 2.1.B: Stream Type Definitions	2.1 - 6
Table 2.1.C: Ecology Category 4 and 5 Waters	2.1 - 7
Table 2.1.D: Basin and Subbasin Abbreviations	2.1 - 8
Table 2.1.E: Prioritized Deficiencies	2.1 - 10
Table 2.1.F: Maintenance Projects.....	2.1 - 12
Table 2.1.G Prioritized CIP Projects.....	2.1 - 12
Table 2.1.H: CIP Project Implementation Schedule	2.1 - 15
Figure 2.1.A: Watershed Map.....	2.1 - 17
Figure 2.1.B: Location Map.....	2.1 - 18
Figure 2.1.C: Topographic Map.....	2.1 - 19
Figure 2.1.D: Mapped Stormwater System, North.....	2.1 - 20
Figure 2.1.E: Mapped Stormwater System, South.....	2.1 - 21
Figure 2.1.F: Existing Land Use Map	2.1 - 22
Figure 2.1.G: Future Land Use Map.....	2.1 - 23
Figure 2.1.H: Soils Map—Hydric Group.....	2.1 - 24
Figure 2.1.I: Soils Map—NRCS.....	2.1 - 25
Figure 2.1.J: Delineated Wetlands and Stream Buffers.....	2.1 - 26
Figure 2.1.K: Landslide Hazard Areas	2.1 - 27
Figure 2.1.L: Map of Ranked Deficiencies	2.1 - 28
Figure 2.1.M: Marysville Subbasins.....	2.1 - 29
Figure 2.1.N: Capital Improvement Projects	2.1 - 30
2.2 Quilceda Creek Basin	2.2 - 1
Table 2.2.A: Quilceda Creek Maintenance Projects.....	2.2 - 3
Table 2.2.B: Quilceda Creek CIPs	2.2 - 4
Figure 2.2.A: Model Coverage – Quilceda Creek.....	2.2 - 5
2.3 Allen Creek Basin.....	2.3 - 1
Table 2.3.A: Allen Creek Maintenance Projects	2.3 - 2
Table 2.3.B: Allen Creek CIPs.....	2.3 - 4
Figure 2.3.A: Model Coverage – Allen Creek.....	2.3 - 5
2.4 Sunnyside Creek Basin.....	2.4 - 1
Table 2.4.A: Sunnyside Creek CIPs.....	2.4 - 2
2.5 Ebey Slough Basin	2.5 - 1
Table 2.5.A: Ebey Slough Basin Maintenance Projects.....	2.5 - 2
Figure 25.A: Model Coverage – Ebey Slough	2.5 - 5

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Chapter 2: Surface Water Capital Improvement Program

Chapter 2 documents the existing conditions, assessment methodology, stormwater system deficiencies, and proposed solutions in the form of Capital Improvement Program (CIP) projects. This chapter is broken into five sections such that the elements listed above can be addressed both at a city-wide level in Section 2.1, as well as a basin-specific level for each of Marysville's four basins in Sections 2.2 through 2.5. CIP project summary sheets documenting existing deficiencies, proposed solutions along with cost estimates are included in the Appendices.

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Section 2.1: Overview of City's Basins

2.1.1 Introduction

Four drainage basins have been delineated within the City of Marysville: Quilceda Creek, Allen Creek, Sunnyside Creek, and Ebey Slough (see Figure 2.1.A). The basins are located in Washington State Water Resource Inventory Area (WRIA) 7—Snohomish. The watersheds all discharge into Ebey Slough and meet the Snohomish River in Possession Sound via Ebey Slough.

The Capital Improvement element of the Stormwater planning process is organized by basins. Each basin is discussed in detail in the following sections, so that Marysville can apply a comprehensive approach to their surface water problems through identifying how individual problem areas affect each other. Characterizing by basin aids the City in prioritizing their Capital Improvement Program (CIP) schedule such that improvements are distributed across all four basins.

2.1.2 Assessment Process

The primary objective of performing basin studies is to develop a prioritized list of surface water CIP projects. This section describes the methodologies used to assess the Marysville stormwater system and identify CIPs. This planning process entails:

- Reviewing existing information
- Interviewing City staff and the public
- Site reconnaissance
- Hydrologic and Hydraulic Analysis

This assessment process identified a number of stormwater and surface water deficiencies for consideration as CIPs. The selection and ranking of CIPs are discussed in Section 2.1.4, and presented in a table of CIP projects and a map showing CIP project locations.

2.1.2.1 Review Existing Information

The planning process began with a review of existing information. The City's existing surface water system map, past studies, reports, and relevant information were reviewed to identify problem areas. Examples of information reviewed include:

- City of Marysville Surface Water Management Plan & Surface Water Rate Study, Otak, April 2003
- Snohomish County's Drainage Needs Reports, December 2002 (DNR) analyses and models
- As-built engineering plans for roads and development within the City

2.1.1 Introduction	Page 2.1 - 1
2.1.2 Assessment Process	Page 2.1 - 1
2.1.3 Existing Conditions	Page 2.1 - 3
2.1.4 Deficiencies	Page 2.1 - 8
2.1.5 Prioritized CIP Projects.....	Page 2.1 - 12
2.1.6 CIP Project Implementation Schedule.....	Page 2.1 - 13

- Utility and parcel information
- Drainage and flooding complaints
- Mapping grade drainage inventory data included in the City’s GIS database and from vector truck “touch book” records
- Updated information from the City’s new Critical Areas Ordinance and revised Growth Management Plan (GMA).

2.1.2.2 Input from City Staff and the Public

Following the review of existing information, City staff (Engineering, Planning, and Maintenance) were interviewed to confirm problem locations identified in previous studies and to identify any additional problem areas. The City staff provided a list of problem areas that is based primarily on public complaint records. The list of problem areas and a map showing their locations is provided in Appendix 2.1A.

Accounts were also solicited from the community via a questionnaire in January/February, 2007. The questionnaire was available in two forms: a public mailer and an online survey. The public mailer was included with utility billings to solicit first-hand accounts and photographs of historical surface water problems from the community. The questionnaire was also posted on the City’s web page in the form of an online survey and a notice was placed in the Marysville Messenger to direct the public to the City’s web page. The City received thirteen completed questionnaires. Most of the questionnaires identified small drainage problems on private property, so none of the identified areas became CIPs. A list of public-identified problem areas and a map showing their locations are provided in Appendix 2.1.B.



2.1.2.3 Site Reconnaissance

Field walks were conducted to observe site conditions of problem locations identified by City Staff and the Public. Follow-up site visits were conducted as needed to:

- Verify and/or supplement the City’s GIS inventory of the existing storm drain system.
- Verify flooding identified by modeling with physical evidence of existing flooding.
- Verify the recommended solutions are feasible with the existing site.

Field observations and photographs are incorporated into the CIP project sheets in Appendices 2.2.A, 2.3.B and 2.4.A.

2.1.2.4 Selection of Analysis Areas

Since portions of Marysville’s stormwater system have been analyzed in previous studies such as the North Marysville Master Plan and the DNRs mentioned above, this study focused on analyzing problem areas that had not yet been analyzed. The selection of these sites is documented in meeting minutes and are highlighted on a map in Appendix 2.1.C.

Analysis was performed in several forms: land use assessment, hydrologic analysis, and hydraulic analysis. The varying levels of analysis allows the City to concentrate their

efforts on high priority problems, make use of existing information, and reduce the risk of overlapping with studies being performed by others. The three analysis forms are detailed below.

Land Use Assessment

Land use assessments were performed to estimate how recent or anticipated land use changes affect previous hydrologic analyses. An example of land use change is agricultural land that has recently experienced development, or is planned for development. This change greatly increases the impervious surface and results in increased surface water runoff. Land use assessments were performed by reviewing aerial photography and Marysville's zoning and comprehensive land use maps. Locations with significant land use changes either had the hydrologic analysis updated as part of this study, or were identified for future analysis by the City.

Hydrologic Analysis

Hydrologic Simulation Program Fortran (HSPF) models for the Allen and Quilceda basins were developed as part of the City of Marysville Surface Water Management Plan & Surface Water Rate Study and DNRs. These existing models were used to produce continuous time series of runoff data within the City limits and UGA.

The Western Washington Hydrologic Model (WWHM) was used to produce continuous time series of runoff data in areas of the Ebey Slough basin where existing HSPF models were not available. The continuous time series of runoff and associated peak rates were used as hydrologic input for hydraulic analyses performed using XP-SWMM. Basin-specific hydrologic analyses are discussed in Sections 2.2 through 2.5.

The varying levels of analysis allows the City to concentrate their efforts on high priority problems, make use of existing information, and reduce the risk of overlapping with studies being performed by others.

Hydraulic Analyses

The hydraulic performance of the existing stormwater conveyance systems were analyzed at locations that are known to have drainage problems or areas where updated hydrology was developed to account for land use changes. Survey data was collected as necessary to supplement the City's GIS storm drainage inventory and perform hydraulic modeling. The specifics of the hydraulic analyses are explained on a basin-specific basis in Sections 2.2 through 2.5.

The remainder of Section 2.1 provides a city-wide overview of Marysville's existing conditions, stormwater deficiencies, and proposed CIPs. While the characteristics of Marysville vary from basin to basin, a general description is provided here and basin-specific descriptions are provided in Sections 2.2 through 2.5.

2.1.3 Existing Conditions

The City of Marysville is located in Snohomish County, approximately five miles north of the City of Everett. Marysville is bordered by the city of Arlington to the north, Lake Stevens to the southeast, the Tulalip Reservation to the west and unincorporated Snohomish County in various locations. The location of Marysville is shown in Figure 2.1.B. The City covers roughly 16.4 square miles within a UGA of 21.3 square miles

that results in a total of 4.9 square miles should the City annex the UGA. The study area for this document includes the entire UGA.

This section describes the existing condition of Marysville in terms of topography, surface water and stormwater systems, land use, soils, climate, groundwater, wetlands, fish habitat and buffers, water quality, hazard areas, and open water restrictions.

2.1.3.1 Topography

The most prominent feature that characterizes Marysville is the Marysville Trough. The Marysville Trough is an expansive, nearly flat, alluvial plain comprised primarily of highly permeable alluvial soils that runs north-south through much of the City (see Figure 2.1.C). Elevations along the Trough range from approximately 130 feet in the north to sea level in the south along Ebey Slough. The Trough is bordered to the west by the Tulalip Plateau and to the east by the Gletchell Hill Plateau. The highest elevations in the UGA exceed 400 feet and are located in the southeastern part of the UGA.



2.1.3.2 Surface Water and Stormwater System

Marysville's surface water system is made up of several creeks flowing primarily from north to south to Ebey Slough, then out to Possession Sound. There are numerous culverts throughout Marysville at road crossings; some of which have been improved for fish passage while others are still waiting for fish passage and flood improvements to be made. The stormwater system is made up of piped conveyance and open channel systems that contribute stormwater to the creeks. Some piped conveyance systems outfall to Ebey Slough directly. Maps of Marysville surface water features and stormwater system are included as Figure 2.1.D and Figure 2.1.E.

Some developments in Marysville provide their own stormwater treatment (detention and water quality) before discharging to the City's stormwater system, but many of the older developments do not. Due to the soil and topography in the Marysville Trough, onsite detention is a challenge for developers. To aid new development, the City of Marysville has constructed one regional stormwater pond in the Quilceda Creek Basin.

2.1.3.3 Land Use

Existing land use for the City of Marysville is shown in Figure 2.1.F. Existing land use is principally residential, but also includes agricultural, open wetlands, commercial, and industrial. Future land use, as defined in the City of Marysville 2005 Comprehensive Plan, is shown in Figure 2.1.G.

One land use type that is not highlighted by Marysville zoning is agriculture. Turf and strawberry farms are located in the north part of Marysville and are zoned light industrial. There is potential for large land use changes in this part of the City when these farms develop as allowed by Marysville's Comprehensive land use plan.

2.1.3.4 Soils

Soils are classified by the Natural Resource Conservation Service into four Hydrologic Soil Groups (HSG) based on the soil's runoff potential. HSGs are useful because they show the general characteristics of soils. The four HSGs are A, B, C and D; where soil type A generally has the smallest runoff potential and soil type D the greatest. Marysville is predominantly made up of low infiltration HSG type C soils in the north and the southeast with high infiltrating HSG type A soils through the middle of the City and downtown. Pockets of very low infiltrating HSG type D are scattered throughout the UGA, primarily in the north. Marysville soils categorized by the four hydrologic soil groups (HSG) are shown in Figure 2.1.H. Descriptions of the four HSGs are provided in Table 2.1.A.

Table 2.1.A Hydrologic Soil Group Characteristics

HSG	Soils	Characteristics
A	sand, loamy sand or sandy loam types of soils	Low runoff potential and high infiltration rates even when thoroughly wetted. Consist chiefly of deep, well to excessively drained sands or gravels and have a high rate of water transmission.
B	silt loam or loam	Moderate infiltration rate when thoroughly wetted and consists chiefly or moderately deep to deep, moderately well to well drained soils with moderately fine to moderately coarse textures.
C	sandy clay loam	Low infiltration rates when thoroughly wetted and consist chiefly of soils with a layer that impedes downward movement of water and soils with moderately fine to fine structure.
D	clay loam, silty clay loam, sandy clay, silty clay or clay	Highest runoff potential. Very low infiltration rates when thoroughly wetted and consist chiefly of clay soils with a high swelling potential, soils with a permanent high water table, soils with a claypan or clay layer at or near the surface and shallow soils over nearly impervious material.

The Soil Conservation Service (SCS) delineation of soils for the City of Marysville is shown in Figure 2.1.I.

The type C and D soils in the north are primarily Custer fine sandy loam and Norma loam soils which are often accompanied with a high groundwater table. Once these soils become saturated they are associated with large amounts of runoff. The type A soils in the middle of the City and downtown are primarily Ragnar fine sandy loam which are formed in glacial outwash. Outwash soils are highly pervious and therefore produce minimal runoff. The type C soils in the southeast are primarily Tokul gravelly loam. Tokul soils are moderately well to somewhat poorly drained soils formed in glacial till, loess, and volcanic ash.

2.1.3.5 Climate

The climate in Marysville varies between the north and south areas of the City. Since the Western Regional Climate Center does not provide data specifically for Marysville, the north half of the City was assumed to have a climate similar Arlington, and the south half of the City was assumed to have a climate similar to the City of Everett.

The following statistics are averages of those reported for Arlington and Everett. The average annual rainfall in Marysville is about 46.5 inches. December is the wettest month with an average rainfall of 5.6 inches. Average daily temperatures range from 28° F in January to 74° F in July.

2.1.3.6 Groundwater

Groundwater plays an important role in surface water conditions in Marysville. Because of soil and regional aquifer conditions, the groundwater table seasonally fluctuates. During rainy seasons, the groundwater table rises to the ground surface, restricts rainwater from infiltrating, and contributes to local flooding problems. In the summer, when surface runoff is at a minimum, streams maintain a cooler base flow from groundwater contributions which is beneficial for fish habitat. The high groundwater table in some basins of the City makes stormwater detention a difficult alternative for flood reduction.

2.1.3.7 Wetlands

Wetlands are protected as critical habitat areas under Title 19, Article II (Wetlands) in the Marysville Municipal Code (MMC). Under these regulations wetlands have been classified into four different types as described by the Washington State Department of Ecology’s (Ecology) wetland rating system. Activity within land delineated as wetland and in adjacent habitat buffers is regulated under section 19.24.070 of the MMC. Wetland buffers measured from the wetland edge have been delineated across the City as category I, II, III, and IV with corresponding stream buffer widths of 125, 100, 75, 35 feet (MMC sec. 19.24.100). Delineated wetlands and their buffers were provided by the City as a GIS shapefile in April 2009. A map of over 380 acres of delineated wetlands within the City of Marysville is included as Figure 2.1.J.

2.1.3.8 Fish Habitat and Buffers

Critical habitat areas associated with streams in the City of Marysville are protected under regulations detailed in Title 19, Article III (Fish and Wildlife Habitat Areas) in the MMC. Streams have been classified into four different types as described in section 19.24.220 of the MMC. The stream classifications assigned by the City of Marysville regulate activities within adjacent habitat areas by setting buffer widths measured from the ordinary high water mark on each stream bank. The four stream types are S, F, Np and Ns as described in Table 2.1.B.

Table 2.1.B Stream Type Definitions

Type	Name	Description	Buffer Width* (from OHW)
Type S	Shoreline	Within the ordinary high water mark is inventoried as a shoreline of the State	Quilceda Creek: 200 feet Ebey Slough: 100 feet**
Type F	Fish	Demonstrated or provisionally presumed to be used by salmonid fish but not shoreline	150 feet
Type Np	Perennial	Perennial flow, but not shoreline or a fish stream	100 feet
Type Ns	Seasonal	Seasonal flow, but not shoreline or a fish stream	50 feet

*(Marysville Municipal Code section 19.24.230). Stream buffers are shown on Figure 2.1.J.

** The Ebey Slough buffer width is 25 feet between the western city limits and 47th Avenue NE.

2.1.3.9 Water Quality

Water quality was not studied as part of this study; the following summary is based on review of Snohomish County DNRs and the Ecology 303(d) List, 2008. According to the DNRs, degradation of water quality in Marysville has occurred over time. The main factors affecting the water quality are increased urbanization, pasture and agriculture practices, increased impervious surfaces, and septic systems (much of the City is on sewer, but rural areas higher up in the basins are still on septic). Ecology assesses water quality of state waters and divides the waterbody impairments into five categories. The five categories are:

1. Meets tested standards for clean waters.
2. Waters of concern (but not enough evidence to establish a Total Maximum Daily Load (TMDL).
3. Insufficient data.
4. Polluted waters that do not require a TMDL because there is a TMDL already in place.
5. Polluted waters that require a TMDL; Category 5 waters are traditionally known as the 303(d) list.

Three water bodies in Marysville are listed as Category 4 and Category 5 waters as shown in Table 2.1.C.

Water Body Name	Category 4 Parameters	Category 5 Parameters (303(d) List)
Quilceda Creek	Fecal Coliform	Dissolved Oxygen
Allen Creek	Fecal Coliform	Dissolved Oxygen and pH
Ebey Slough	Dissolved Oxygen	Fecal Coliform

2.1.3.10 Hazard Areas

Marysville has moderate landslide hazard areas in the southeast part of the UGA as shown in Figure 2.1.K. Generally, these areas have slopes greater than 15% and are underlain by sandy or gravelly soils.

2.1.3.11 Open Water Restrictions

In Washington State, United States Department of Agriculture (USDA) Wildlife Services assesses proposed development and ponds that could potentially increase waterfowl hazards for air traffic. In general, the USDA reviews new projects within a 10,000-foot radius of Arlington airport. Open water ponds, such as those needed for stormwater detention facilities and water quality treatment, have potential to attract waterfowl and create hazards for air traffic. To reduce potential hazards, the USDA prefers larger ponds with deeper water versus several smaller ponds with more shallow water (Schafer, November 2003). With deeper water, there is less forage to attract waterfowl. The USDA typically prefers stormwater facilities that are vegetated with a shrub canopy versus those with open water. If appropriately designed and operated,

open-water stormwater facilities may be allowed within the 10,000-foot radius. Portions of the Quilceda Creek Basin are within the 10,000-foot radius of the airport.

2.1.4 Deficiencies

The assessment methodologies described above identified surface water and stormwater deficiencies. The naming convention and ranking method applied to those deficiencies are described in this section. Ranked deficiencies are shown in Figure 2.1.L and listed in Table 2.1.E. A large scale version of Figure 2.1.L that includes project ID labels is folded and inserted in the back of this document.

2.1.4.1 Naming Convention

The deficiency naming convention makes use of the basin and the subbasin that the problem is located in. This convention will help the users of this manual to have a general understanding of a deficiency's location. The first two letters designate basin, the second two letters designate a subbasin within that basin, and finally a number to differentiate within each subbasin. The watershed and subbasin locations are shown in Figure 2.1.M. The two-letter abbreviations used for the naming convention, categorized by basin, are shown in Table 2.1.D.

Table 2.1.D Basin and Subbasin Abbreviations	
Quilceda Creek Basin	
	WQ – West Fork Quilceda Creek
	WQ – West Fork Quilceda
	MQ– Main Stem Quilceda Creek
	EC – Edgecomb Creek
	HH – Hayho Creek
	MQ – Middle Fork Quilceda Creek
	OS – Olaf Strad Creek
	QC – Quilceda Creek
Allen Creek Basin	
	AC – Allen Creek
	AC – Allen Creek
	JC – Jones Creek
	MC – Munson Creek
	SA – South Fork Allen Creek
Sunnyside Ravines Basin	
	SR – Sunnyside Ravines
	HC – Hulbert Creek
	SS – Sunnyside Creek
Ebey Slough Basin	
	ES – Ebey Slough
	DT – Downtown
	ES – Ebey Slough

2.1.4.2 Categorization and Prioritization of Stormwater System Deficiencies

Deficiencies are categorized according to responsibility with potential parties being: the City, private landowners of future development, and private landowners of existing development. Further, it was determined that many of the deficiencies documented by other reports have been either completed or cancelled, therefore, can be removed from the list. The primary purpose for this categorization is determining financial responsibility for proposed improvements. The following categories are used:

- **City of Marysville—Potential CIP:** Existing or future drainage problems that are caused by inadequacy of the City’s stormwater infrastructure. Such deficiencies may impact City right-of-way or private property. For example: an undersized culvert which floods a public and private property. It is likely that these deficiencies will be addressed by a CIP project.
- **City of Marysville—Maintenance:** Existing drainage problems that occur due to improper maintenance. Such deficiencies may impact City right-of-way or private property. For example: leaves clogging storm drain inlets or beaver dams blocking stream channels resulting in flooding of public and/or private property. It is likely that these deficiencies will be addressed by scheduled maintenance.
- **Private Property—Future Development:** Existing or future drainage problems that are caused or exacerbated by proposed development or are within the project area of proposed development. For example: an existing undersized culvert at a road that will be widened as part of the developer’s frontage improvements; the developer will install an upsized culvert. It is likely that these deficiencies will be addressed by infrastructure improvements that will be funded by developers.
- **Private Property—Existing Development:** Existing drainage problems where the deficiency cause and effect occur on private property. These deficiencies are not affected by and do not affect Marysville infrastructure. For example: a clogged yard drain. Once categorized as such, these deficiencies are dropped from the master planning process.
- **Completed or Cancelled:** Many of the CIPs recommended by previous reports have been either completed (by the City or Snohomish County) or cancelled. The list of completed and cancelled projects was compiled with input from the City and the County. Reasons some CIPs were cancelled include: implementation of one CIP addressed more than one deficiency, or further analysis determined that the deficiency was not as substantial as originally understood. Once categorized as completed or cancelled, these deficiencies are dropped from the master planning process.



2.1.4.3 Ranking of Stormwater System Deficiencies

The deficiencies within each basin are ranked according to priority level. Priority levels range from one (low priority) to five (high priority, likely candidate for six-year CIP program). At this stage in the process, analyses have not been performed to support ranking. High Priority rankings are given to problem areas where public complaints have been filed. Higher priority rankings are given to flooding and erosion problems that are part of a main conveyance system, as opposed to small, localized drainage

problems on private property. Higher rankings are given to the most downstream deficiencies to avoid exacerbating downstream problems. A prioritized list of deficiencies, organized by basin, is provided in Table 2.1.E. Deficiencies are shown in Figure 2.1.L. A large scale version of Figure 2.1.L is included in the back of this document.

Table 2.1.E: Prioritized Deficiencies

Project ID	Location	Rank
Quilceda Creek Basin		
MQ-EC-13	North Marysville Master Drainage Plan (Edgecomb Creek)	5
MQ-HH-16	Channel Realignment and Floodplain Restoration (Hayho Creek)	5
MQ-HH-32	North Marysville Master Drainage Plan (Hayho Creek)	5
MQ-HH-37	Breach Hayho bank at Railroad Culvert	5
MQ-HH-38	Erosion Control Measures - Railroad culverts to 47th Dr. NE (Hayho Creek)	5
WQ-WQ-08	Culvert Modification at 104th St. (West Quilceda Tributary)	4
WQ-WQ-09	Culvert Replacement at 103rd St. (West Quilceda Tributary)	4
MQ-EC-01	Culvert Replacement at 152nd St. NE (Edgecomb Creek)	4
MQ-HH-10	Upper Channel conveyance enhancement/Hayho Restoration Plan	4
MQ-HH-36	Marysville Drainage Inventory	4
MQ-MQ-07	Culvert Replacement at 152nd St. NE (Olaf Strad Creek)	4
MQ-EC-02	Field Access Culvert Removal and Bridge Installation	3
MQ-EC-03	Field Access Culvert Removal and Bridge Installation at Edgecomb Creek	3
MQ-EC-05	Field Access Culvert Removal and Bridge Installation at Edgecomb Creek	3
MQ-EC-06	Field Access Culvert Removal and Bridge Installation at Edgecomb Creek	3
MQ-HH-09	Flooding of 43rd Ave. and Emerald Hills Estates (Hayho Creek)	3
MQ-HH-19	Install Fish Screen at 165th Avenue NE	3
MQ-MQ-04	Field Access Culvert Removal/Bridge Installation and Stream Restoration (Quilceda Creek)	3
MQ-QC-09	Culvert Replacement at State Ave. (Quilceda Creek)	3
MQ-QC-12	Culvert Replacement at Railroad (Quilceda Creek)	3
MQ-EC-09	Culvert Replacements along 51st St. NE (Smokey Point Channel East)	2
MQ-MQ-03	Culvert Replacement at 132nd Pl. NE (Quilceda Creek)	2
MQ-MQ-05	Meadow Creek Park Subdivision Stormwater Pond Expansion	2
MQ-QC-04	Culvert Replacement at 132nd St. NE. (Quilceda Creek)	2
MQ-QC-05	Pond Expansion at Otter Creek Subdivision	2
MQ-QC-06	Riparian restoration and LWD placement at Quilceda Creek	2
WQ-WQ-06	Ditch Retrofits along Twin Lakes County Park	2
MQ-EC-08	Bank instability and Wasting Improvements.	1
MQ-HH-03	Culvert Replacement at 45th Ave.	1
MQ-HH-08	Culvert Replacement at 129th Pl. NE	1
MQ-HH-33	Install Fish Screen at the Lower West Tributary	1

Table 2.1.E: Prioritized Deficiencies

Project ID	Location	Rank
MQ-MQ-06	Culvert Replacement at Railroad and Smokey Point Creek West	1
MQ-QC-01	Storm Drain Outfall Erosion Protection at Shoultes Road near 108th Street NE	1
MQ-QC-03	Driveway Culvert Removal and Bridge Installation at 122nd St. NE	1
WQ-WQ-01	Private Driveway Culvert Removal and Replacement	1
WQ-WQ-03	BN Railroad Culvert Removal and Replacement	1
WQ-WQ-04	Culvert Removal and Replacement 156th Street NE	1
WQ-WQ-12	Culvert Removal and Replacement 140th Street NE	1
WQ-WQ-14	Culvert Replacement at Burlington Northern Railroad and Interstate 5 Fishway	1
WQ-WQ-15	Culvert Replacement at 116th Street NE and 34th Avenue NE Fishway	1
Allen Creek Basin		
AC-JC-09	Jones Creek Flood Damage Repairs - Sunnyside Neighborhood	5
AC-AC-15	Brashler's Industrial Park Flooding	4
AC-JC-11	Storm Drain Replacement at 60th Pl. NE - Sunnyside Neighborhood	4
AC-AC-01	Stream Restoration and Land Acquisition West of 60th Dr. NE (Allen Creek)	3
AC-AC-03	Culvert Replacement and Erosion Control Measures at 88th St. NE	3
AC-AC-10	Storm Drain Replacement at 95th St. NE and 67th Ave. NE	3
AC-AC-13	Culvert Replacement at 55th Ave. NE (Allen Creek)	3
AC-AC-14	Culvert Replacement at 80th St. NE (Allen Creek)	3
AC-JC-12	Storm Drain Replacement at 61st St. Cul-de-sac- Sunnyside Neighborhood	3
AC-AC-02	Culvert Replacement at 60th Dr. NE (Allen Creek)	2
AC-AC-04	Stream Restoration West of 67th Ave. NE (North and South Forks of Allen Creek)	2
AC-AC-07	Storm Drain Replacement on 93rd Pl. NE, 55th Dr. NE to 58th Dr. NE	2
AC-AC-17	Jenning's Park Flooding (Allen Creek)	2
AC-AC-08	Storm Drain Replacement at 95th Pl. NE and 95th St. NE West of 67th Ave. NE	1
AC-JC-04	Stream Corridor Enhancements at 67th Avenue NE/52nd Street NE	1
AC-MC-02	Neighborhood Flooding at 68th Ave NE	1
AC-MC-03	Flooding at Munson Creek	1
AC-SA-02	Flooding at Grove Street and 70th Dr. NE	1
Sunnyside Ravines Basin		
SR-SS-01	Sunnyside Wetland Acquisition	3
SR-HC-02	Bioswale Retrofits within Hulbert Creek Basin	1
Ebey Slough Basin		
ES-DT-03	Water Quality at Downtown Marina Outfall	1

2.1.4.4 Stormwater Maintenance Deficiencies

Maintenance projects identified as part of this study are provided in Table 2.1.F. Maintenance project locations are shown in Figure 2.1.L.

ID #	Project
AC-AC-16	Grove and Allen Creek - Per streets may need new cb and outfall
AC-AC-19	Flooding Maintenance at 70th St. NE
AC-JC-03	Groundwater Maintenance at 40th Ave NE
AC-JC-05	Residence Flooding at 4526 67th Ave NE
AC-JC-06	Driveway Ponding at 65th Dr. NE
AC-JC-10	Culvert Maintenance at 67 th Ave NE
AC-SA-03	Flooding Maintenance at 76th Dr. NE
ES-DT-02	Ponding at 47th Ave NE
ES-DT-08	Flooding Maintenance at Columbia Ave

2.1.5 Prioritized CIP Projects

All deficiencies ranked “3” and above have been brought forward as stormwater CIP projects. CIP summaries for each CIP are included in Appendices 2.2.A, 2.3.B, and 2.4.A. The summaries include a brief description of the problem and solution, a schematic of the proposed CIP project, and an estimated CIP implementation cost. The implementation cost includes construction, construction administration, engineering and administration, permitting and land acquisition. A prioritized list of CIPs, costs, and sequencing is provided in Table 2.1.G. CIP locations are shown in Figure 2.1.N. A large-scale version of Figure 2.1.N is included in the back of this document.

Project ID	Location	Rank	Cost
Quilceda Creek Basin			
MQ-EC-13	North Marysville Master Drainage Plan (Edgecomb Creek)	5	23,526,000
MQ-HH-16	Channel Realignment and Floodplain Restoration (Hayho Creek)	5	913,000
MQ-HH-32	North Marysville Master Drainage Plan (Hayho Creek)	5	10,379,000
MQ-HH-37	Breach Hayho bank at Railroad Culvert	5	74,000
MQ-HH-38	Erosion Control Measures - Railroad culverts to 47th Dr. NE (Hayho Creek)	5	1,545,000
MQ-EC-01	Culvert Replacement at 152nd St. NE (Edgecomb Creek)	4	261,000
MQ-HH-10	Upper Channel conveyance enhancement/Hayho Restoration Plan	4	3,146,000
MQ-HH-36	Marysville Drainage Inventory	4	10,000
MQ-MQ-07	Culvert Replacement at 152nd St. NE (Olaf Strad Creek)	4	277,000
WQ-WQ-08	Culvert Modification at 104th St. (West Quilceda Tributary)	4	75,000
WQ-WQ-09	Culvert Replacement at 103rd St. (West Quilceda Tributary)	4	355,000
MQ-EC-02	Field Access Culvert Removal and Bridge Installation	3	167,000

Table 2.1.G: Prioritized CIP Projects

Project ID	Location	Rank	Cost
MQ-EC-03	Field Access Culvert Removal and Bridge Installation at Edgecomb Creek	3	172,000
MQ-EC-05	Field Access Culvert Removal and Bridge Installation at Edgecomb Creek	3	189,000
MQ-EC-06	Field Access Culvert Removal and Bridge Installation at Edgecomb Creek	3	190,000
MQ-HH-09	Flooding of 43rd Ave. and Emerald Hills Estates (Hayho Creek)	3	43,000
MQ-HH-19	Install Fish Screen at 165th Avenue NE	3	209,000
MQ-MQ-04	Field Access Culvert Removal/Bridge Installation and Stream Restoration (Quilceda Creek)	3	293,000
MQ-QC-09	Culvert Replacement at State Ave. (Quilceda Creek)	3	3,964,000
MQ-QC-12	Culvert Replacement at Railroad (Quilceda Creek)	3	982,000
Allen Creek Basin			
AC-JC-09	Jones Creek Flood Damage Repairs - Sunnyside Neighborhood	5	619,000
AC-AC-15	Brashler's Industrial Park Flooding	4	1,756,000
AC-JC-11	Storm Drain Replacement at 60th Pl. NE - Sunnyside Neighborhood	4	457,000
AC-AC-01	Stream Restoration and Land Acquisition West of 60th Dr. NE (Allen Creek)	3	230,000
AC-AC-03	Culvert Replacement and Erosion Control Measures at 88th St. NE	3	324,000
AC-AC-10	Storm Drain Replacement at 95th St. NE and 67th Ave. NE	3	176,000
AC-AC-13	Culvert Replacement at 55th Ave. NE (Allen Creek)	3	337,000
AC-AC-14	Culvert Replacement at 80th St. NE (Allen Creek)	3	230,000
AC-JC-12	Storm Drain Replacement at 61st St. Cul-de-sac - Sunnyside Neighborhood	3	220,010
Sunnyside Creek Basin			
SR-SS-01	Sunnyside Wetland Acquisition	3	2,440,000

2.1.6 CIP Project Implementation Schedule

A CIP Implementation schedule has been developed that identifies planning, design, permitting, and construction periods for CIPs through the year 2015. This schedule is intended to be a planning tool for the City and should be updated each year to reflect changes in project durations, priorities, and budgets.

Table 2.1.H shows a CIP project implementation schedule through the year 2015. Most CIPs are large enough that they will be implemented over two or more years. The majority of the proposed CIP projects are funded by the City's stormwater utility. However, a couple CIP projects propose regional stormwater facilities that provide both a benefit to the general public and accommodate future private development. Funding for the design and permitting of these regional facilities will be fronted by the City's stormwater utility, but those funds plus the construction costs will be reimbursed by developers in the form of "in lieu of" fees prior to breaking ground for construction. Regional CIP projects are identified by note 2. An estimated schedule for developer "in lieu of" fee collection is included at the bottom of Table 2.1.H.

Cash Flow

The City has the ability to carry over remaining funds for use in the next year's CIP budget. In 2009, the City postponed the construction of a regional pond expansion estimated to cost approximately \$6.35M; these funds remain available for the City

to spend on CIP projects. Since developer reimbursement is anticipated for regional facility CIPs, the proposed CIP costs exceed the assumed budget from the surface water utility. As shown in the bottom line of the table, the \$6.35M mentioned above is available to help satisfy the cash flow needs until the City is far enough along with the design of the regional facilities that reimbursement from developers can be collected. Reimbursement from developers needs to begin in 2010 (and continue until all costs, approximately \$36.3M, have been collected) in order for the City to maintain positive cash flow.

CIP Project Overlap

Several CIP projects (identified with note 3) overlap with improvements proposed by regional CIP MQ-EC-13. These overlapping CIPs have been left on the implementation schedule just in case MQ-EC-13 is significantly delayed or cancelled. Overlapping CIPs should be cancelled if MQ-EC-13 is implemented and funds should be reallocated to another CIP from Table 2.1.E.

Appendix 2.1.A: City Staff-Identified Problem Areas

Appendix 2.1.B: Public-Identified Problem Areas

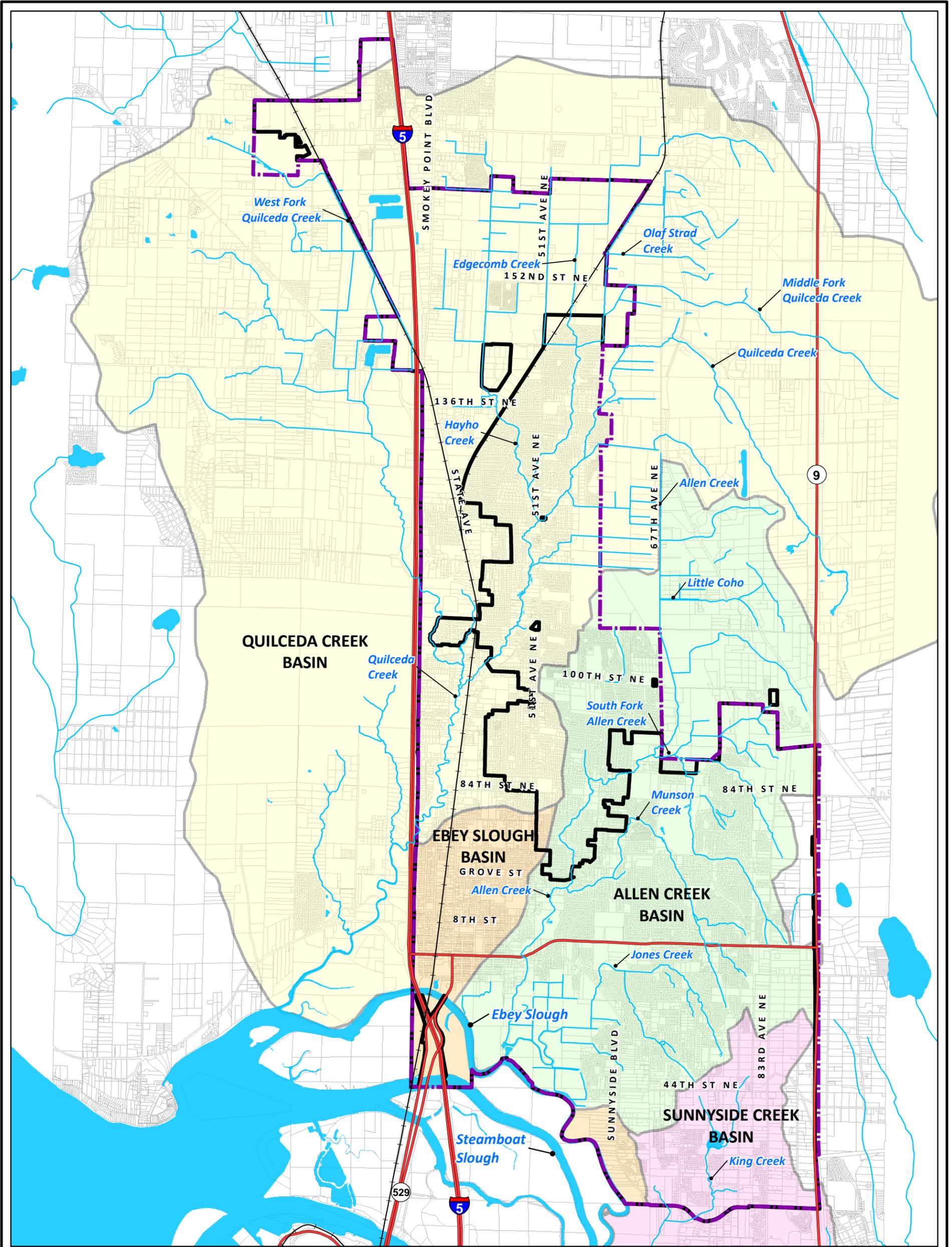
Appendix 2.1.C: Selection of Analysis Areas (Meeting Minutes)

Table 2.1.H CIP Project Implementation Schedule										
CIP Project	Year 2 2008	Year 3 2009	Year 4 2010	Year 5 2011	Year 6 2012	Year 7 2013	Year 8 2014	Year 9 2015	Notes	
Downtown Master Drainage Plan	\$ 70,000								1	
Inter-fund Transfer	\$ 27,900								1	
Stormwater Renewal	\$ 50,000								1	
MQ-HH-32	\$ 66,000	\$ 140,500	\$ 625,000	\$ 3,147,000	\$ 3,147,000	\$ 313,500	\$ 3,146,500		2	
152nd St. Conveyance	\$ 177,700	\$ 750,000							1, 2	
AC-JC-09		\$ 619,000								
Jones Creek Flood Damage Repairs - Sunnyside Neighborhood			\$ 22,000	\$ 52,000						
MQ-HH-37			\$ 121,000	\$ 792,000						
Breach Hayho bank at Railroad Culvert			\$ 69,000	\$ 140,000						
MQ-HH-16			\$ 197,000	\$ 674,000					2	
Channel Realignment and Floodplain Restoration (Hayho Creek)			\$ 10,000							
MQ-HH-1										
Install Fish Screen at 165th Ave NE										
MQ-HH-58										
Erosion Control Measures - Railroad culverts to 47th Dr. NE (Hayho Creek)										
MQ-HH-36										
Marysville Drainage Inventory										
MQ-EC-13	\$ 66,000	\$ 140,500		\$ 1,100,000	\$ 7,639,000	\$ 7,639,000	\$ 552,000	\$ 7,638,000	2	
North Marysville Master Drainage Plan (Edgcomb Creek)										
MQ-MQ-07					\$ 70,000	\$ 207,000			3	
Culvert Replacement at 152nd St. NE (Olaf Strad Creek)					\$ 25,000	\$ 50,000				
WQ-WQ-08					\$ 97,000	\$ 258,000				
Culvert Modifications at 104th St. (West Quileeda Tributary)					\$ 60,000	\$ 116,000				
WQ-WQ-09										
Culvert Replacement at 103rd St. (West Quileeda Tributary)										
AC-AC-10										
Storm Drain Replacement and Erosion Control Measures at 88th St. NE										
MQ-HH-09										
Flooding at 43rd Ave., Emerald Hills Estates (Hayho Creek)						\$ 43,000				
MQ-EC-01										
Culvert Replacement at 152nd St. NE (Edgcomb Creek)						\$ 58,000	\$ 203,000		3	
MQ-QC-12										
Culvert Replacement at Railroad (Quileeda Creek)										
AC-AC-15										
Brusher's Industrial Park Flooding										
AC-JC-11										
Storm Drain Replacement at 60th Pl. NE - Sunnyside Neighborhood										
MQ-QC-09										
Culvert Replacement at State Ave. (Quileeda Creek)										
MQ-HH-10										
Upper Channel conveyance enhancement/Hayho Restoration Plan										
AC-AC-13										
Culvert Replacement at 80th St. NE (Allen Creek)									4	
Total \$ Yr 2-9										
Subtotal CIP	\$ 457,600	\$ 1,650,000	\$ 1,044,000	\$ 5,905,000	\$ 11,712,000	\$ 8,684,500	\$ 5,926,500	\$ 16,003,000	\$ 51,383,000	
0.51 FTE (as determined by the GAP analysis in Chapter 3.3)	\$ 39,539	\$ 40,974	\$ 42,206	\$ 43,473	\$ 44,777	\$ 46,120	\$ 47,504	\$ 48,929	\$ 354,000	
Total Funding Need	\$ 497,000	\$ 1,691,000	\$ 1,087,000	\$ 5,949,000	\$ 11,757,000	\$ 8,731,000	\$ 5,975,000	\$ 16,052,000	\$ 51,739,000	
Assumed Budget from Surface Water Utility Rate (see Chapter 3.3)	\$ 497,000	\$ 8,041,000	\$ 722,000	\$ 1,231,000	\$ 1,318,000	\$ 1,269,000	\$ 1,361,000	\$ 1,457,000	\$ 15,896,000	
Assumed Budget - Total Funding Need	\$ -	\$ 6,350,000	\$ (365,000)	\$ (4,718,000)	\$ (10,439,000)	\$ (7,462,000)	\$ (4,614,000)	\$ (4,595,000)	\$ (35,843,000)	
Developer "In Lieu of" fee collection	\$ -	\$ -	\$ 1,828,000	\$ 4,593,500	\$ 10,786,000	\$ 7,953,000	\$ 3,699,000	\$ 7,638,000	\$ 36,497,500	
Cash Flow	\$ -	\$ 6,350,000	\$ 7,813,000	\$ 7,688,500	\$ 8,035,500	\$ 8,526,500	\$ 7,611,500	\$ 654,500	\$ -	

Color Key:
 Planning
 Design and Permitting
 Construction
 Design and Construction

NOTES:
 1 CIP identified and completed by the City prior to the completion of this report.
 2 City anticipates Developer "In Lieu of" fee for this CIP.
 3 This CIP is not needed if MQ-EC-13 goes forward.
 4 Construction occurs outside of the planning period.

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LEGEND

-  RAILROAD
-  STREAMS
-  MARYSVILLE CITY LIMITS (2008)
-  URBAN GROWTH BOUNDARY
-  PARCEL BOUNDARY
-  WATERBODIES
-  SUNNYSIDE CREEK BASIN
-  ALLEN CREEK BASIN
-  QUILCEDA CREEK BASIN
-  EBHEY SLOUGH BASIN

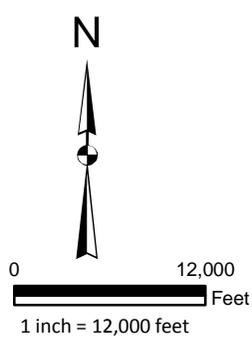
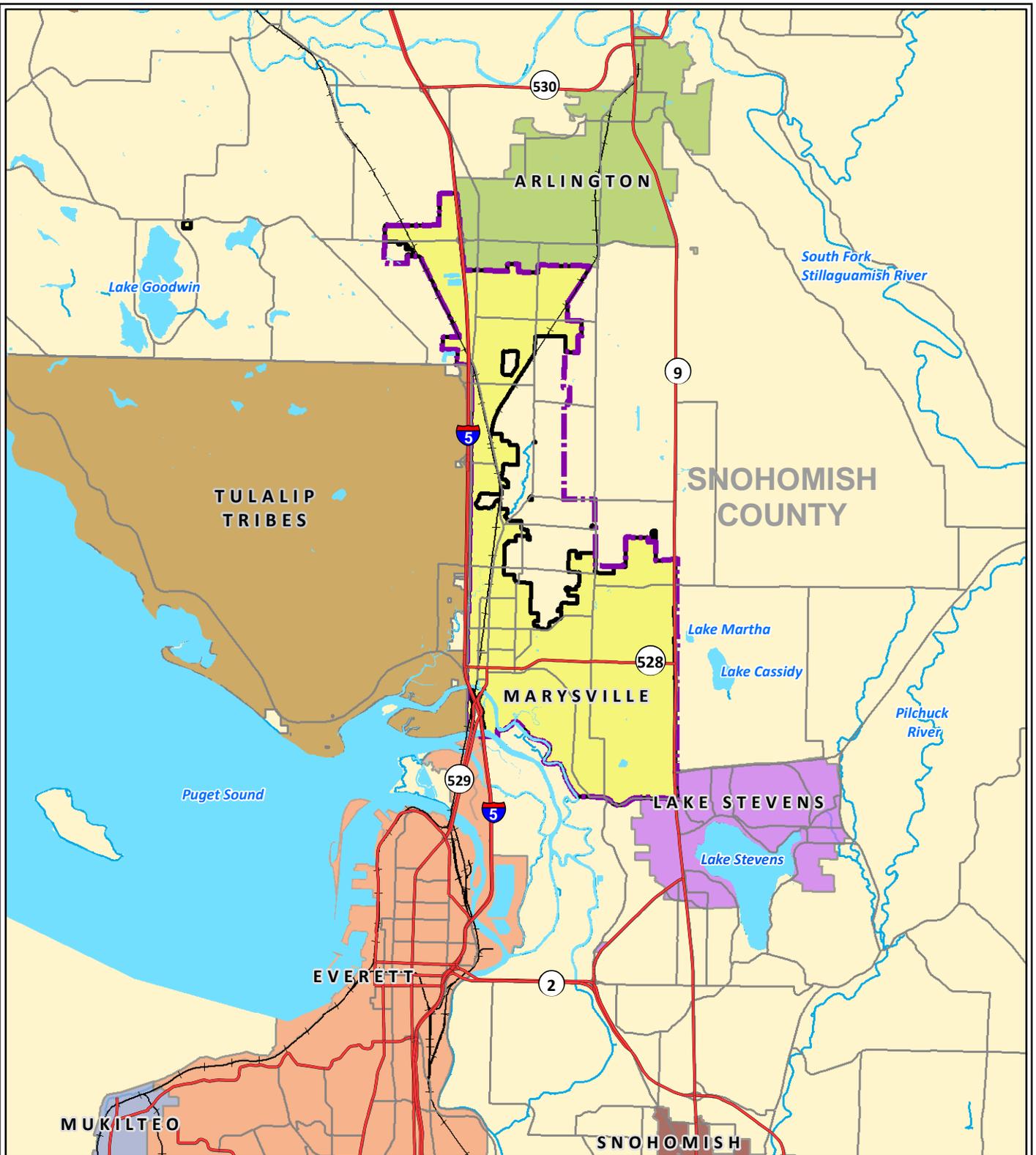
CITY OF MARYSVILLE

STORMWATER COMPREHENSIVE PLAN

FIGURE 2.1.A

WATERSHED MAP

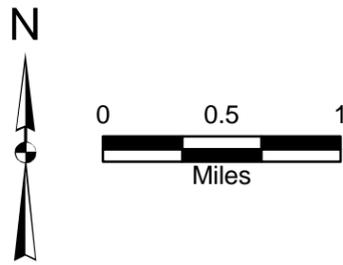
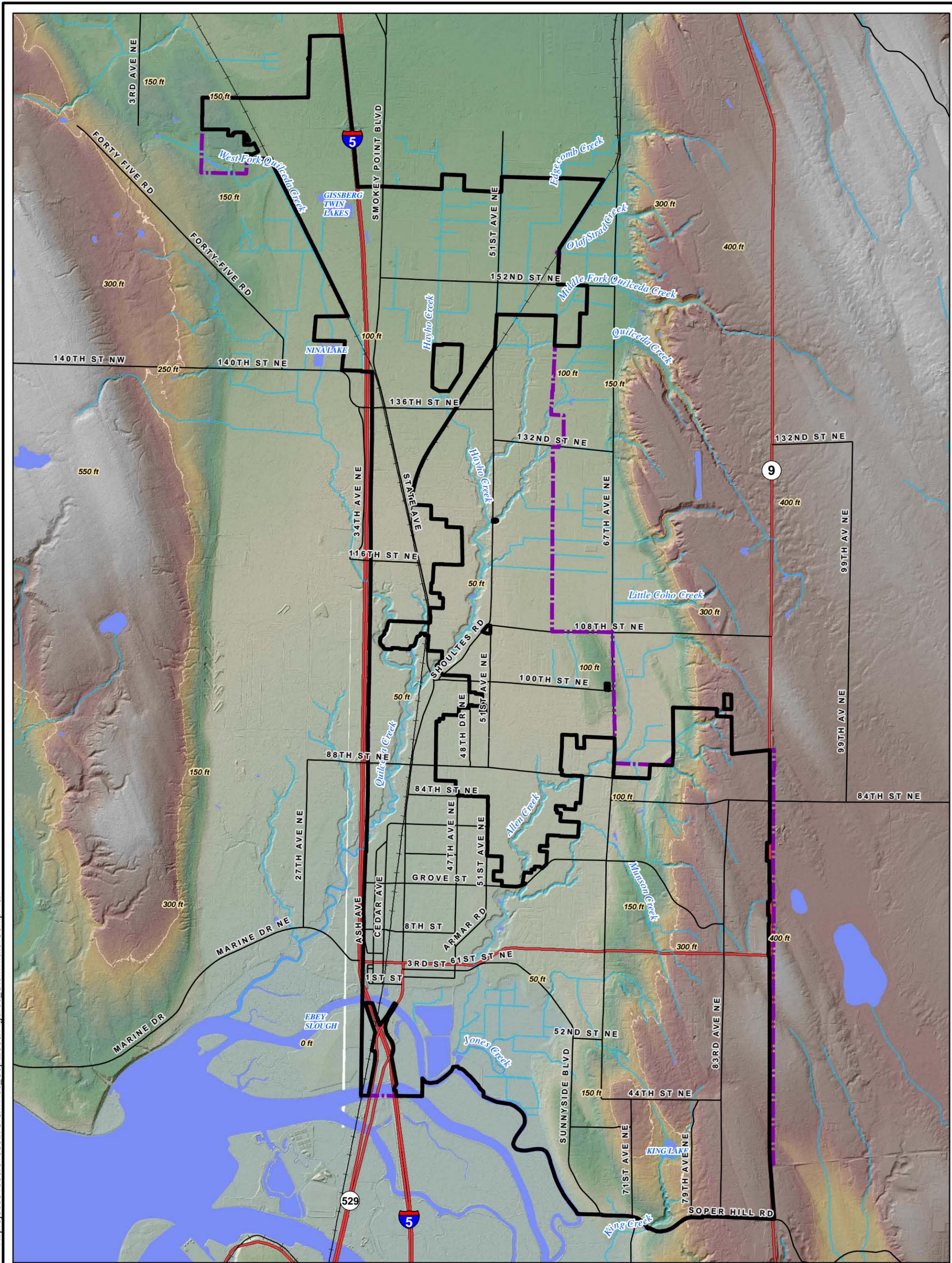




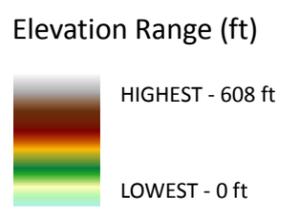
- LEGEND**
- STREAMS
 - MARYSVILLE CITY LIMITS (2008)
 - URBAN GROWTH BOUNDARY
 - WATERBODIES

CITY OF MARYSVILLE
STORMWATER COMPREHENSIVE PLAN
FIGURE 2.1.B
LOCATION MAP





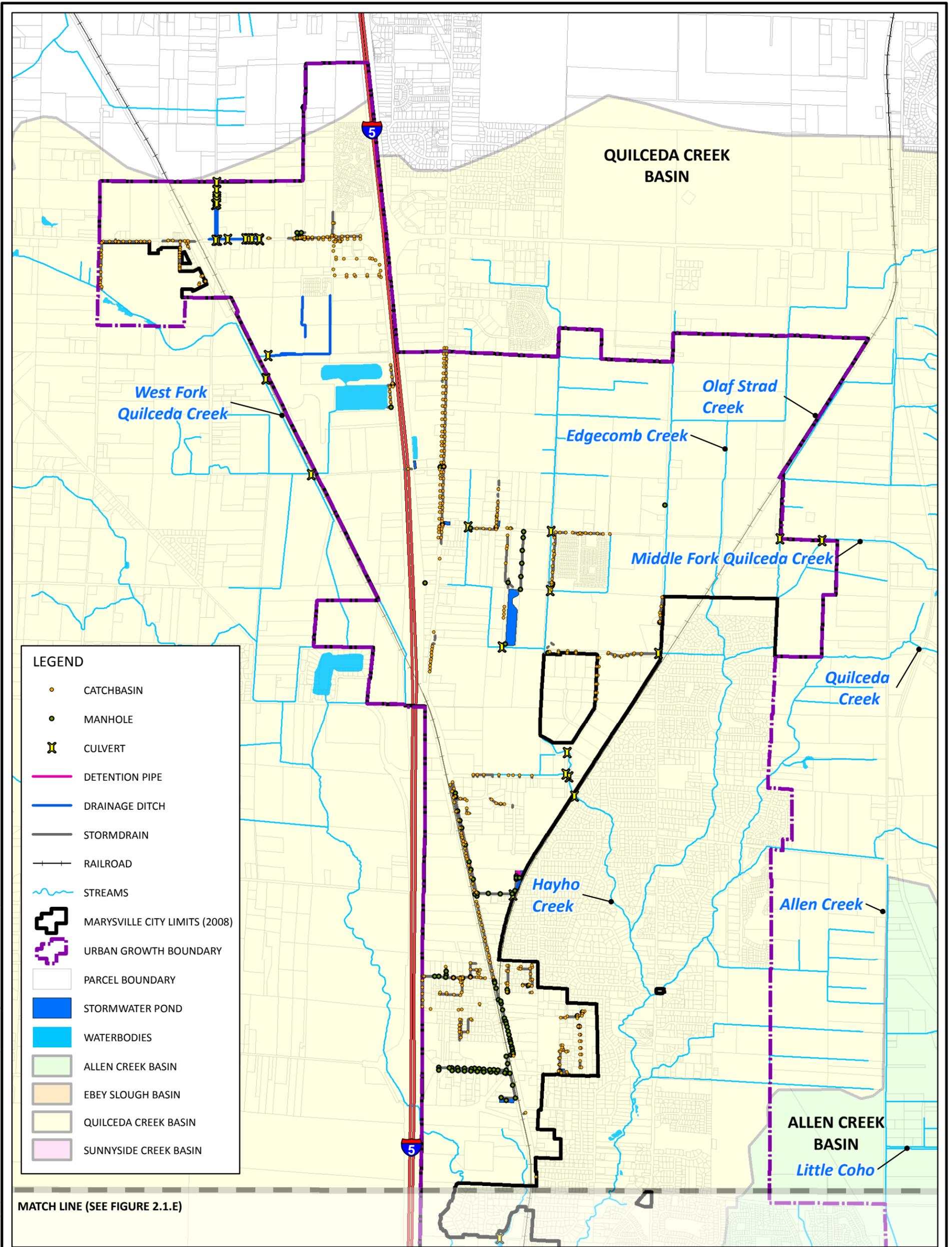
- LEGEND**
- RAILROAD
 - MARYSVILLE CITY LIMITS (2008)
 - URBAN GROWTH BOUNDARY



CITY OF MARYSVILLE
STORMWATER COMPREHENSIVE PLAN
FIGURE 2.1.C
TOPOGRAPHIC MAP




Disclaimer: The information shown in this map is assembled GIS data created and acquired by Otak Inc., and from City of Marysville GIS. This data is not to survey accuracy and is meant for planning purposes only.

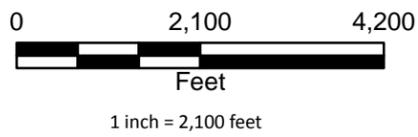
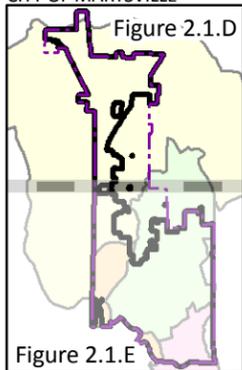


LEGEND

- CATCHBASIN
- MANHOLE
- CULVERT
- DETENTION PIPE
- DRAINAGE DITCH
- STORMDRAIN
- RAILROAD
- STREAMS
- MARYSVILLE CITY LIMITS (2008)
- URBAN GROWTH BOUNDARY
- PARCEL BOUNDARY
- STORMWATER POND
- WATERBODIES
- ALLEN CREEK BASIN
- EBHEY SLOUGH BASIN
- QUILCEDA CREEK BASIN
- SUNNYSIDE CREEK BASIN

MATCH LINE (SEE FIGURE 2.1.E)

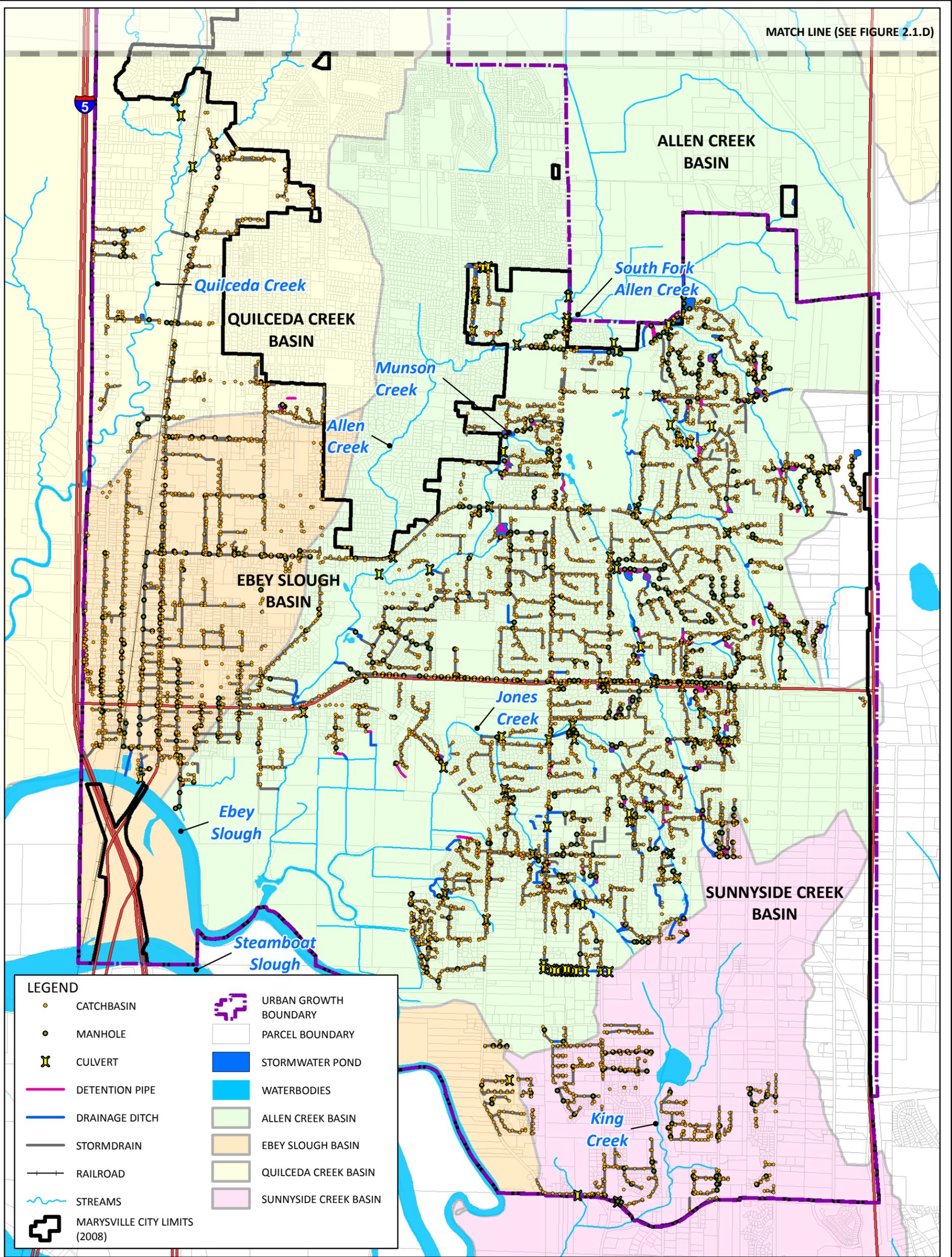
REFERENCE
CITY OF MARYSVILLE



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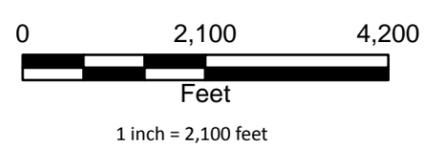
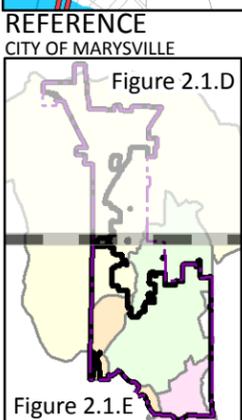
CITY OF MARYSVILLE
STORMWATER COMPREHENSIVE PLAN
FIGURE 2.1.D
MAPPED STORMWATER SYSTEM
NORTH

MATCH LINE (SEE FIGURE 2.1.D)



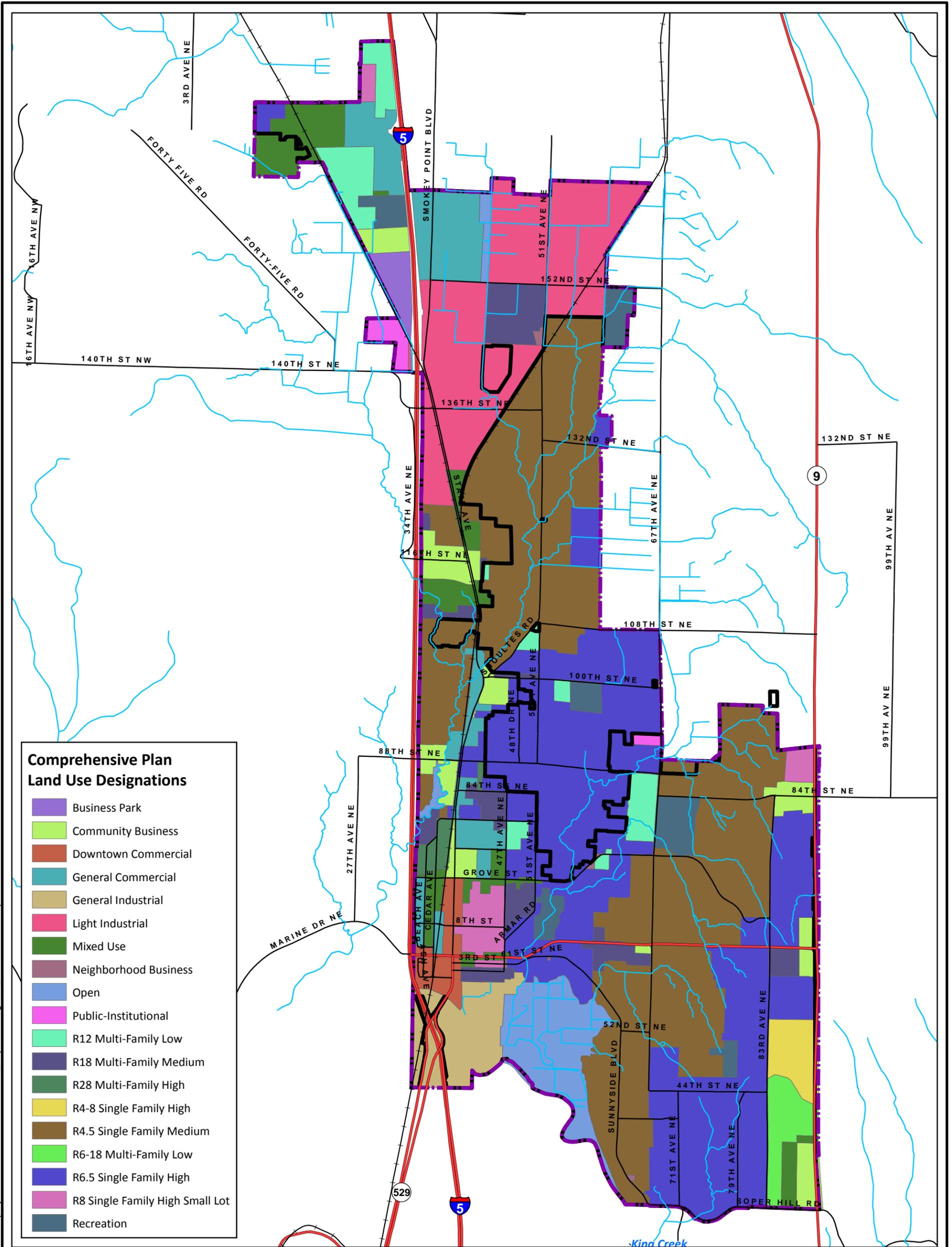
LEGEND

	CATCHBASIN		URBAN GROWTH BOUNDARY
	MANHOLE		PARCEL BOUNDARY
	CULVERT		STORMWATER POND
	DETENTION PIPE		WATERBODIES
	DRAINAGE DITCH		ALLEN CREEK BASIN
	STORMDRAIN		EBEY SLOUGH BASIN
	RAILROAD		QUILCEDA CREEK BASIN
	STREAMS		SUNNYSIDE CREEK BASIN
	MARYSVILLE CITY LIMITS (2008)		



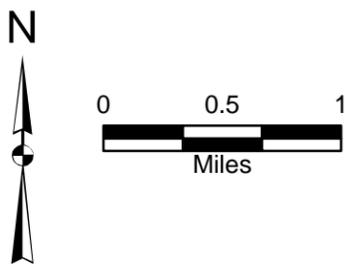
CITY OF MARYSVILLE
STORMWATER COMPREHENSIVE PLAN
FIGURE 2.1.E
MAPPED STORMWATER SYSTEM
SOUTH

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**Comprehensive Plan
Land Use Designations**

- Business Park
- Community Business
- Downtown Commercial
- General Commercial
- General Industrial
- Light Industrial
- Mixed Use
- Neighborhood Business
- Open
- Public-Institutional
- R12 Multi-Family Low
- R18 Multi-Family Medium
- R28 Multi-Family High
- R4-8 Single Family High
- R4.5 Single Family Medium
- R6-18 Multi-Family Low
- R6.5 Single Family High
- R8 Single Family High Small Lot
- Recreation

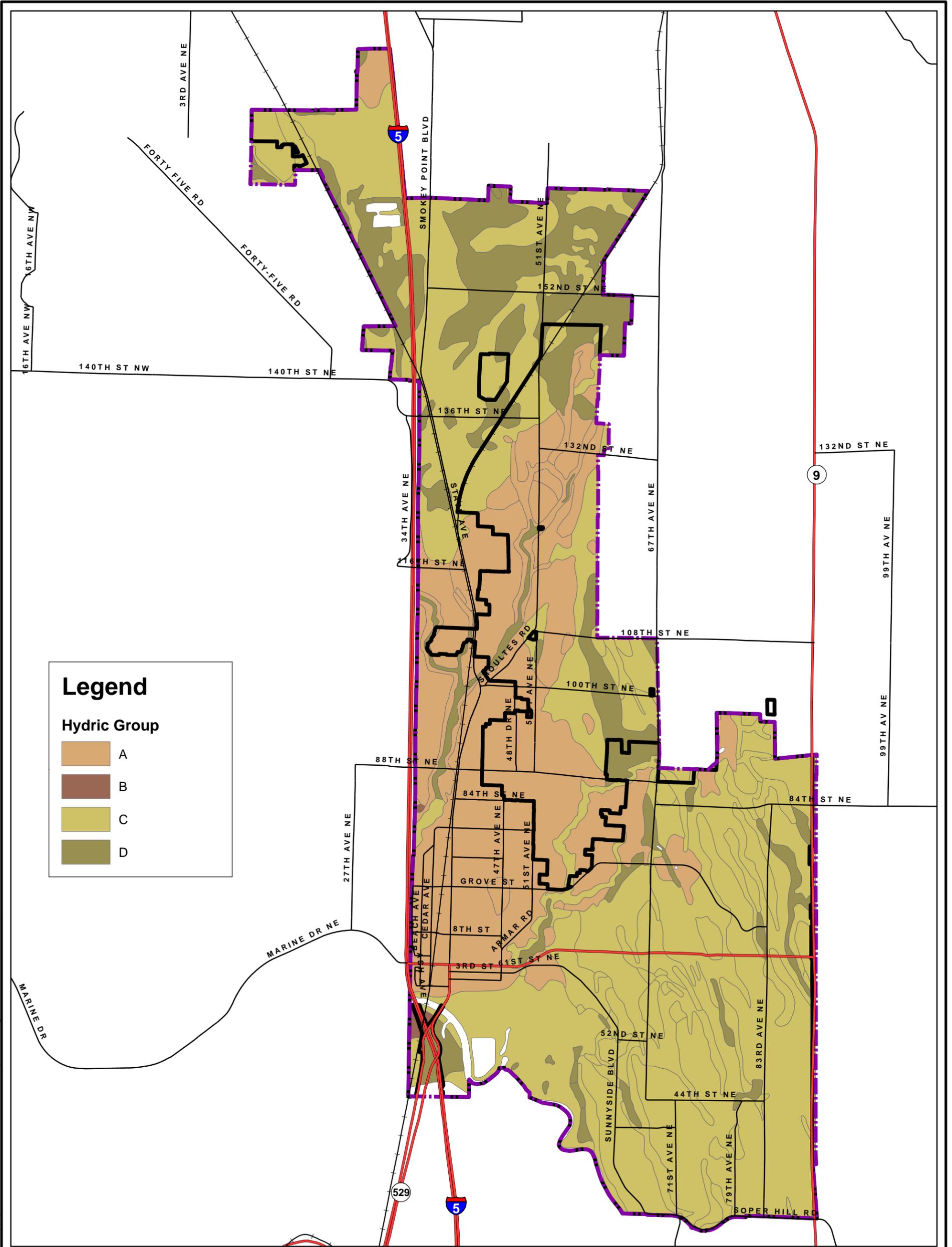


LEGEND

- RAILROAD
- MARYSVILLE CITY LIMITS (2008)
- URBAN GROWTH BOUNDARY

CITY OF MARYSVILLE
 STORMWATER COMPREHENSIVE PLAN
 FIGURE 2.1.G
 FUTURE LAND USE MAP

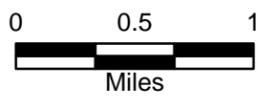
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Legend

Hydric Group

- A
- B
- C
- D

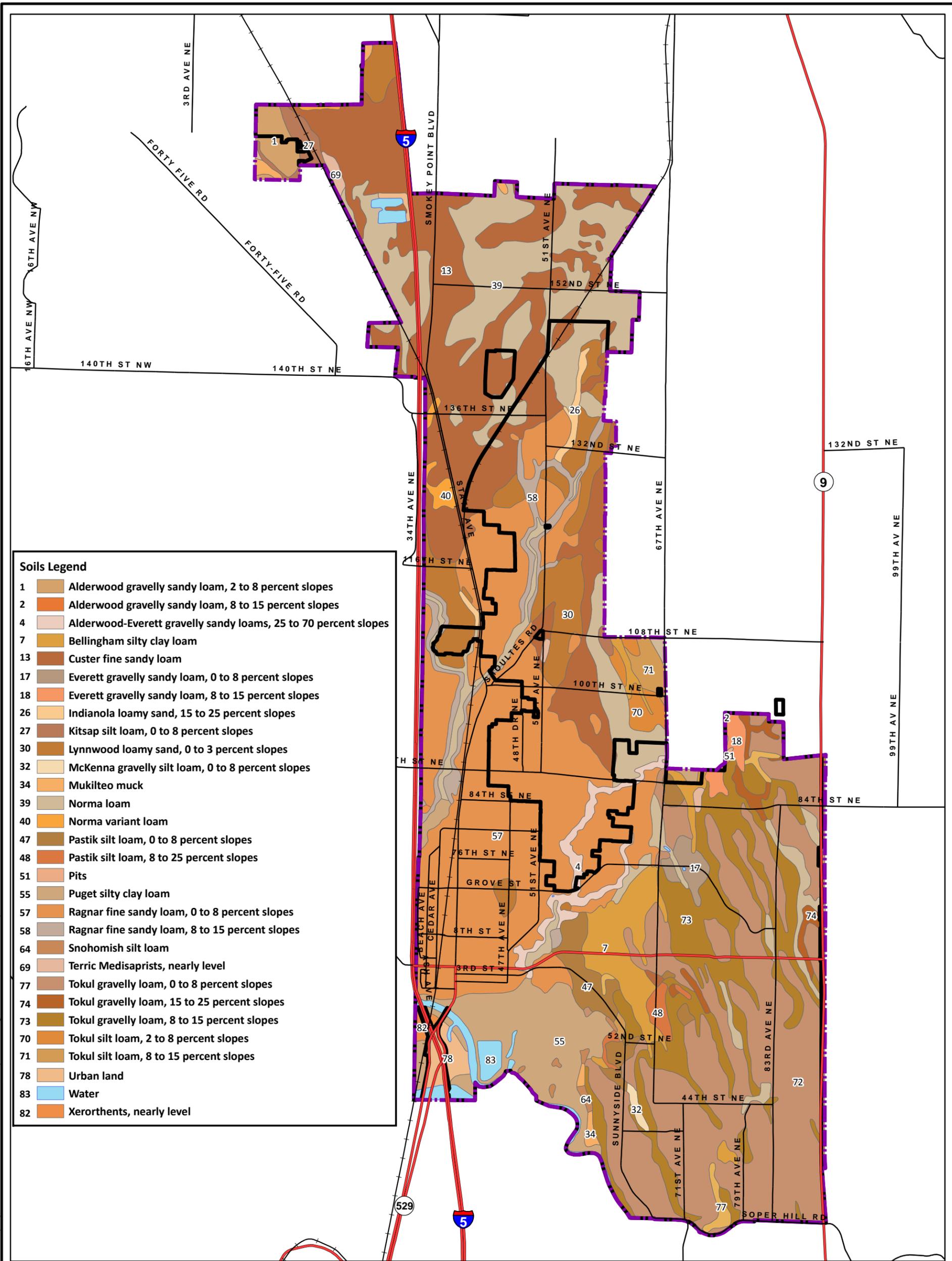


LEGEND

- RAILROAD
- MARYSVILLE CITY LIMITS (2008)
- URBAN GROWTH BOUNDARY

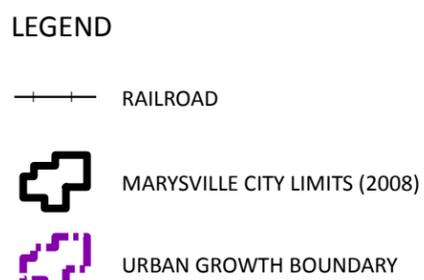
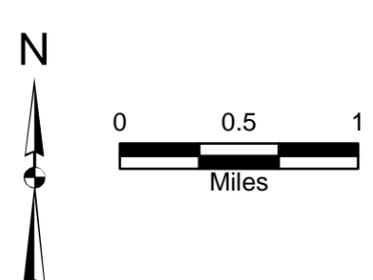
CITY OF MARYSVILLE
 STORMWATER COMPREHENSIVE PLAN
 FIGURE 2.1.H
 SOILS MAP - HYDRIC GROUP





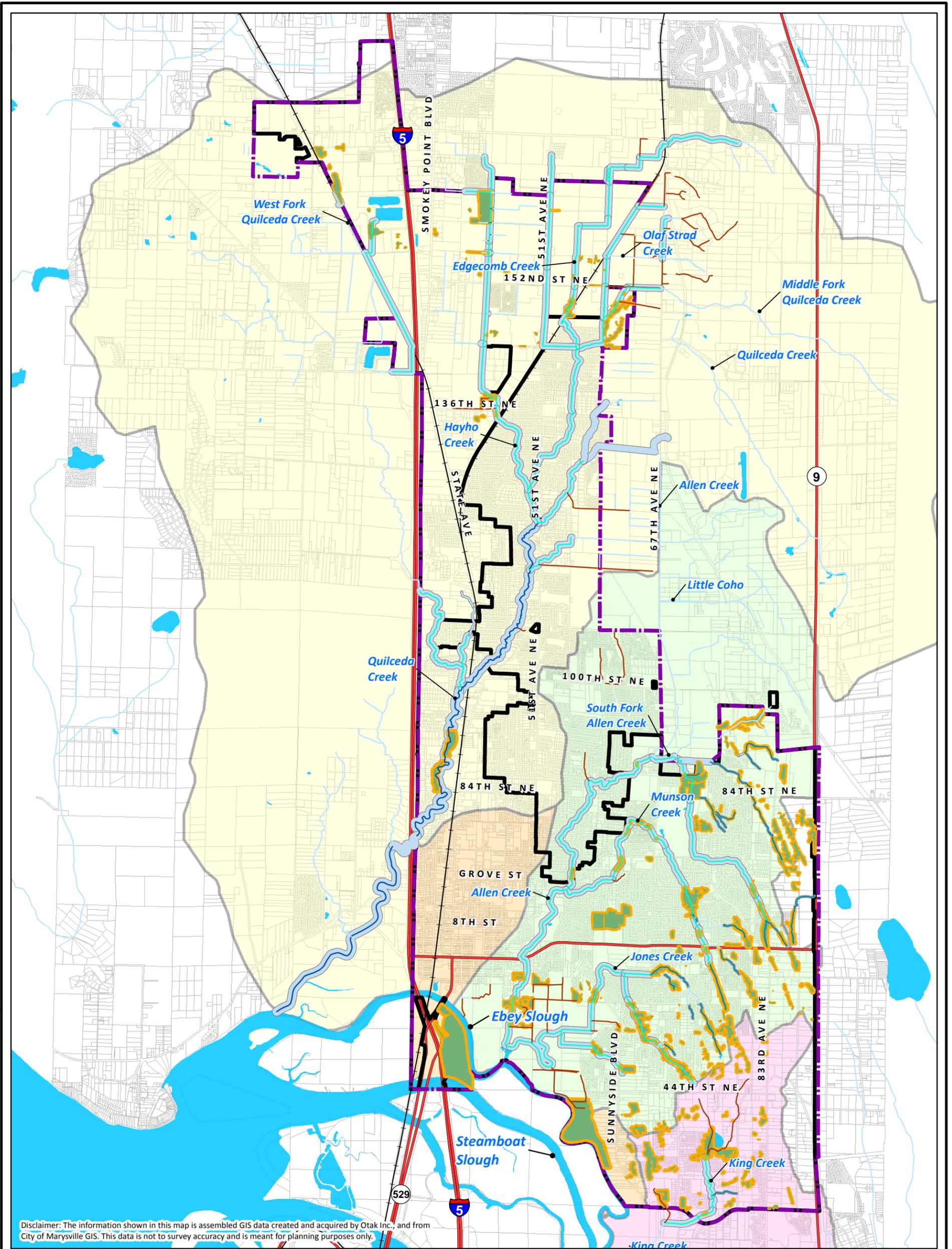
Soils Legend

1	Alderwood gravelly sandy loam, 2 to 8 percent slopes
2	Alderwood gravelly sandy loam, 8 to 15 percent slopes
4	Alderwood-Everett gravelly sandy loams, 25 to 70 percent slopes
7	Bellingham silty clay loam
13	Custer fine sandy loam
17	Everett gravelly sandy loam, 0 to 8 percent slopes
18	Everett gravelly sandy loam, 8 to 15 percent slopes
26	Indianola loamy sand, 15 to 25 percent slopes
27	Kitsap silt loam, 0 to 8 percent slopes
30	Lynnwood loamy sand, 0 to 3 percent slopes
32	McKenna gravelly silt loam, 0 to 8 percent slopes
34	Mukilteo muck
39	Norma loam
40	Norma variant loam
47	Pastik silt loam, 0 to 8 percent slopes
48	Pastik silt loam, 8 to 25 percent slopes
51	Pits
55	Puget silty clay loam
57	Ragnar fine sandy loam, 0 to 8 percent slopes
58	Ragnar fine sandy loam, 8 to 15 percent slopes
64	Snohomish silt loam
69	Terric Medisaprists, nearly level
77	Tokul gravelly loam, 0 to 8 percent slopes
74	Tokul gravelly loam, 15 to 25 percent slopes
73	Tokul gravelly loam, 8 to 15 percent slopes
70	Tokul silt loam, 2 to 8 percent slopes
71	Tokul silt loam, 8 to 15 percent slopes
78	Urban land
83	Water
82	Xerorthents, nearly level

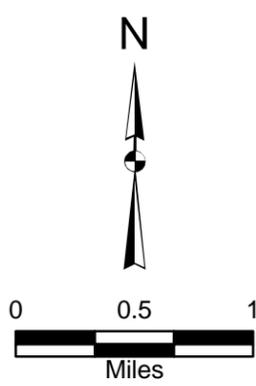


CITY OF MARYSVILLE
 STORMWATER COMPREHENSIVE PLAN
 FIGURE 2.1.I
 SOILS MAP - NRCS

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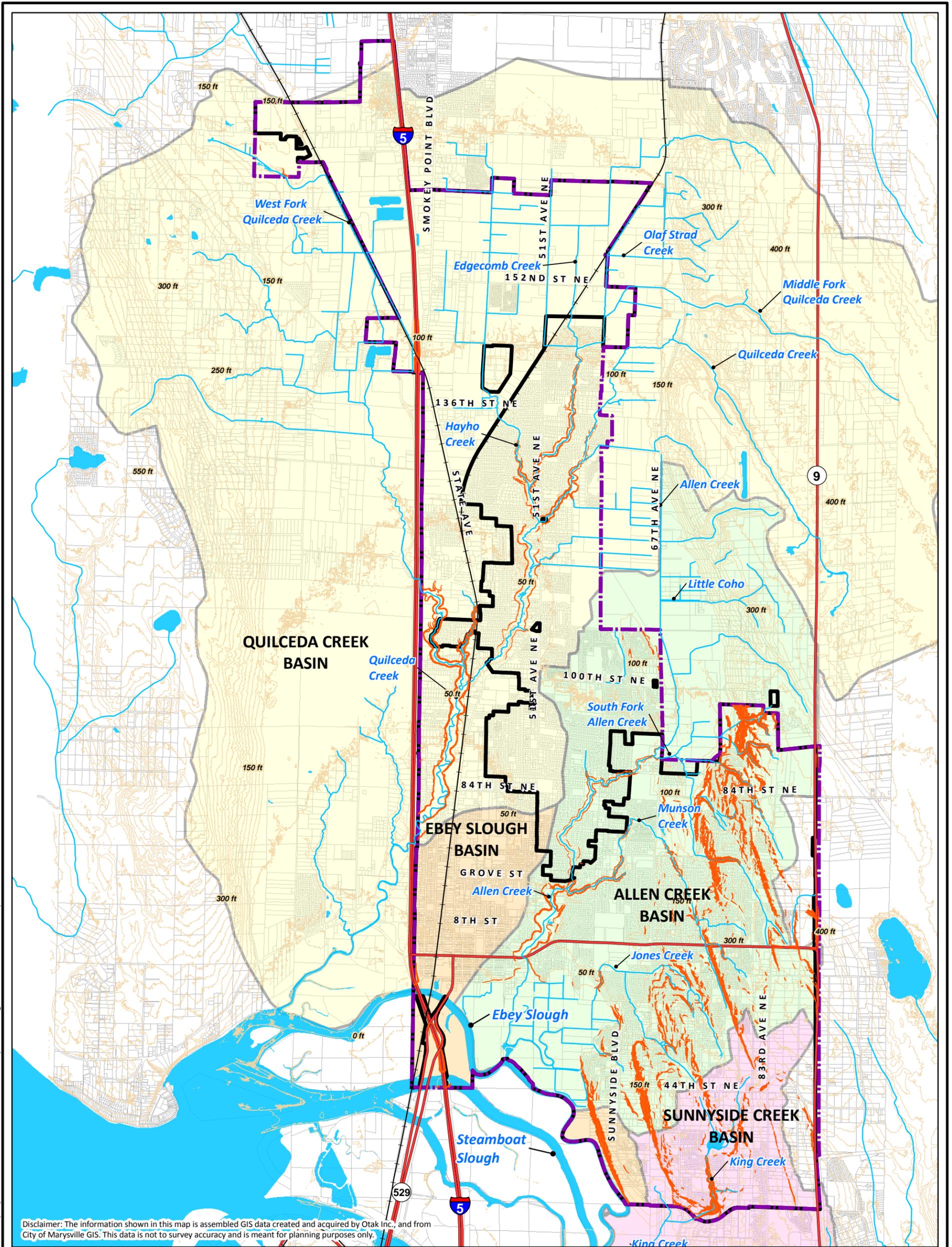
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LEGEND

- RAILROAD
- STREAMS
- MARYSVILLE STREAM CLASSES
- UNKNOWN
- NS - 50' BUFFER
- F - 150' BUFFER
- S - 200' BUFFER
- MARYSVILLE CITY LIMITS (2008)
- URBAN GROWTH BOUNDARY
- PARCEL BOUNDARY
- STREAM BUFFERS
- WATERBODIES
- DELINEATED WETLANDS
- DELINEATED WETLAND BUFFERS
- ALLEN CREEK BASIN
- EBEY SLOUGH BASIN
- QUILCEDA CREEK BASIN
- SUNNYSIDE CREEK BASIN

CITY OF MARYSVILLE
 STORMWATER COMPREHENSIVE PLAN
 FIGURE 2.1.J
 DELINEATED WETLANDS AND STREAM BUFFERS



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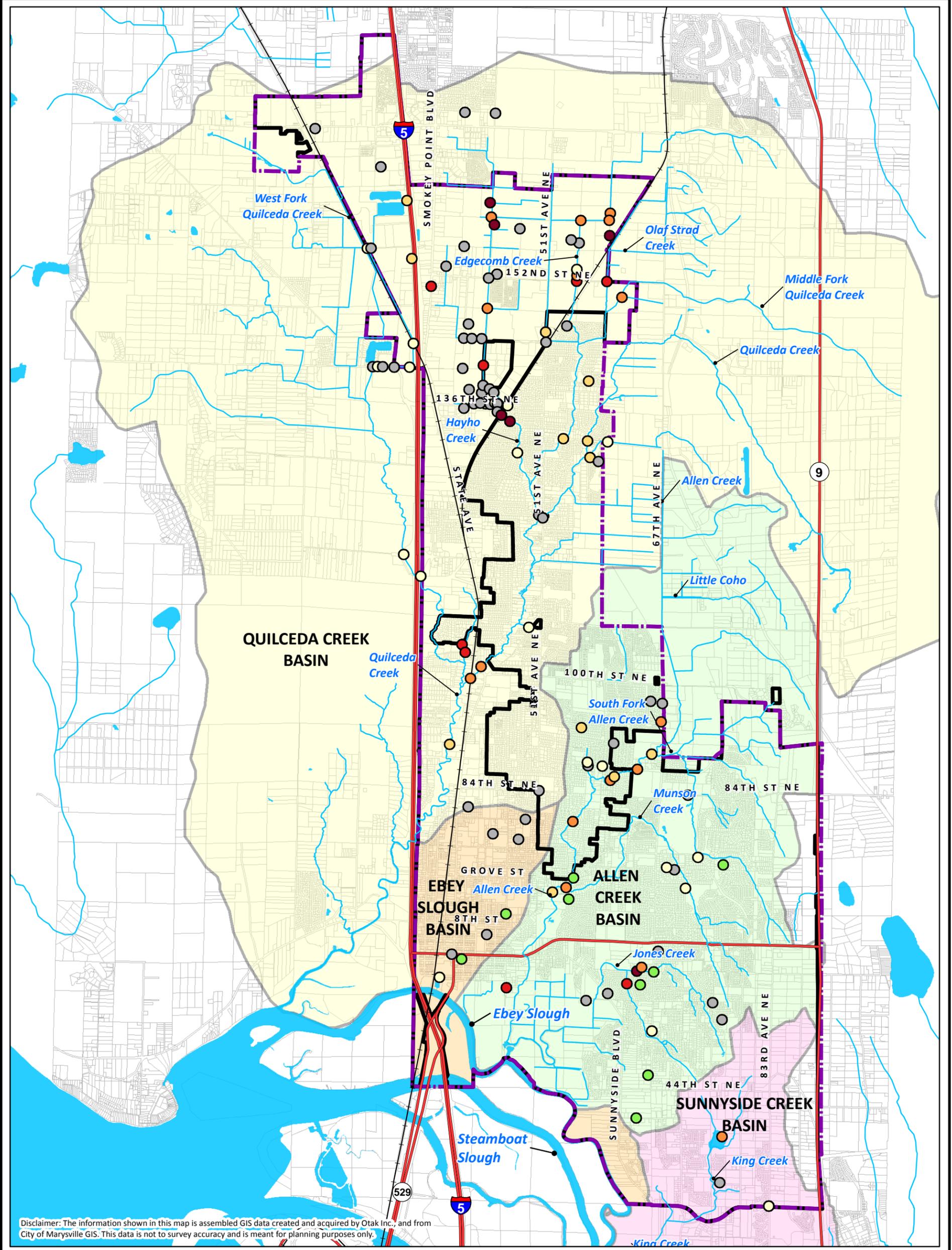
LEGEND

- RAILROAD
- STREAMS
- 25 FT CONTOUR (LIDAR)
- MARYSVILLE CITY LIMITS (2008)
- URBAN GROWTH BOUNDARY
- PARCEL BOUNDARY
- HAZARD AREAS (GENERATED BY MARYSVILLE 2006)
- WATERBODIES
- ALLEN CREEK BASIN
- EBHEY SLOUGH BASIN
- QUILCEDA CREEK BASIN
- SUNNYSIDE CREEK BASIN

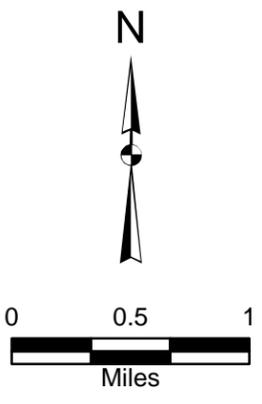


CITY OF MARYSVILLE
 STORMWATER COMPREHENSIVE PLAN
 FIGURE 2.1.K
 LANDSLIDE HAZARD AREAS





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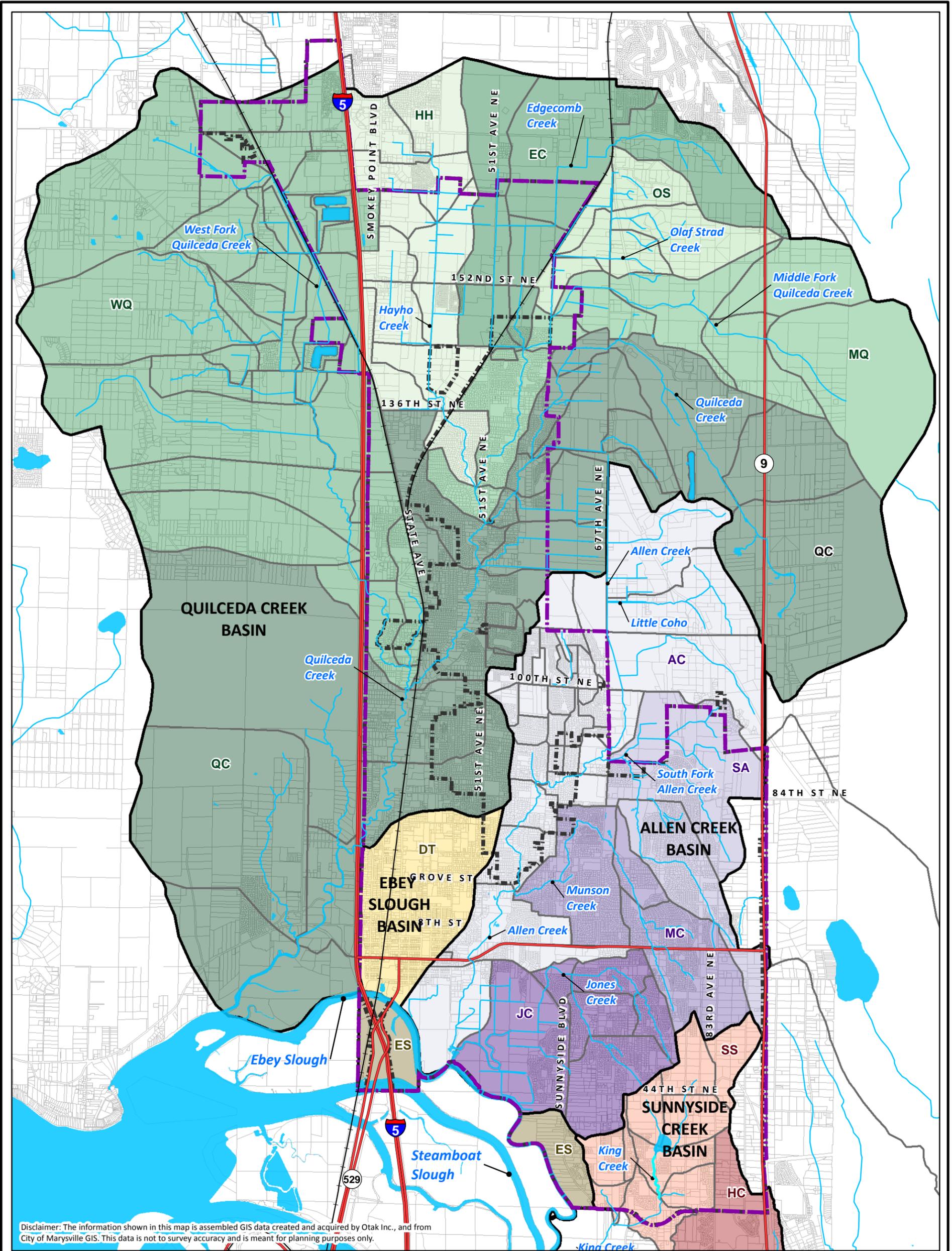


LEGEND

- | | | |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>DEFICIENCY RANK</p> <ul style="list-style-type: none"> ○ 1 - LOWEST ○ 2 ○ 3 ○ 4 ○ 5 - HIGHEST ○ COMPLETED OR CANCELLED ○ MAINTENANCE | <ul style="list-style-type: none"> ~ STREAMS — RAILROAD ▬ MARYSVILLE CITY LIMITS (2008) ▬ URBAN GROWTH BOUNDARY ▬ PARCEL BOUNDARY ■ WATERBODIES | <ul style="list-style-type: none"> ■ ALLEN CREEK BASIN ■ EBHEY SLOUGH BASIN ■ QUILCEDA CREEK BASIN ■ SUNNYSIDE CREEK BASIN |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|

Note: For a large scale map, please refer to fold out maps in the back of the report.

CITY OF MARYSVILLE
 STORMWATER COMPREHENSIVE PLAN
 FIGURE 2.1.L
 MAP OF RANKED DEFICIENCIES



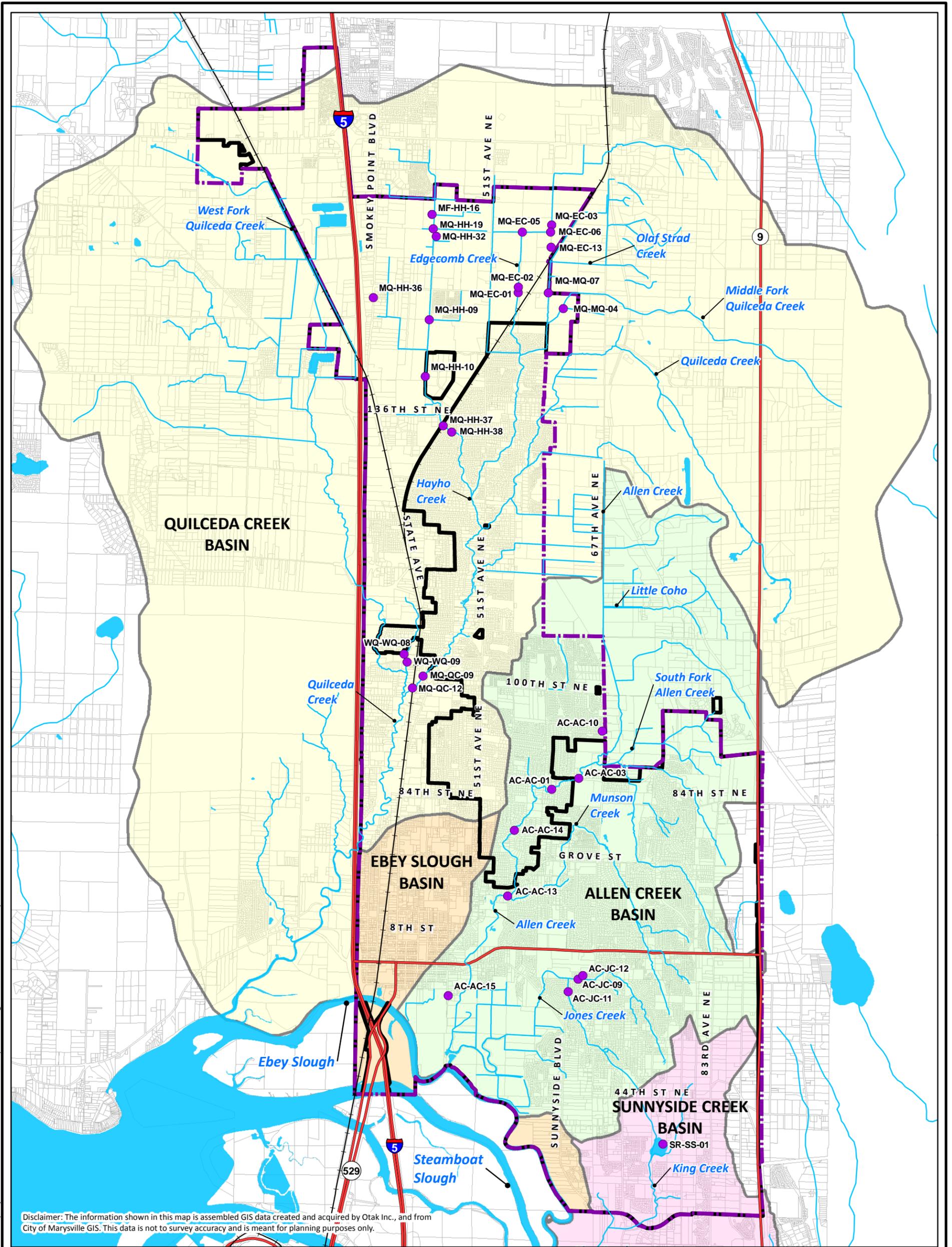
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LEGEND

	RAILROAD		PARCEL BOUNDARY		QUILCEDA CREEK BASIN		EBEY SLOUGH BASIN
	STREAMS		WATERBODIES		ALLEN CREEK BASIN		ES - Ebey Slough
	MARYSVILLE CITY LIMITS (2008)		JC - Jones Creek		QC - Quilceda Creek		DT - Downtown
	URBAN GROWTH BOUNDARY		MC - Munson Creek		WQ - West Fork Quilceda Creek		SUNNYSIDE CREEK BASIN
			SA - South Fork Allen Creek		MQ - Middle Fork Quilceda Creek		HC - Hulbert Creek
			AC - Allen Creek		OS - Olaf Strad Creek		SS - Sunnyside Creek
					HH - Hayho Creek		

CITY OF MARYSVILLE
STORMWATER COMPREHENSIVE PLAN
FIGURE 2.1.M
MARYSVILLE SUBBASINS



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N



LEGEND

- CAPITAL IMPROVEMENT PROJECT (CIP)
- STREAMS
- RAILROAD
- MARYSVILLE CITY LIMITS (2008)
- URBAN GROWTH BOUNDARY
- PARCEL BOUNDARY

- WATERBODIES
- SUNNYSIDE CREEK BASIN
- ALLEN CREEK BASIN
- QUILCEDA CREEK BASIN
- EBHEY SLOUGH BASIN

Note: For a large scale map, please refer to fold out maps in the back of the report.

CITY OF MARYSVILLE

STORMWATER COMPREHENSIVE PLAN

FIGURE 2.1.N

CAPITAL IMPROVEMENT PROJECTS



Section 2.2: Quilceda Creek Basin

2.2.1 Introduction

The Quilceda Creek basin is the largest of the four basins in the City of Marysville. Located primarily in the northern portion of the City of Marysville, the Quilceda Creek basin has a north-south orientation and drains to Ebey Slough via Quilceda Creek. This section documents the existing site conditions, stormwater deficiencies, and a summary of recommended CIPs for the Quilceda Creek Basin.

The following studies and models were referenced during the analysis of the Quilceda Creek basin.

- Quilceda Creek Drainage Needs Report DNR No. 1, December 2002, Snohomish County Public Works Department Surface Water Management Division
- Smokey Point Master Plan, June 2008, City of Marysville

2.2.2 Existing Conditions—Quilceda Creek Basin

The Quilceda Creek basin is located north of the Snohomish River generally centered along Interstate 5. The Quilceda Creek basin has a north-south orientation and is approximately 8 miles long and about 7.6 miles wide at its widest. The basin drains about 36 square miles (23,025 acres) of land. Approximately 17 percent (3,910 acres) of the basin area is in the City of Marysville, about 6 percent (1,465 acres) is within the City of Arlington, another 9 percent (2,065 acres) is within the Urban Growth Area (UGA) in unincorporated Snohomish County, and the remaining 68 percent (15,585) outside the UGA in unincorporated Snohomish County. This study focused on the 26 percent that is within Marysville and the UGA.

2.2.2.1 Topography

The Quilceda Creek basin contains the Marysville Trough and is bordered on the east and west by the Getchell and Tulalip Plateaus, respectively. The basin extends from the City of Arlington in the North to Ebey Slough (part of the Snohomish River) in the south. Through the Trough the topography has generally flat slopes running from an elevation of 130 feet in the north to sea level in the south at approximately 0.3 percent. Steeper slopes are located in the transitions to the bordering plateaus, where elevations exceed 400 feet.

2.2.1 Introduction	Page 2.2 - 1
2.2.2 Existing Conditions—Quilceda Creek Basin.....	Page 2.2 - 1
2.2.3 Deficiencies and Proposed Solutions.....	Page 2.2 - 3
2.2.4 Analysis of Stormwater System Deficiencies	Page 2.2 - 3
2.2.5 Proposed CIPs.....	Page 2.2 - 4

2.2.2.2 Surface Water and Stormwater Systems

The primary drainage in the basin is Quilceda Creek. Tributaries to the lower Quilceda Creek include the mainstem, West Fork Quilceda and Middle Fork Quilceda Creeks. The West Fork Quilceda forms and is located primarily west of I-5, outside the City of Marysville and UGA. The basin also includes the Twin Lakes located in the northwest corner of the City of Marysville. The mainstem and Middle Fork headwaters are to the east outside the UGA. Two large subbasins of the Middle Fork Quilceda: Hayho Creek and Edgecomb Creek, occupy the northern City limits. The basin also includes the Twin Lakes located in the northwest corner of the City of Marysville.



Quilceda Creek stormwater infrastructure within the City of Marysville is focused around the development along State Avenue and Smokey Point Blvd. where major trunk lines are located. Stormwater lines convey water to Quilceda Creek, small detention facilities and the 40th Avenue regional detention facility as shown in Figures 2.1.D and 2.1.E.

2.2.2.3 Land Use and Soils

Existing land use in the basin is principally agricultural and rural, but also includes residential, some commercial, and the Arlington Airport. In the City of Marysville, the Quilceda Basin has less pervious, Hydrologic Soil Group type C (Custer fine sandy loam) and D (Norma loam) in the north and highly pervious type A soils (Ragnar fine sandy loam, Lynnwood loamy sand, and Indianola loamy sand) in the south. See Figures 2.1.F, 2.1.H, and 2.1.I for Land Use and Soils Maps.

2.2.2.4 Critical Areas

Streams and wetlands are listed as critical areas and have protective buffers as shown in Figure 2.1.J. The Quilceda Creek main stem is classified as Shoreline with a 200-foot stream buffer. The major tributaries to Quilceda Creek including: West Fork Quilceda, Middle Fork Quilceda, Upper Main Stem Quilceda, Edgecomb Creek, Hayho Creek, and Olaf Strad are classified as Fish channels where they join Quilceda Creek and have 150-foot stream buffers. The upper reaches of these tributaries, along with several unnamed channels in the basin are seasonal, non-fish streams with stream buffer widths of 50 feet. There are also a few unnamed, open channels in the basin that have not been classified. (See Table 2.1.B: Stream Type Definitions).

Wetland extents in this basin have changed significantly from historic conditions. Draining and tilling of agricultural lands has reduced the presence of wetlands to a minor fraction of the historical conditions. According to delineated wetland data provided by the City in April 2009, there are currently 53 acres of wetlands within the City limits in the Quilceda Creek Basin.

Moderate landslide hazard areas are located in the Quilceda Creek basin as shown in Figure 2.1.K. Generally, these areas have slopes greater than 15 percent.

2.2.3 Deficiencies and Proposed Solutions

In the Quilceda Creek basin several key problem areas have been identified by public survey, the City of Marysville staff, and from the Quilceda Creek DNR. A city-wide map of problem locations is provided in Figure 2.1.L. Some of the problem areas were identified as being completed or cancelled. One maintenance project is located within the Quilceda Creek basin.

ID#	Project
MQ-QC-07	Flooding at 84th St. NE

2.2.4 Analysis of Stormwater System Deficiencies

Within the Quilceda Creek basin, many of the culverts have been identified as fish passage barriers based upon velocity criteria. Many others are undersized as indicated by frequent flooding of adjacent properties and overtopping of roadways. These problem areas were identified and prioritized (see Table 2.1.E in Section 2.1) and high ranking problems were further analyzed for potential solutions.

Many of these projects located in the Smokey Point or Hayho basin project areas may be incorporated into the North Marysville Master Drainage Plan. The North Marysville Master Drainage Plan, currently being developed by the City, will provide guidelines for future development of approximately 1,000 acres in the North Marysville area. In addition to guidelines that focus on development layout, orientation, and architectural style, the plan will include restoration/enhancement alternatives for Edgecomb Creek, a street network plan, and conceptual stormwater system. The status of the North Marysville Master Drainage Plan should be checked before implementing CIPs within its study area since the North Marysville Master Drainage Plan may include improvements that overlap with, or negate the need for CIPs (primarily culvert replacements) documented in this Plan.

The status of the North Marysville Master Drainage Plan should be checked before implementing CIPs within its study area since the North Marysville Master Drainage Plan may include improvements that overlap with, or negate the need for CIPs documented in this Plan.

2.2.4.1 Hydrologic and Hydraulic Analysis

This section provides a brief description of the hydrologic and hydraulic analysis performed in the Quilceda Creek basin. Specific modeling efforts updated existing models or created new models to analyze solutions were focused primarily in the North Marysville Master Drainage Planning area (CIPs MQ-EC-13 and MQ-HH-32). The model coverage areas are shown in Figure 2.2.A.

Hydrology

Existing hydrology for the Quilceda Creek basin was available from Snohomish County. The County provided an updated future condition HSPF model (updated since the Quilceda Creek DNR was published in 2002) from which Otak verified basin boundaries and updated land cover. The updated hydrology was used for hydraulic analyses described below. The HSPF model was also used to verify proposed detention facilities meet current Department of Ecology flow control standards.

Hydraulics

Hydraulic modeling performed to design stormwater conveyance and detention solutions was focused primarily in the North Marysville MDP area. Hydraulic models were created using XP-SWMM to simulate conveyance systems and detention ponds. The realignment of Edgecomb Creek was modeled using HEC-RAS.

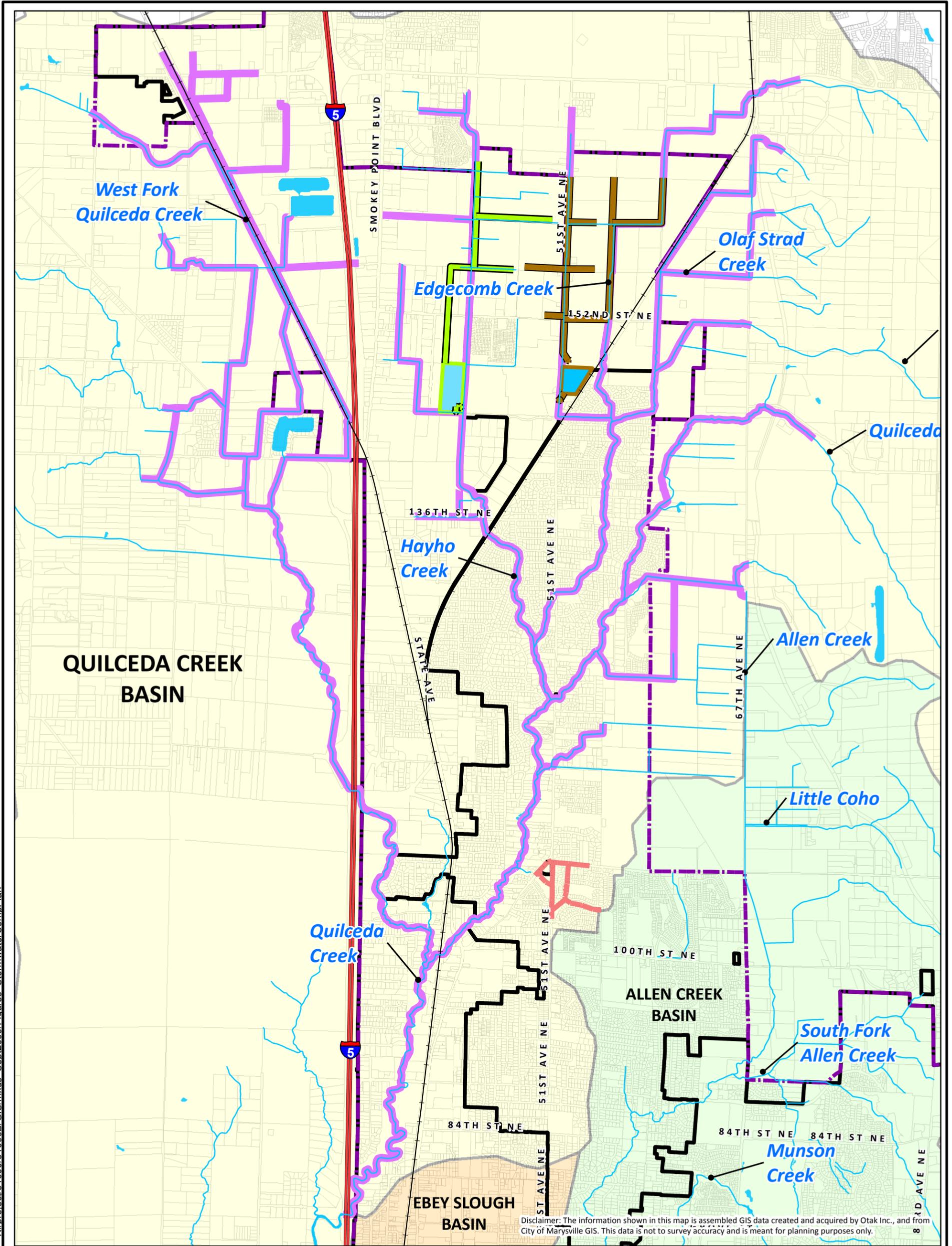
2.2.5 Proposed CIPs

To resolve stormwater deficiencies within the Quilceda Creek basin, twenty high priority problem areas were identified as CIPs. The CIPs for the Quilceda Creek basin are listed below in Table 2.2.B and shown in Figure 2.1.N. A large-scale version of the CIP Map is inserted in the back of this document. Projects with higher rankings (5 being the highest) were analyzed in greater detail. Summary sheets, project photos, project schematics and cost estimates were developed for each of these CIP projects and are included in Appendix 2.2.A.

Table 2.2.B: Quilceda Creek CIPs

Project ID	Location	Rank	Cost
MQ-EC-13	North Marysville Master Drainage Plan (Edgecomb Creek)	5	23,526,000
MQ-HH-16	Channel Realignment and Floodplain Restoration (Hayho Creek)	5	913,000
MQ-HH-32	North Marysville Master Drainage Plan (Hayho Creek)	5	10,379,000
MQ-HH-37	Breach Hayho bank at Railroad Culvert	5	74,000
MQ-HH-38	Erosion Control Measures - Railroad culverts to 47th Dr. NE (Hayho Creek)	5	1,545,000
MQ-EC-01	Culvert Replacement at 152nd St. NE (Edgecomb Creek)	4	261,000
MQ-HH-10	Upper Channel conveyance enhancement/Hayho Restoration Plan	4	3,146,000
MQ-HH-36	Marysville Drainage Inventory	4	10,000
MQ-MQ-07	Culvert Replacement at 152nd St. NE (Olaf Strad Creek)	4	277,000
WQ-WQ-08	Culvert Modifications at 104th St. (West Quilceda Tributary)	4	75,000
WQ-WQ-09	Culvert Replacement at 103rd St. (West Quilceda Tributary)	4	355,000
MQ-EC-02	Field Access Culvert Removal and Bridge Installation	3	167,000
MQ-EC-03	Field Access Culvert Removal and Bridge Installation at Edgecomb Creek	3	172,000
MQ-EC-05	Field Access Culvert Removal and Bridge Installation at Edgecomb Creek	3	189,000
MQ-EC-06	Field Access Culvert Removal and Bridge Installation at Edgecomb Creek	3	190,000
MQ-HH-09	Flooding of 43rd Ave. and Emerald Hills Estates (Hayho Creek)	3	43,000
MQ-HH-19	Install Fish Screen at 165th Avenue NE	3	209,000
MQ-MQ-04	Field Access Culvert Removal/Bridge Installation and Stream Restoration (Quilceda Creek)	3	293,000
MQ-QC-09	Culvert Replacement at State Ave. (Quilceda Creek)	3	3,964,000
MQ-QC-12	Culvert Replacement at Railroad (Quilceda Creek)	3	982,000

Appendix 2.2.A : Quilceda Basin - CIP Project Summary Sheets, Cost Estimates and Schematics



Disclaimer: The information shown in this map is assembled GIS data created and acquired by Otak Inc., and from City of Marysville GIS. This data is not to survey accuracy and is meant for planning purposes only.



LEGEND

- | | | | |
|-----------------------|---------------------|------------------|-------------------------------|
| RAILROAD | XPSWMM | HAYHO CONVEYANCE | MARYSVILLE CITY LIMITS (2008) |
| STREAMS | EDGECOMB CONVEYANCE | HAYHO POND | URBAN GROWTH BOUNDARY |
| MODEL COVERAGE | HAYHO POND | EDGECOMB POND | PARCEL BOUNDARY |
| HEC-RAS | EDGECOMB POND | WATERBODIES | ALLEN CREEK BASIN |
| XPSWMM | WATERBODIES | | EBHEY SLOUGH BASIN |
| | | | QUILCEDA CREEK BASIN |

CITY OF MARYSVILLE
 STORMWATER COMPREHENSIVE PLAN
 FIGURE 2.2.A
 MODEL COVERAGE - QUILCEDA CREEK




Section 2.3: Allen Creek Basin

2.3.1 Introduction

The Allen Creek basin is the second largest of the four basins in the City of Marysville. Located in southern portion of the City, the Allen Creek basin has a north-south orientation and drains to Ebey Slough via Allen Creek and Jones Creek. This section documents the existing site conditions, stormwater deficiencies, and a summary of recommended CIPs for the Allen Creek Basin.

The following studies and models were referenced during the analysis of the Allen Creek basin.

- Allen Creek Drainage Needs Report DNR No. 8, December 2002, Snohomish County Public Works Department Surface Water Management Division
- Qwuloolt Estuary Restoration – Tulalip Tribes

2.3.2 Existing Conditions—Allen Creek Basin

The Allen Creek basin is approximately 5.6 miles long and about 3 miles wide. The basin drains about 10.4 square miles (6,667 acres) of land. Approximately 62 percent (4,130 acres) of the basin area is in the City of Marysville, about 33 percent (843 acres) is within the UGA in unincorporated Snohomish County with the remaining 5 percent outside of the UGA in unincorporated Snohomish County.

2.3.2.1 Topography

The Allen Creek basin is located on the eastern portion of the Marysville Trough and is bordered by the Getchell Plateau to the east. The topography in Allen Creek basin has generally flat slopes running from north to south at approximately 0.3 percent in the Trough. Steeper slopes are found in the upland areas of Munson Creek and the North and South Forks of Allen Creek. Basin elevations range from approximately 400-450 feet in the northern and eastern upland plateau to sea level in the south along Ebey Slough.

2.3.2.2 Surface Water and Stormwater Systems

The primary drainages in the Allen Creek basin are Allen Creek and Jones Creek which flow southwest to Ebey Slough. Jones Creek, the smaller of the two creeks, is found completely within the City of Marysville and covers approximately 19 percent (1,270 acres) of the Allen Creek basin. Allen Creek makes up the remaining portion of the basin covering approximately 81 percent (5,400 acres). The Allen Creek basin originates from the North and South Forks of Allen Creek and from the Munson Creek tributary.

2.3.1 Introduction	Page 2.3 - 1
2.3.2 Existing Conditions—Allen Creek Basin	Page 2.3 - 1
2.3.3 Deficiencies and Proposed Solutions.....	Page 2.3 - 2
2.3.4 Analysis of Stormwater System Deficiencies	Page 2.3 - 3
2.3.5 Proposed CIPs.....	Page 2.3 - 3

Allen Creek stormwater infrastructure generally consists of conveyance pipes. Stormwater lines convey water to small detention facilities, detention pipes, or creeks. Two of the larger trunk lines travel along 64th Street and Grove Street, and outfall into Allen Creek. Culverts, detention facilities, stormwater lines, and creeks that have been mapped within the Allen Creek basin are shown in Figure 2.1.E.

2.3.2.3 Land Use and Soils

Existing land use in the Allen Creek basin is principally residential, but also includes agricultural, open wetlands, and commercial. The pervious soils in the Allen Creek basin, are poorly drained and are comprised primarily of Hydrologic Soil Group Type C soils (Tokul silt loam, Custer fine sandy loam, Bellingham silty clay loam, Puget silty clay loam, and plastic silt loam) and Type D soils (Norma loam). Smaller amounts of well-drained Type A soils (Ragnar fine sandy loam and Everett gravelly sandy loam) are also located in this basin. See Figures 2.1.F, 2.1.H and 2.1.I for Land Use and Soils Maps.

2.3.2.4 Critical Areas

Streams and wetlands are listed as critical areas and have protective buffers. Allen Creek basin streams have been either classified as type F or Ns channels with corresponding stream buffer widths of 150 and 50 feet. Some have yet to receive classification. (See Table 2.1.B: Stream Type Definitions).

Along Allen Creek many of the culverts have been identified as fish passage barriers based upon velocity criteria.

According to delineated wetland data provided by the City in April 2009, there are 180 acres of wetlands within the City limits in the Allen Creek Basin.

Moderate landslide hazard areas are located in the Allen Creek basin as shown in Figure 2.1.K. Generally, these areas have slopes greater than 15 percent.

2.3.3 Deficiencies and Proposed Solutions

In the Allen Creek basin several key problem areas have been identified by public survey, City of Marysville staff, and from the Allen Creek DNR. A citywide map of problem locations is provided in Figure 2.1.L. Some of the problem areas were identified as being completed, cancelled or as maintenance projects. A list of maintenance projects within the Allen Creek basin is shown below in Table 2.3.A.

ID #	Project
AC-AC-16	Allen Creek at Grove St. - May need new catchbasin and outfall
AC-AC-19	Flooding Maintenance at 70th St. NE
AC-JC-03	Groundwater Maintenance at 40th Ave. NE
AC-JC-05	Residence Flooding at 4526 67th Ave. NE
AC-JC-06	Driveway Ponding at 65th Dr. NE
AC-SA-03	Flooding Maintenance at 76th Dr. NE

2.3.4 Analysis of Stormwater System Deficiencies

Along Allen Creek many of the culverts have been identified as fish passage barriers based upon velocity criteria. A few locations have been identified as having inadequate stormwater conveyance capacity such as Brashler Industrial Park and the Sunnyside Neighborhood. Stream flooding was only identified within the Sunnyside neighborhood on Jones Creek. These problem areas were identified and prioritized (see Table 2.1.E in Section 2.1) and high ranking problems were further analyzed to determine potential solutions.

2.3.4.1 Hydrologic and Hydraulic Analysis

This section provides a brief description of the hydrologic and hydraulic analyses performed in the Allen Creek basin. Specific modeling efforts created an updated hydrologic model and new hydraulic analysis for the Sunnyside Neighborhood (CIPs AC-JC-09, AC-JC-11 and AC-JC-12). The coverage areas of the models are shown in Figure 2.3.A. A synopsis of the completed Sunnyside hydrologic and hydraulic modeling and results are included in Appendix 2.3.A.



Hydrology

Existing hydrology for the Allen Creek basin was available from Snohomish County. The County provided an updated (updated since the Allen Creek DNR was published in 2002) future condition HSPF model from which Otak verified basin boundaries and updated land cover. The updated hydrology was used as input for the hydraulic analysis described below.



Hydraulics

Hydraulic modeling performed to design flood reduction solutions was focused primarily in the Jones Creek-Sunnyside Hills neighborhood near the confluence of the north and south forks of Jones Creek. A hydraulic model created using XP-SWMM analyzed the existing conveyance systems. This model was created with as-built data and survey data.

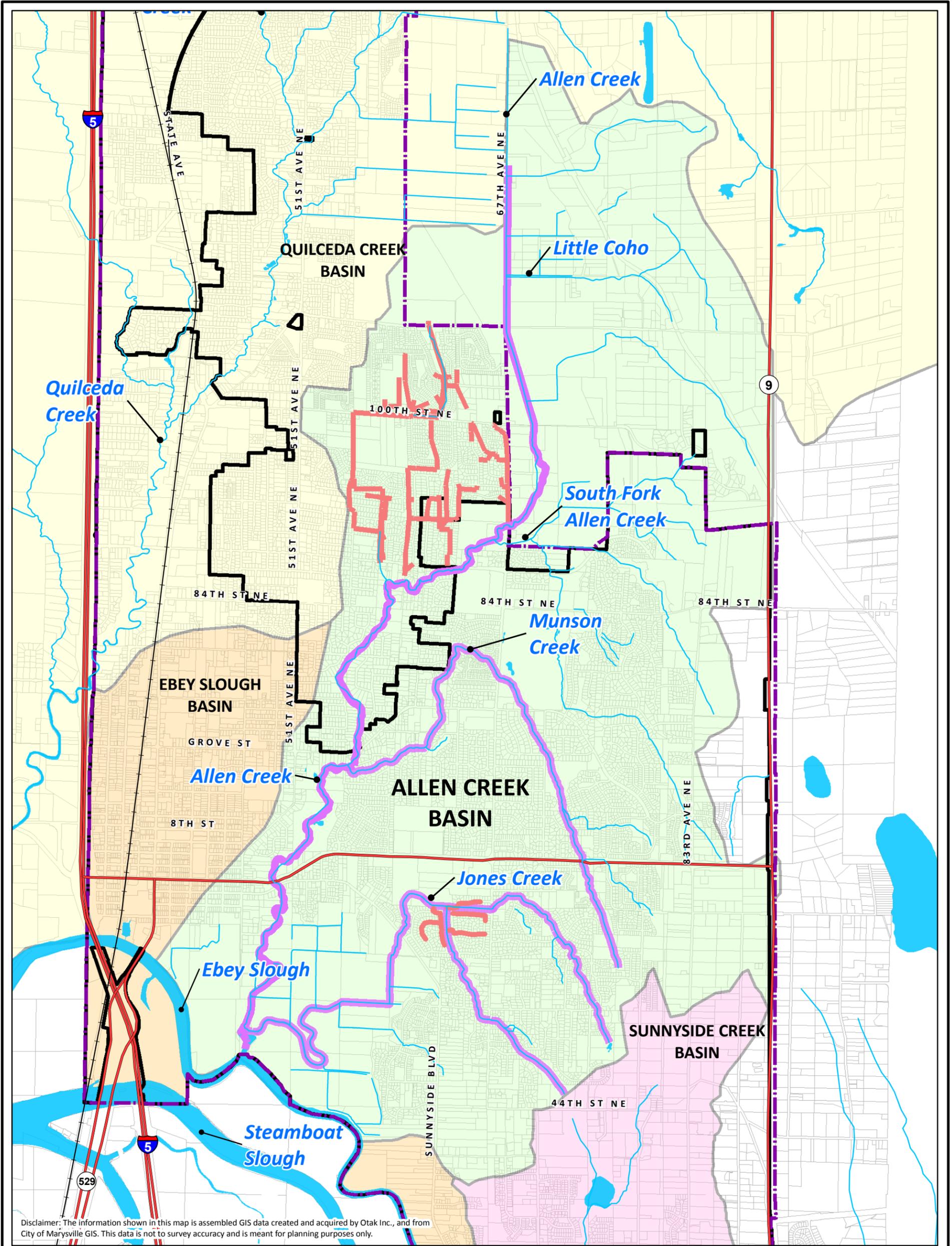
2.3.5 Proposed CIPs

To address stormwater deficiencies within the Allen Creek basin, nine high priority problem areas are identified as capital improvement projects (CIPs). The CIPs for the Allen Creek basin are listed below in Table 2.3.B and shown in Figure 2.1.N. Projects with high rankings (5 being the highest) were analyzed in greater detail. Summary sheets, project photos, project schematics and cost estimates were developed for each of these projects and are included in Appendix 2.3.B.

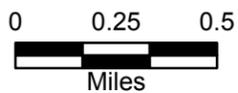
Table 2.3.B: Allen Creek CIPs

ID #	Project	Rank	Cost
AC-JC-09	Jones Creek Flood Damage Repairs - Sunnyside Neighborhood	5	\$619,000
AC-AC-15	Brashler's Industrial Park Flooding	4	\$1,756,000
AC-JC-11	Storm Drain Replacement at 60th Pl. NE- Sunnyside Neighborhood	4	\$457,000
AC-AC-01	Stream Restoration & Land Acquisition west of 60th Dr. NE (Allen Creek)	3	\$230,000
AC-AC-03	Culvert Replacement and Erosion Control Measures at 88th St. NE	3	\$324,000
AC-AC-10	Storm Drain Replacement at 95th St. NE and 67th Ave. NE	3	\$176,000
AC-AC-13	Culvert Replacement at 55th Ave. NE (Allen Creek)	3	\$337,000
AC-AC-14	Culvert Replacement at 80th St. NE (Allen Creek)	3	\$230,000
AC-JC-12	Storm Drain Replacement at 61st St. Cul-de-Sac- Sunnyside Neighborhood	3	\$220,000

Appendix 2.3.A : Sunnyside Neighborhood - Hydrologic and Hydraulic Analysis
Appendix 2.3.B : Allen Basin - CIP Project Summary Sheets, Cost Estimates and Schematics



Disclaimer: The information shown in this map is assembled GIS data created and acquired by Otak Inc., and from City of Marysville GIS. This data is not to survey accuracy and is meant for planning purposes only.



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- RAILROAD
- STREAMS
- MODEL COVERAGE
 - HEC-RAS
 - XPSWMM
- MARYSVILLE CITY LIMITS (2008)
- URBAN GROWTH BOUNDARY
- PARCEL BOUNDARY
- WATERBODIES
- ALLEN CREEK BASIN
- EBEY SLOUGH BASIN
- QUILCEDA CREEK BASIN
- SUNNYSIDE CREEK BASIN

CITY OF MARYSVILLE

STORMWATER COMPREHENSIVE PLAN

FIGURE 2.3.A

MODEL COVERAGE - ALLEN CREEK



Section 2.4: Sunnyside Creek Basin

2.4.1 Introduction

The Sunnyside Creek basin is third in size of the four basins in the City of Marysville. Located in the southeast corner of the City of Marysville, the Sunnyside Creek basin has an east-west orientation and drains to Ebey Slough via King Creek (known as Sunnyside Creek when the DNR was put together). This section documents the existing site conditions, stormwater deficiencies, and a summary of recommended CIPs for the Sunnyside Creek Basin.



The following Studies and models were referenced during the analysis of the Sunnyside Creek basin.

- Marshlands Tributaries and Sunnyside Creek Drainage Needs Report DNR No. 4, December 2002, Snohomish County Public Works Department Surface Water Management Division

2.4.2 Existing Conditions—Sunnyside Creek Basin

The Sunnyside Creek basin is located within the lower Snohomish River basin along Ebey Slough. The Sunnyside Creek basin has an east-west orientation and is approximately two miles long and about 5.9 miles wide. The basin drains about 6.47 square miles (4,143 acres) of land. Approximately 24 percent (1,000 acres) of the basin area is in the southern portion of the City of Marysville and UGA. The remaining 76 percent is in unincorporated Snohomish County or in the City of Lake Stevens. The conditions documented in this section are primarily focused on the portion of the basin that is located within the Marysville UGA.

2.4.2.1 Topography

The Sunnyside Creek basin is located in the southern portion of the Getchell Plateau. The east-west drainage orientation has creek headwaters in the eastern upland plateau where elevations range from approximately 300-400 feet. Creeks flow west through ravines to sea-level at Ebey Slough. Slopes on the upper plateau are moderate (approximately 3%). West of the upper plateau there is an abrupt transition to very steep slopes (20-30%), then back to generally flat slopes along the Snohomish River valley floor.

2.4.1 Introduction	Page 2.4 - 1
2.4.2 Existing Conditions—Sunnyside Creek Basin.....	Page 2.4 - 1
2.4.3 Deficiencies and Proposed Solutions.....	Page 2.4 - 2
2.4.4 Proposed CIPs.....	Page 2.4 - 2

2.4.2.2 Surface Water and Stormwater Systems

King Creek is the primary drainage in this basin. King Creek headwaters are comprised of two tributaries that confluence in a wetland complex to form King Creek.

Stormwater infrastructure within the Sunnyside Creek basin in the City of Marysville consists primarily of neighborhood conveyance and detention facilities shown in Figure 2.1.E.

2.4.2.3 Land Use and Soils

Existing land use in the basin is principally rural forest tracts and residential, but the basin also includes some commercial in Lake Stevens and agricultural land along Ebey Slough. Land use for the City of Marysville is shown in Figure 2.1.F. The pervious soils in the Sunnyside Creek basin are poorly drained, comprised predominately of Hydrologic Soil Group Type C soils (tokul gravelly loam, Bellingham gravelly loam, and plastic silt loam) and some Type D soil (Norma loam). The SCS delineation of soils for the City of Marysville is shown in Figures 2.1.H and 2.1.I.

2.4.2.4 Critical Areas

Streams and wetlands are listed as critical areas and have protective buffers (Figure 2.1.J). King Creek is classified as a type F (fish bearing) stream and has a corresponding stream buffer width of 150 feet. According to delineated wetland data provided by the City in April 2009, there are 44 acres of wetlands within the City limits in the Sunnyside Creek Basin.

Moderate landslide hazard areas are located in the Sunnyside Creek basin as shown in Figure 2.1.K. Generally, these areas have slopes greater than 15 percent.

2.4.3 Deficiencies and Proposed Solutions

In the Sunnyside Creek basin, key problem areas within the UGA have been identified by the City of Marysville and the Marshlands/Sunnyside DNR. A citywide map of problem locations is provided in Figure 2.1.L. Some of the problem areas were identified as being completed or cancelled. No maintenance problems were identified in this basin.

2.4.4 Proposed CIPs

No high ranking deficiencies were identified in the Sunnyside Creek basin. The CIP identified for this basin is a wetland preservation opportunity as listed in Table 2.4.A and shown in Figure 2.1.N. A summary sheet, project photo, project schematic and cost estimate was developed for this project and is included as Appendix 2.4.A.

ID #	Project	Rank	Cost
SR-SS-01	Sunnyside Wetland Acquisition	3	\$2,440,000

Appendix 2.4.A : Sunnyside Basin - CIP Project Summary Sheet, Cost Estimate and Schematic

Section 2.5: Ebey Slough Basin

2.5.1 Introduction

The Ebey Slough basin is the smallest of the four basins in the City of Marysville. This section focuses on the downtown region of the basin, which is located in the southern portion of the City of Marysville. In the downtown portion of Ebey Slough, the basin has a north-south orientation and drains to Ebey Slough via stormwater conveyance systems. This section documents the existing site conditions, stormwater deficiencies, and provides a summary of recommended CIPs for the Ebey Slough Watershed.

No existing studies or models were referenced during the analysis of the Ebey Slough basin.

At the same time this study was being performed, Marysville was also conducting a Downtown Master Plan. The Marysville Downtown Master Plan lays out key recommendations and implementation strategies to guide the future growth, development, and redevelopment of the downtown study area.

2.5.2 Existing Conditions—Ebey Slough Basin

The Ebey Slough basin is located within the south-central part of the City and encompasses downtown Marysville. The basin drains about 2.0 square miles (2,170 acres) of land. This study focuses primarily on the downtown sub-basin (840 acres). The Ebey Slough downtown basin has a north-south orientation and is approximately 1.6 miles long and one mile wide. Only a small fraction of the downtown basin is outside the City of Marysville within unincorporated Snohomish County.



2.5.2.1 Topography

The Ebey Slough basin is found within the Marysville Trough. The basin extends from Ebey Slough in the south at approximately a 0.6 percent slope to a maximum elevation of 60 feet in the north. The basin is bordered by Interstate 5 to the west, Quilceda Creek basin to the west and north, and the Allen Creek basin to the east.

2.5.2.2 Surface Water and Stormwater Systems

Within the Ebey Slough basin there is no major surface water conveyance and drainage is provided by stormwater infrastructure. There are stormwater trunk lines along most major north-south streets that convey water to one trunk line along Delta Street. The basin has two outfalls into Ebey Slough with the largest from the Delta Street trunk line, as shown in Figure 2.1.E. The Ebey Slough Basin is unique in that the City can

2.5.1 Introduction	Page 2.5 - 1
2.5.2 Existing Conditions—Ebey Slough Basin.....	Page 2.5 - 1
2.5.3 Deficiencies and Proposed Solutions.....	Page 2.5 - 2
2.5.4 Analysis of Stormwater System Deficiencies	Page 2.5 - 2
2.5.5 Proposed CIPs.....	Page 2.5 - 3

utilize the Snohomish River’s flow control exemption via discharging to Ebey Slough. The 2005 Department of Ecology Manual includes the Snohomish River on the “Exempt Surface Waters” list and therefore no flow control is required prior to discharge.

2.5.2.3 Land Use and Soils

Existing land use in the basin is principally commercial and residential. Land use for the City of Marysville is shown in Figure 2.1.F. The pervious soils in the Ebey Slough downtown subbasin are highly pervious, Hydrologic Soil Group Type A soils that produce minimal runoff (mostly Ragnar fine sandy loam with some Everett gravelly sandy loam). In the Ebey Slough subbasin, soils are less pervious than downtown. This subbasin has primarily Hydrologic Soil Group Type C soils (Tokul gravelly loam with some Puget silty clay loam), with some Type D (Mukilteo Muck). The SCS delineation of soils for the City of Marysville is shown in Figure 2.1.I.

2.5.2.4 Critical Areas

Streams and wetlands are listed as critical areas and have protective buffers (Figure 2.1.J). Ebey Slough is classified as type S, Shoreline, and has a corresponding buffer width of 25 feet from the City’s western limit to 47th Avenue NE where the buffer width increases to 100 feet. According to delineated wetland data provided by the City in April 2009, there are 106 acres of wetland within the City limits in the Ebey Slough basin.

Moderate landslide hazard areas are located in the Ebey Slough subbasin, as shown in Figure 2.1.K. Generally, these areas have slopes greater than 15 percent.

2.5.3 Deficiencies and Proposed Solutions

In the Ebey Slough basin, several key problem areas have been identified by public survey and the City of Marysville staff. A citywide map of problem locations and maintenance projects is provided in Figure 2.1.L. Some of the problem areas were identified as being completed, cancelled or maintenance projects. Two maintenance projects for the Ebey Slough basin are shown below in Table 2.5.A.

ID #	Project
ES-DT-02	Ponding at 47th Ave. NE
ES-DT-08	Flooding Maintenance at Columbia Ave.

2.5.4 Analysis of Stormwater System Deficiencies

Only one deficiency was identified within the Ebey Slough basin. The deficiency was ranked low priority as shown on Table 2.1.E in Section 2.1.

An analysis of the downtown conveyance system was performed to determine if additional capacity was available to help alleviate capacity problems in nearby neighborhoods.

2.5.4.1 Hydrologic and Hydraulic Analysis

This section provides a brief description of the hydrologic and hydraulic analyses performed in the Ebey Slough basin. Modeling efforts include creating new models to analyze the existing downtown conveyance system. The model coverage areas are shown in Figure 2.5.A. The hydrologic and hydraulic modeling and results are briefly described below and an overall synopsis is included in Appendix 2.5.A.

Hydrology

Hydrology for the Ebey Slough basin was not available from Snohomish County because the downtown region is not tributary to the creeks that the County studied when they completed the DNRs. A WWHM model was created as part of this study and flows were extracted for use as input for the hydraulic analysis.

Hydraulics

Hydraulic analysis in the Ebey Slough basin was performed using XP-SWMM. The purpose for this analysis was to determine if additional capacity was available in the existing system such that areas currently draining to drywells could connect to the existing downtown system if the drywells silt in and fail in the future. This model was created with as-built data and survey data. Analysis found that there is not additional capacity available in the existing system and additional areas should not be connected.

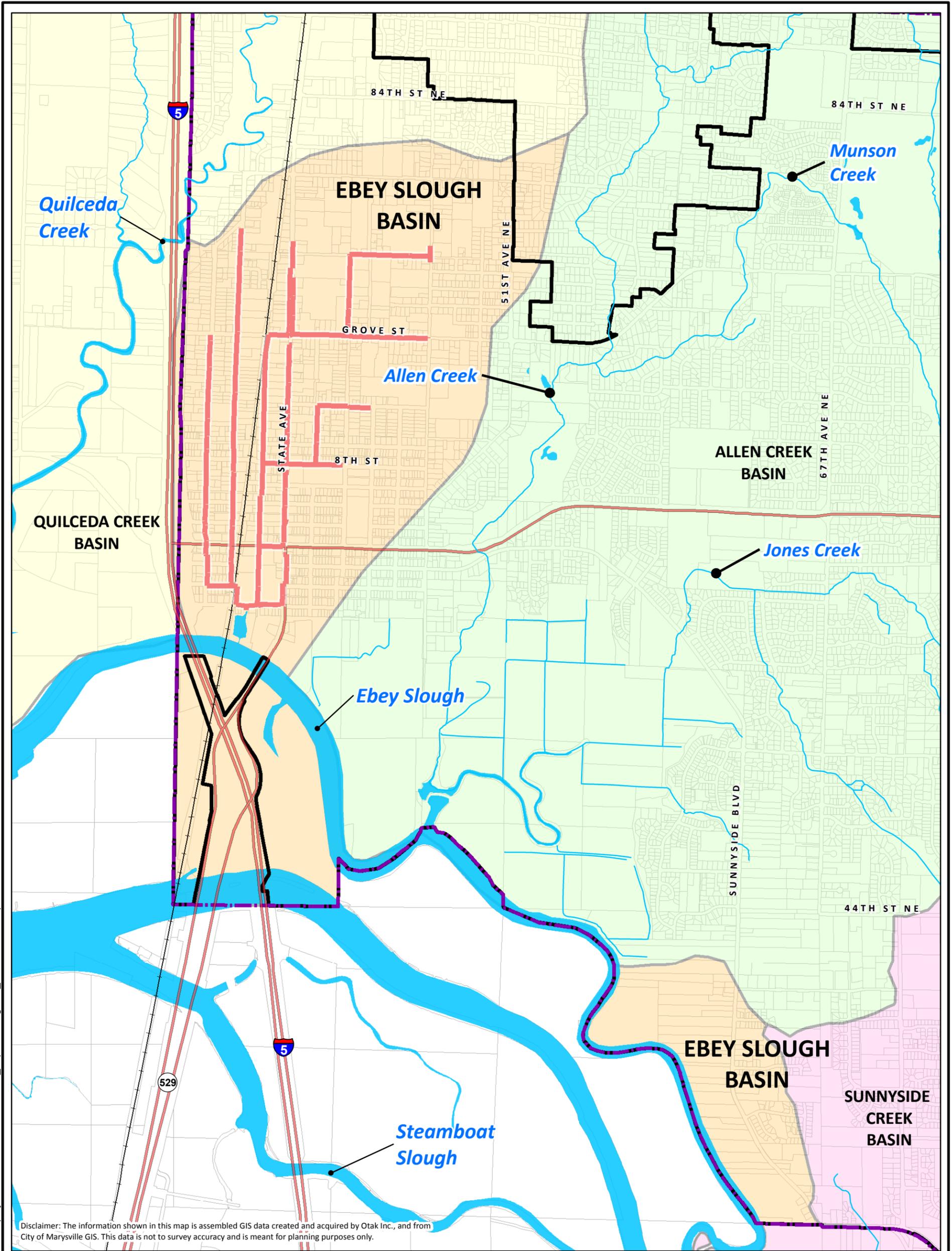
2.5.5 Proposed CIPs

No deficiencies in the Ebey Slough basin ranked high enough to become a capital improvement project.

Appendix 2.5.A : Downtown - Hydrologic and Hydraulic Analysis



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Disclaimer: The information shown in this map is assembled GIS data created and acquired by Otak Inc., and from City of Marysville GIS. This data is not to survey accuracy and is meant for planning purposes only.



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LEGEND

- RAILROAD
- STREAMS
- MODEL COVERAGE**
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- QUILCEDA CREEK BASIN
- SUNNYSIDE CREEK BASIN

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STORMWATER COMPREHENSIVE PLAN

FIGURE 2.5.A

MODEL COVERAGE - EBHEY SLOUGH



Chapter 3

Table of Contents

Chapter 3: Regulatory Compliance	3 - 1
3.1 Stormwater Management Requirements	3.1 - 1
Table 3.1.A: Report Submittals & Compliance Dates.....	3.1 - 8
Figure 3.1.A: Phase II Permit Requirement Implementation Schedule	3.1 - 7
3.2 City's Existing Surface Water Management Program.....	3.2 - 1
Table 3.2.A: Existing SWM Program Staffing and Expenditures Summary.....	3.2 - 10
Table 3.2.B: CIP Projects Funded in 2008.....	3.2 - 17
Table 3.2.C: Summary of Additional Activities	3.2 - 18
Figure 3.2.A: Watershed Map.....	3.2 - 21
Figure 3.2.B: SWM Program Resource Allocation Chart	3.2 - 5
Figure 3.2.C: Mapped Stormwater System North	3.2 - 22
Figure 3.2.D: Mapped Stormwater System South.....	3.2 - 23
Figure 3.2.E: CIP Project Location Map.....	3.2 - 24
3.3 Regulatory Gap Analysis.....	3.3 - 1
3.4 Program Activities and Costs	3.4 - 1
Table 3.4.A: Total SWM Program Costs (in thousands)	3.4 - 5
Table 3.4.B: Additional Staffing and Expense Needed with UGA Annexation for 2010-2015.....	3.4 - 7

Section 3.1: City's Surface Water Management Requirements

3.1.1 Section Overview

This section outlines the City of Marysville's Surface Water Management (SWM) Program including upcoming regulatory requirements of each stormwater-related obligation and applicable milestone completion dates. A detailed breakdown of the required activities and implementation dates is included in a spreadsheet entitled "Stormwater Management Program Regulatory Requirements and Milestone Dates"(refer to Appendix 3.1.A). This information is used as background to conduct an existing program analysis and a stormwater regulatory gap analysis, which will compare the City of Marysville's existing stormwater activities against the various activities required by federal, state, and local regulations and plans.



3.1.1.1 Background

The City of Marysville is known for its strong economy, parks and recreation system, urban design projects, and first-class schools. Marysville is located in Snohomish County about 35 miles north of Seattle and about 12 miles north of Everett. Marysville has a population of 36,260 residents and is 16.4 square miles in size.



Marysville has responded well to the challenges of serving its growing population in an evolving regulatory environment. In the area of surface water management, Marysville is currently subject to the requirements of the following:

- Phase II Permit issued January 17, 2007,
- Lower Snohomish River Tributaries Fecal Coliform Total Maximum Daily Load (TMDL) June 2003,
- Underground Injection Control (UIC) Rule,
- Endangered Species Act (ESA) and associated salmon recovery planning,
- 2000 Puget Sound Water Quality Management Plan, as defined in the 2007 to 2009 Puget Sound Conservation and Recovery Plan.

3.1.1 Section Overview	Page 3.1 - 1
3.1.2 NPDES Phase II Stormwater Permit	Page 3.1 - 2
3.1.3 Underground Injection Control (UIC) Rule	Page 3.1 - 8
3.1.4 Endangered Species Act and Water Resource Inventory Area Planning	Page 3.1 - 9
3.1.5 The 2000 Puget Sound Water Quality Management Plan and the 2007-2009 Puget Sound Conservation and Recovery Plan	Page 3.1 - 11
3.1.6 Conclusions	Page 3.1 - 13

3.1.2 NPDES Phase II Stormwater Permit

3.1.2.1 Background

The City of Marysville has been identified by the Washington State Department of Ecology (Ecology) as a Phase II Permit community. As such, Marysville must comply with the requirements of its recently issued National Pollutant Discharge Elimination System and State Waste Discharge General Permit for Discharges from Small Municipal Separate Storm Sewers in Western Washington, hereafter referred to as the Phase II Permit.



The Phase II Permit outlines stormwater program activities and implementation milestones that Marysville must follow beginning February 16, 2007 in order to comply with federal law. All Phase II Permit communities are expected to develop a stormwater program that includes all of the required activities, implement those activities within the required timeframes over the five year permit cycle (i.e. 2007 through 2012), and submit annual reports to Ecology to document progress toward complete program implementation.

3.1.2.2 Permit Coverage

The Phase II Permit applies to cities with populations greater than 1,000, which are located within an urbanized area, and are operating a municipal separate storm sewer system (MS4) which discharges to a water of Washington State. As a Phase II Permit community, the requirements of the Phase II Permit apply throughout the entire incorporated area of Marysville. The coverage does not include the UGA.

3.1.2.3 Permit Timeline

The Phase II Permit was issued by Ecology on January 17, 2007, and became effective on February 16, 2007. The permit is applicable to a five-year period that expires on February 15, 2012. The calendar year for the permit requirements is February 16 to February 15; however, the calendar year for the reporting requirements for the permit is January 1 to December 31. The Phase II Permit is expected to be reviewed and renewed for a second five-year period starting in 2012.



3.1.2.4 Permit Requirements

Summaries of the major program elements, key milestones and reporting requirements are included below. Please refer to the spreadsheet in Appendix 3.1.A for more detailed review of Phase II Permit requirements, compliance activities, and due dates.

3.1.2.5 Major Program Elements

To aid in tracking Phase II Permit requirements, activities have been grouped into ten major storm water management program elements. These elements coincide with five Special Conditions (5, 7, 8, 9 and Appendix 2) and their sub-elements plus the TMDL for Lower Snohomish River Tributaries. These are outlined in Appendix 3.1.A as follows:

Element 1: Program Implementation, Special Conditions S5.A and S5.B

- 1.1 SWM Program Implementation
- 1.2 SWM Program Documentation
- 1.3 Program Tracking
- 1.4 Coordination Among Permittees
- 1.5 Maximum Extent Practicable (MEP) and All Known Available and Reasonable methods of prevention, control and Treatment (AKART) requirements

Element 2: Public Education and Outreach, Special Condition S5.C.1

- 2.1 Outreach to Target Audiences and Subject Areas
- 2.2 Measure Results of Educational Activities
- 2.3 Maintain Records

Element 3: Public Involvement and Participation, Special Condition S5.C.2

- 3.1 Input into SWM Program
- 3.2 Availability of Program Documents

Element 4: Illicit Discharge Detection and Elimination (IDDE), Special Condition S5.C.3

- 4.1 Storm Sewer System Map
- 4.2 Illicit Discharge Ordinance
- 4.3 Detection and Elimination Program
- 4.4 Public Education and Spill Reporting
- 4.5 Program Evaluation and Tracking
- 4.6 Staff Training

Element 5: Controlling Runoff from New Development, Redevelopment, and Construction Sites, Special Condition S5.C.4

- 5.1 Stormwater Runoff Control Ordinance
- 5.2 Site Plan Review and Permitting
- 5.3 Long Term Operation and Maintenance



- 5.4 Maintenance Inspection Records
- 5.5 Notice of Intent (NOI) for Construction Activity
- 5.6 Staff Training

Element 6: Pollution Prevention and Operation and Maintenance for Municipal Operations, Special Condition S5.C.5

- 6.1 Establish Maintenance Standards
- 6.2 Annual Inspections of Water Quality and Flow Control Facilities
- 6.3 Spot Checks after Storm Events
- 6.4 Catch Basin Inspection
- 6.5 Road Maintenance
- 6.6 Non-Roadway Property Maintenance
- 6.7 Staff Training
- 6.8 Stormwater Pollution Prevention Plan (SWPPP) for Maintenance Yards
- 6.9 Record Keeping

Element 7: Total Maximum Daily Load Allocations, Special Condition S7

- 7.1 Applicable TMDLs (Total Maximum Daily Loads) in Appendix 2 of the Phase II Permit
- 7.2 TMDLs not listed in Appendix 2 of the Phase II Permit
- 7.3 TMDLs Approved during the Permit Cycle

Element 8: Monitoring, Special Condition S8

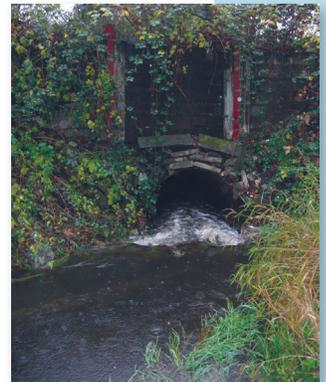
- 8.1 Existing Monitoring
- 8.2 Stormwater Monitoring
- 8.3 SWM Program Effectiveness Monitoring
- 8.4 Annual Reporting

Element 9: Lower Snohomish River Tributaries TMDL (Appendix 2)

- 9.1 Illicit Discharge Detection and Elimination
- 9.2 Monitoring and Implementation Requirements

Element 10: Reporting, Special Condition S9

- 10.1 Annual Reports
- 10.2 Ongoing Tracking
- 10.3 Maintaining Records
- 10.4 Public Access



It should be noted that some of the program elements cover a significant number of activities required for compliance. For example, Element 5.2–Site Plan Review and Permitting includes plan review, permitting of private and public projects, site inspection during and after construction, and enforcement for projects that don’t follow established guidelines. Other elements are fairly straightforward, such as Element 5.5–Notice of Intent (NOI) for Con-

struction Activity, which simply requires that Marysville make copies of Ecology's construction site permit application available to developers.

Some elements may include activities that can be covered by an activity in another category. For example, the public education aspect of Element 4.4–Public Education and Spill Reporting requirements can be covered by focusing the public outreach in Element 2.1–Education and Outreach Program on reducing illegal discharges to the stormwater system and properly managing animal wastes and the use of household detergents. In the same way, many of the major program elements include program tracking, documentation, and reporting activities that are covered by maintaining records and submitting the annual reports as outlined in Element 10–Reporting.



The City of Marysville is also subject to the Lower Snohomish River Tributaries TMDL for fecal coliform. There is a detailed Implementation Plan published by Ecology in June 2003 called the “Lower Snohomish River Tributaries Fecal Coliform Bacteria Total Maximum Daily Load: Detail Implementation Plan.” There is also a June 2007 Quality Assurance Project Plan (QAPP) for the TMDL monitoring requirements published by the City of Marysville. The requirements for the City of Marysville outlined in these documents are addressed in Sections 3.2 and 3.3.

Additional permit conditions, such as Special Conditions S1 through S4 and General Conditions G1 through G20, also apply to the City of Marysville, though they do not result in specific program activities. These additional conditions cover topics such as who is covered by the Phase II Permit, what discharges are authorized under the permit, and legal guidelines for transferring, revoking, and appealing the permit.

3.1.2.6 Key Milestones

As listed in the spreadsheet in Appendix 3.1.A, the Phase II Permit includes implementation deadlines for many of the program elements. The overall milestone is to have the SWM Program fully developed and implemented no later than 180 days prior to the expiration date of the permit, or in about four and a half years from the date of issuance (by August 15, 2011).

The Phase II Permit also includes interim milestones to ensure that communities are working toward full implementation throughout the permit cycle. Interim milestones are typically based on the end of permit years as follows:

End of Year 1	February 15, 2008
End of Year 2	February 15, 2009
End of Year 3	February 15, 2010
End of Year 4	February 15, 2011
End of Year 5	February 15, 2012

Year 1 began on the Phase II Permit issuance date. As an example, the permit requires that the runoff control ordinance and site plan review, permitting, and inspection activities be in place by the end of Year 2.5 (August 15, 2009), but communities have

until the end of Year 3 (February 15, 2010) to implement operations and maintenance activities consistent with Ecology’s 2005 Stormwater Management Manual for Western Washington.

Some program activities have milestone dates set several years into the future. However, the activities required will likely take multiple years to complete, so communities need to plan to be in compliance by the actual milestone date. For example, the deadline to develop a GIS map of the entire MS4 system is the end of Year 4. In order to reach that milestone, Marysville will need to assess its existing mapping coverage, estimate the remaining mapping needs, and divide the remaining work over Years 2 through 4 to reach the implementation deadline.

The Phase II Permit leaves some activities somewhat ambiguous. In particular, staff training in Elements 4.6 and 6.7 require “ongoing training” programs be implemented by the end of Year 3, but the permit does not specify the frequency or extent of the ongoing training. It is recommended that communities develop a training program with sessions offered once or twice each year, covering several topics in each session. Training sessions should start in Year 2 with a goal of addressing all the required topics several times in the permit cycle. In this way, staff that cannot attend the first offering of a training topic will have other chances to be trained before the end of the permit cycle.

The Phase II Permit also acts as the implementing mechanism for TMDL implementation plans. Appendix 2 of the Phase II Permit identifies the Lower Snohomish River Tributaries TMDL for fecal coliform, and lists Marysville as a municipal permit holder with implementation responsibilities. These responsibilities shown in Element 9 place emphasis on illicit discharge detection and elimination associated with animal waste, the development of a Bacterial Pollution Control Plan (BPCP), and monitoring.

Note: The Phase II Permit is in its second year of the permit cycle, which leaves less time for Marysville to fulfill permit requirements. It will be important in the gap analysis to compensate for shorter time frames to fulfill permit requirements. The next permit cycle beginning in 2012 will continue newly implemented activities, and will likely add new requirements for water quality monitoring including updating BMP design, implementation criteria and standards, as well as addressing any new TMDLs.

Figure 3.1.A shows the Phase II Permit requirements and associated implementation schedule.



Figure 3.1.A: Phase II Permit Requirement Implementation Schedule

	1 2007 ¹	2 2008	3 2009	4 2010	5 2011	6 2012
1. Public Education	[Timeline bar from 2007 to 2012]					
2. Public Involvement and Participation	[Timeline bar from 2007 to 2012]					
3. Illicit Discharge Detection and Elimination	[Timeline bar from 2007 to 2012]					
Hotline for spills	[Timeline bar from 2007 to 2012]					
Adopt IDDE ordinance and training	[Timeline bar from 2007 to 2009]					
IDDE training and prioritize local waters	[Timeline bar from 2007 to 2010]					
Create inventory map, develop field assessments, implement IDDE program, and public education	[Timeline bar from 2007 to 2011]					
4. Development, Redevelopment, and Construction Site Runoff	[Timeline bar from 2007 to 2012]					
Adopt ordinances plan reviews, O/M, inspection, and training	[Timeline bar from 2007 to 2012]					
5. Pollution Prevention and O/M for Municipal Facilities	[Timeline bar from 2007 to 2012]					
Establish standards, inspections, BMP's, training, SW pollution prevention plan (SWPPP)	[Timeline bar from 2007 to 2010]					
6. Lower Snohomish River Tributaries TMDL	[Timeline bar from 2007 to 2012]					
7. Monitoring	[Timeline bar from 2007 to 2012]					
Annual reports		■	■	■	■	■ [Timeline bar from 2012 to 2013]
Select water quality sites/Program effectiveness				■		
Future monitoring plan					■	

1. Year 1 2007 is from January 17, 2007 through February 15, 2008

3.1.2.7 Reporting Requirements

The Phase II Permit requires all permittees to submit annual reports to Ecology. The reports should document the SWM Program activities completed in the previous calendar year, the cost to implement the stormwater program, the status of activities under development, and any changes proposed to the existing program. Annual reports are due to Ecology by March 31 of each year. The first annual report (due March 31, 2008) covers the period from the Phase II Permit start (January 17, 2007) through December 31, 2007. Thereafter, annual reports will document activities for the previous calendar year.

The Phase II Permit specifies the reporting submittals and compliance dates for all aspects of the Phase II Permit. Those requirements that apply to the City of Marysville are listed in Table 3.1.A.

Permit Section	Submittal Required	Frequency	First Submittal Date
S5.A	Status report on development and implementation of SWM Program	Ongoing per Appendix 3 of the Phase II Permit	March 31, 2008
S7.A	Status report on TMDL implementation as part of S5.A status report	Annually	March 31, 2008
S8	Monitoring site identification	Once	December 31, 2010
S9.A ¹	SWM Program Annual Report forms per Appendix 3 of the Phase II Permit	Annually	March 31, 2009
G3	Notification of Spill	As Needed	Immediately when a spill is identified
G18	Permit Coverage reapplication	Once	180 days prior to Permit expiration
G20	Non-compliance notification	As needed	Within 30 days of non-compliance

1. Reporting on S5.C is covered under S9.A.

3.1.3 Underground Injection Control (UIC) Rule

3.1.3.1 Applicability

With the passage of the Safe Drinking Water Act by Congress in 1974, the Environmental Protection Agency (EPA) created the Underground Injection Control (UIC) Program as one of the key programs for protecting drinking water sources. In 1984, Ecology received the authority from EPA to regulate UIC wells and adopted the UIC rule, Chapter 173–218 WAC. UIC wells do not include wells that draw water from underground aquifers such as potable water wells. In contrast, a UIC well is a human-made hole that is used to put water or other fluids into the ground. In Washington, most of these wells are used to dispose of septic wastes and stormwater runoff. In January 2006, Ecology adopted revisions to the UIC program rule that went into effect on February 3, 2006. The rule applies to both new and existing UIC wells. Even though UIC wells are used for stormwater management, there is no overlap between the UIC rule and Phase II Permit requirements. Under Special Condition S2.A.1, the Phase II Permit clearly states that, “Discharges to ground waters of the state through facilities regulated under the Underground Injection Control (UIC) program, Chapter 173–218 WAC, are not covered under this permit.”

UIC wells are classified into five types and most are prohibited. Examples of Class V injection wells that are allowed in Washington and that relate to stormwater include drainage wells used to drain surface fluids (primarily stormwater runoff) into or below

the ground surface, such as a drywell or infiltration trench containing perforated pipe. Exemptions from UIC well status include infiltration ponds, dispersion systems, and infiltration trenches that do not contain perforated pipe. Storm drain components that contain perforated pipes, drain tiles, or other similar mechanisms designed and intended to convey water directly or indirectly to a surface water body are not considered UIC wells and are not regulated by the UIC Rule.

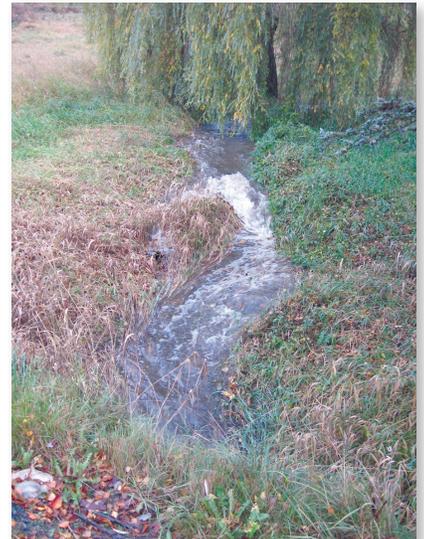
3.1.3.2 Timeline

Timelines for rule compliance vary for existing wells depending on how many wells the jurisdiction is operating. The dates shown here apply to operation of 50 wells or less. For existing wells, Marysville will need to complete registration by February 2, 2009. Existing wells must also be assessed to demonstrate that they meet the non-endangerment standard. Assessments must be completed by February 2, 2011. New wells (built after February 2, 2006) must be registered and must demonstrate compliance with the non-endangerment standard prior to use.



3.1.3.3 Reporting Requirements

The UIC rule requires annual updates to Ecology on well status changes. When decommissioning wells, the rule requires notification to Ecology either 30 days prior (in the case of prohibited wells or wells determined to be an imminent public health hazard) or within one year of closure. Annual updates also must be provided to Ecology on decommissioned wells.



3.1.4 Endangered Species Act & Water Resource Inventory Area Planning

3.1.4.1 Applicability

In 1999, the federal government listed the Puget Sound Chinook salmon and bull trout as threatened in the Puget Sound Region. In May 2007 steelhead trout were added to the list of threatened species. Section 4(f) of the ESA requires that recovery plans be prepared for listed species. Recovery plans are guidance documents, not regulatory documents. They are intended as road maps for species recovery and a tool for decision making throughout the recovery process.

While recovery planning under the ESA is a federal responsibility, Washington State elected to take a proactive approach to salmon recovery. In 1998 and 1999, the state legislature passed the Salmon Recovery Planning Act, the Salmon Recovery Funding Act, and the Watershed Planning Act. The intent behind these acts was to involve local watershed groups in watershed management and habitat protection and restoration. In 1999, Governor Locke adopted the “Statewide Strategy to Recover Salmon: Extinction is Not an Option” and formed the Office of Salmon Recovery. Despite these contributions to salmon recovery, Puget Sound leaders recognized the need to link existing widespread efforts, and with a group of over 150 representatives of federal,



state, and local governments and salmon recovery organizations, created the Shared Strategy for salmon recovery.

The Shared Strategy for Puget Sound was created as a voluntary coalition of federal, tribal, state, and local governments as well as business and environmental organizations to work together to protect and restore regional salmon populations. The National Oceanic and Atmospheric Administration's National Marine Fisheries Service worked with the Shared Strategy to produce an ESA Recovery Plan for Puget Sound Chinook that was adopted on January 19, 2007. Recovery planning for steelhead is in the initial stages and will likely take many years before a plan is produced.

The Puget Sound Salmon Recovery Plan is built on the foundation of 14 local watershed planning areas across Puget Sound with a tailored approach for recovery based on local characteristics. In addition, the Plan also includes regional strategies and commitments to address cross-watershed issues at the regional, state, and federal levels. In terms of the regional strategies, the Plan asks local governments to enforce and update existing environmental laws using watershed information as Best Available Science, continue contributing funds for the implementation phase of recovery, and help broaden public and legislative awareness and support.



The June 2005 Snohomish River Basin Salmon Conservation Plan, produced by the Snohomish Basin Salmon Recovery Forum, serves as the local watershed plan (which includes the City of Marysville), and guides the City of Marysville's salmon protection and restoration efforts. Built on the foundation of cooperative effort, its members represent the variety of perspectives found in the basin, including local government. The plan is one part of a regional effort taking place over the next decade to ultimately recover Chinook

salmon populations in Puget Sound using a scientifically based and feasible course of action to address recovery needs in the areas of habitat, harvest, and hatcheries. (Refer to the spreadsheet in Appendix 3.1.A—Element 13).

Concurrently with the ESA salmon recovery planning, local governments responded to these listings by establishing policies and practices to protect and restore these fish populations and their habitat. The Watershed Planning Act (RCW 90.82) provides local governments with a framework and resources for developing local solutions to watershed issues on a watershed basis. The Department of Ecology and other state resource agencies frequently use a system of 62 "Water Resource Inventory Areas" or "WRIAs" to refer to the state's major watershed basins. These WRIA or watershed plans are required to address water quantity with optional elements of water quality and habitat.

In order to integrate salmon recovery planning into watershed planning, 12 state agencies signed a Memorandum of Understanding for the coordinated implementation

of the Watershed Planning Act and the Salmon Recovery Planning Act. The Memorandum clarifies roles and responsibilities, fosters cooperative working relationships between state agencies, local and tribal governments, and, where possible, simplifies implementation procedures. The WRIA watershed planning is used as a tool to integrate water resource planning issues, including salmon protection and recovery.

The City of Marysville is included in WRIA 7, the Snohomish River Basin watershed. A Phase I watershed grant application was prepared with the Tulalip Tribes and City of Everett as co-leads, but never completed and a watershed plan was not awarded. Consequently, no watershed planning was conducted and a watershed plan was not developed.

3.1.4.2 Timeline

The ESA Recovery Plan for Puget Sound Chinook and the Snohomish River Basin Salmon Conservation Plan are both based on a ten year implementation horizon that spans 2006 to 2015. The Plans recognize that salmon recovery is a long-term process which is viewed as a dynamic and evolving initiative. As such, the Plans lay out the framework for monitoring and adaptive management strategies to guide recovery efforts beyond 2015.

3.1.4.3 Reporting Requirements

The ESA Recovery Plan for Puget Sound Chinook and Snohomish River Basin Salmon Conservation Plan reporting and feedback structure for implementation evaluation is dependent on the regional structure and organization. This is yet to be determined by Shared Strategy and/or state and federal agencies.

3.1.5 The 2000 Puget Sound Water Quality Management Plan and the 2007–2009 Puget Sound Conservation and Recovery Plan

3.1.5.1 Applicability

The Puget Sound Water Quality Management Plan (PSWQMP) is Washington State's long-term strategy for protecting and restoring Puget Sound. The management plan provides the framework for managing and protecting the Sound and coordinating the roles and responsibilities of federal, state, and local governments.

To coordinate government actions for protecting and restoring the Sound, the legislature enacted Chapter 90.71 RCW, Puget Sound Water Quality Protection, which established the Puget Sound Water Quality Action Team, the Puget Sound Council, and a governor appointed chair who manages both of these. Together, the Action Team and Council have periodically reviewed and updated the management plan to reflect changing issues, advances in technology, public expectations, and political and budgetary concerns. The management plan gives governmental entities specific assignments



based on the nature of their missions and authority. Refer to the spreadsheet in Appendix 3.1.A (Element 15) for more detailed analysis.

3.1.5.2 Timeline

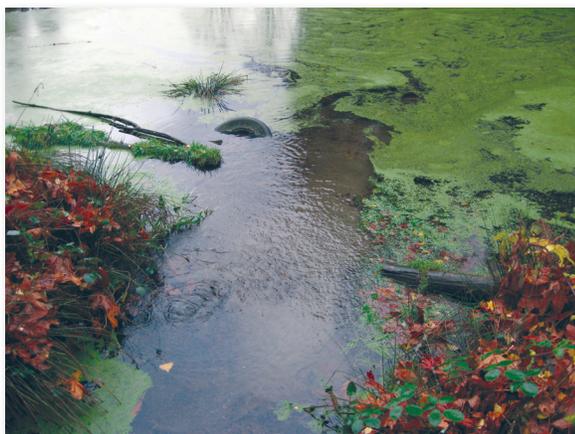
In accordance with Chapter 90.71 RCW, each biennium the Action Team has prepared a Puget Sound work plan prescribing the necessary federal, state, and local actions needed to maintain and enhance Puget Sound water quality.

In terms of future compliance requirements, the Washington State Legislature recently passed legislation abolishing the Puget Sound Action Team and creating a new Puget Sound Partnership to coordinate and to lead the effort to restore and protect Puget Sound. The Partnership consists of a Leadership Council, Executive Director, Ecosystem Coordination Board, and a Puget Sound Science Panel. The Partnership's charge is to define a strategic action agenda that prioritizes necessary actions that are based on science, and includes clear, measurable goals for the recovery of Puget Sound by 2020. The action agenda was adopted in December 2008. However, until that time the existing PSWQMP and its biennial PSCRPs remain in effect. This action agenda and implementing strategies will likely include recommendations that will need to be considered in future Marysville work plans and SWCP updates.

The 2007 to 2009 Puget Sound Conservation and Recovery Plan (PSCRPs) identifies reducing the harm from stormwater runoff as a priority. The Action Team's strategy for addressing this priority includes action by local governments to increase the use of innovative techniques such as Low Impact Development, and implementation of comprehensive stormwater programs. Element SW-1.2 of the 2000 PSWQMP calls out thirteen specific requirements of local comprehensive stormwater programs, ten of which are fully or partially addressed by the Phase II Permit requirements, as noted in Elements 1 through 10 in the attached spreadsheet. The three specific components required by the PSWQMP not covered by Phase II Permit requirements include identification and ranking of problems, watershed or basin planning, and funding.

3.1.5.3 Reporting Requirements

Action Team staff have been responsible for tracking the implementation of the biennial work plan, as well as the overall water quality management plan, through the



adoption of local comprehensive stormwater programs, timely issuance of Phase II Permits, case studies of program effectiveness, and performance of environmental conditions. No reporting requirements are specified for local governments at this time. Rather, local governments are expected to implement the management plan by planning at the watershed level, and through public education and involvement, policies, comprehensive land use plans, capital facilities plans, and development regulations. Local governments are also expected to monitor, evaluate, and improve their individual programs over time using adaptive management.



3.1.6 Conclusion

3.1.6.1 National Pollutant Discharge Elimination System Phase II Permit

As a Phase II Permit community, the City of Marysville is covered under Ecology's Phase II Permit for small MS4s. The permit outlines stormwater program activities that must be implemented based on scheduled milestone dates. The program activities can be grouped into ten major program elements.

The activities and milestone dates outlined in the Phase II Permit create a strong impetus for developing a comprehensive citywide stormwater management plan that will meet all of the program requirements during the permit cycle. The City of Marysville will need to pay especially close attention to those activities whose milestone dates are several years away, and start them early to ensure that sufficient time is allocated to complete them on schedule.

Marysville has submitted and Ecology has approved its QAPP associated with the Lower Snohomish River Tributaries TMDL for fecal coliform. Marysville has been conducting water quality monitoring since 2004, and has updated its QAPP to reflect the requirements of the TMDL. The City is conducting water quality monitoring in accordance with its QAPP.

3.1.6.2 Underground Injection Control Rule

The City of Marysville is not aware of any publicly owned UICs.

3.1.6.3 Endangered Species Act and Water Resource Inventory Area Planning

The City of Marysville has taken an active role in ESA compliance through the Salmon Recovery Forum. ESA related stormwater management is being addressed through the Phase II Permit and other regional implementation plans. Watershed planning was not conducted in WRIA 7.

3.1.6.4 2000 Puget Sound Water Quality Management Plan and 2007–2009 Puget Sound Conservation and Recovery Plan

These plans complement each other, and require a variety of actions that duplicate many of the actions called out in Phase II Permit requirements or in WRIA watershed

and salmon conservation plans. Phase II Permit requirements call for Marysville to develop a Stormwater Management Plan that addresses 10 of the 13 requirements of a comprehensive stormwater program. Two of the remaining components include watershed or basin planning, and identification and ranking of problems that degrade water quality, aquatic species and habitat, and natural hydrologic processes. The last component is funding. Watershed planning has been conducted for the Quilceda/Allen Watershed. Update to Marysville's current surface water comprehensive plan and the establishment of adequate ongoing funding for program activities should be sufficient for the City of Marysville to meet current compliance requirements of the PSWQMP.

Appendix 3.1.A: Stormwater Management Program Regulatory Requirements and Milestone Dates

This section outlined Marysville's surface water management program regulatory requirements of each stormwater-related obligation and applicable milestone completion dates. This information is used as background to conduct an existing program analysis of stormwater activities presented in Section 3.2.

Section 3.2: City's Existing Surface Water Management Program

3.2.1 Section Overview

This section documents Marysville's existing Surface Water Management (SWM) Program, including annual funding, staffing, SWM activities, equipment, capital projects, and legal authorities. Specifically, this section evaluates existing activities, services, staffing, and levels of funding with regard to regulatory requirements, capital needs, and other local commitments. It also highlights areas for possible enhancement to meet NPDES Phase II Permit requirements. Capital Improvement Projects are included in Chapter 2 of this report.

3.2.2 Background Conditions and Surface Water Planning

As shown in Figure 3.2.A, the surface water from Marysville flows primarily to the south, with most drainages discharging directly into Ebey Slough along the lower reaches of the Snohomish River. The major drainage basins within Marysville include portions of the Quilceda, Allen, Sunny Ravines, and Ebey Slough watersheds.

An analysis of existing services, staffing, and levels of funding relative to regulatory requirements, capital needs, and other commitments allows Marysville to take credit for those existing activities that meet the Clean Water Act NPDES Phase II Permit requirements, and to identify those areas where new or enhanced activities are needed.

3.2.3 Methods of Analysis

An analysis of existing services, staffing, and levels of funding relative to regulatory requirements, capital needs, and other commitments allows Marysville to take credit for those existing activities that meet the Clean Water Act NPDES Phase II Permit requirements, and to identify those areas where new or enhanced activities are needed. This analysis is based on data and documents received from Marysville, a Stormwater Questionnaire completed by City staff, interviews with Marysville's Surface Water Program Engineer and other City staff, and the regulatory compliance criteria presented in Marysville's NPDES Phase II Permit as issued by the Washington State Department of Ecology (Ecology) on January 17, 2007.

3.2.3.1 Data and Documents

Based on the SWM Data Request (Appendix 3.2.A) submitted to Marysville on October 16, 2007, information on Marysville's existing stormwater program was collected, analyzed, and recorded. This information included:

- Marysville's Comprehensive Plan (April 2005)
- 2003 Surface Water Management Plan and Surface Water Rate Study
- Draft Operation and Maintenance Plan (December 2006)
- Public Works 2007/08 organization chart

3.2.1 Section Overview.....	Page 3.2 - 1
3.2.2 Background Conditions and Surface Water Planning.....	Page 3.2 - 1
3.2.3 Methods of Analysis	Page 3.2 - 1
3.2.4 History and SWM Program Evolution	Page 3.2 - 2
3.2.5 City's Existing Surface and Stormwater Program.....	Page 3.2 - 4
3.2.6 Summary of Existing Program Strengths and Opportunities for Enhancement.....	Page 3.2 - 18

- Marysville’s current staffing and budget information
- Lower Snohomish River Tributaries Fecal Coliform Bacteria Total Maximum Daily Load (TMDL) Detailed Implementation Plan (June 2003) and its associated Quality Assurance Program Plan (QAPP), (December 2007)
- Marysville’s 1999 Surface Water Utility Ordinance No.1815
- Marysville’s public education brochures
 - Car Wash Flyer
 - Earth Day Flyer
 - Pet Waste Flyer
 - Surface Water Educational Brochure
 - Surface Water Reader Board Brochure
 - Water Quality Kit Information



This information was supplemented by data downloaded from various agency sources, including Ecology and Snohomish County. Marysville’s website also provided general information about its existing SWM Program, including the Marysville Municipal Code (MMC) and regional/local salmon recovery efforts.

3.2.3.2 Stormwater Questionnaire

In October 2007, a Stormwater Questionnaire was developed and distributed to the City to identify current City programs and activities and to develop a base line understanding regarding Marysville’s existing stormwater management activities, procedures, and policies. The questionnaire was organized by each of the requirements of Marysville’s NPDES Phase II Permit. It was completed by various City staff including the Surface Water Program Engineer, the Water Quality Manager, the Public Works (PW) Financial Analyst, a Surface Water Technician, and other Public Works staff. A copy of the Stormwater Questionnaire, with responses provided by City staff, is included as Appendix 3.2.B.



3.2.3.3 Staff Interviews and Regular Conference Calls

Based on information obtained through the Stormwater Questionnaire and the other sources listed above, follow-up discussions were conducted with Marysville’s Surface Water Program Engineer, a Senior Planner in Community Development, the PW Financial Analyst, and the PW Fleet Operations Manager. These discussions allowed for clarification of many of the specific details of Marysville’s existing programs, funding, staffing, and levels of service. Weekly or bi-weekly phone calls were also held with the Surface Water Program Engineer throughout this and other phases of the SWM planning process in order to make the policy, staffing, and resource allocation decisions needed to develop the updated SWM Program.

3.2.4 History and SWM Program Evolution

3.2.4.1 SWM Program Development: 2003 and 2008 Updates

The City of Marysville has had an ongoing SWM Program for over twenty years. In 2003, an analysis was conducted and a report prepared called “*City of Marysville Surface Water Management Plan and Surface Water Rate Study*”. This document provided a review

of Marysville's existing stormwater management plan and recommended a Surface Water Management Program.

The document presented capital facilities needed to accommodate existing and future growth, and proposed a regulatory compliance strategy to address federal and state stormwater requirements in effect at the time, including the Puget Sound Water Quality Management Plan. The report included a series of recommended enhancements, an estimate of needed resources, costs and funding mechanism(s), and a prioritized implementation plan for activities and projects. The report also outlined a future vision for Marysville to work cooperatively with the County and other appropriate agencies to respond to the needs of future development throughout the region.

This current SWM Program analysis is part of Marysville's ongoing effort to review and update its SWM Program. At this time, its emphasis is on addressing the new requirements of the NPDES Phase II Permit received by Marysville on January 17, 2007. This current analysis will ensure Marysville complies with current regulatory requirements, while also updating its list of capital needs and ensuring that utility rates and staffing are at adequate levels to achieve compliance and provide support for continued economic development.

3.2.4.2 Utility Formation

The Surface Water Utility was originally formed in 1991 and is jointly administered by the Public Works and Community Development Departments. The purpose of the utility is to finance, acquire, construct, develop, improve, maintain, and operate public stormwater facilities to help prevent flooding, reduce local drainage problems, and improve water quality and habitat. Since 1991, the County has remitted funds collected within Marysville's utility boundaries to Marysville on a quarterly basis under an Interlocal Agreement. This agreement ended in January of 2007, at which time Marysville began collecting its own stormwater fees.

When the Surface Water Utility was established, the surface water fee was set at \$2.85 for the average residential homeowner. In 2004, the residential surface water fee was increased to \$6.00 per month and then in 2005, the fee increased to \$7.00 per month. In 2006, the residential surface water fee was increased to \$8.00 per month, where it remained through 2008. In 2007, the City changed the billing structure for both residential and nonresidential customers and based it on Equivalent Residential Units (ERUs). A single ERU is based on 3,200 square feet of impervious area. The ERU is used to relate a base rate fee charged to a single-family residential parcel to that which is charged to a non-residential parcel. For non-residential customers, the rate is determined based on the relative number of ERUs and percent of impervious area.

Marysville's SWM Program is still primarily funded through this SWM Utility fee. Annual revenue collections amounting to \$2.65M are distributed into the City's Storm Drainage Account. To date, utility and developer fees, along with occasional revenue

Marysville's SWM Program is still primarily funded through this SWM Utility fee. Annual revenue collections amounting to \$2.65M are distributed into the City's Storm Drainage Account.

bonds and periodic grants, have been used to cover the annual costs of the various SWM Program activities.

3.2.4.3 Organization and Staffing Analysis

Marysville's stormwater activities are performed primarily by the Public Works and Community Development Departments, using a staffing total of 6.47 Full Time Equivalent (FTE), funded by the Storm Drainage Account #450. An additional 2.60 FTE are funded by several other City funds: Standby Account #430, Planning Account #432, Overhead Account #433, Utility Administrative Account #434, Admin-Executive Account #436, and Maintenance of General Plant Account #437. Marysville currently does not use a time card system to help determine how much staff time

is being spent on the various SWM programmatic activities. In this case, Marysville provided a breakdown of SWM Program staffing by account, which is included in Appendix 3.2.D. This information was used to record the allocation of staffing across the various SWM Program elements, as discussed in Section 3.2.5.6.

Marysville's stormwater activities are performed primarily by the Public Works and Community Development Departments, using a staffing total of 6.47 Full Time Equivalent (FTE)

In the Public Works Department a total of 7.84 FTE is devoted to the SWM Program, which includes surface water staff, and administrative, water quality and waste water treatment personnel. In the Community Development Department 0.98 FTE is devoted to the SWM plan, which includes planning and GIS personnel and con-

structions inspectors. There are a total of seven Council Persons who collectively devote 0.25 FTE to the SWM Program. A total of 9.07 FTE is devoted to the SWM Program. Figure 3.2.B shows the resource allocation structure and estimated staffing levels for the City's existing SWM program. For planning purposes, Marysville uses 2,080 hours as the basis of 1.0 FTE.

3.2.5 City's Existing Surface and Stormwater Program

The following summary of Marysville's existing SWM Program focuses on those SWM-related activities that the City is currently performing. A detailed breakdown of Marysville's existing activities related to each of the various permit requirements and other commitments is found in Appendix 3.2.C: *Summary of Existing Stormwater Management Program*. The table reports staff time, expenditures, and funding sources currently used for the existing SWM Program. A summary of the existing SWM Program is included below.

3.2.5.1 Activities and Services Introduction

Marysville's current SWM Program is diverse and already addresses many of the activities needed for regulatory compliance. The existing SWM Program primarily focuses on public education and involvement, maintenance and improvement of its drainage system, review of new development for compliance with stormwater management standards, control of pollution sources and spill response, and conservation and protection of water quality and salmon habitat.

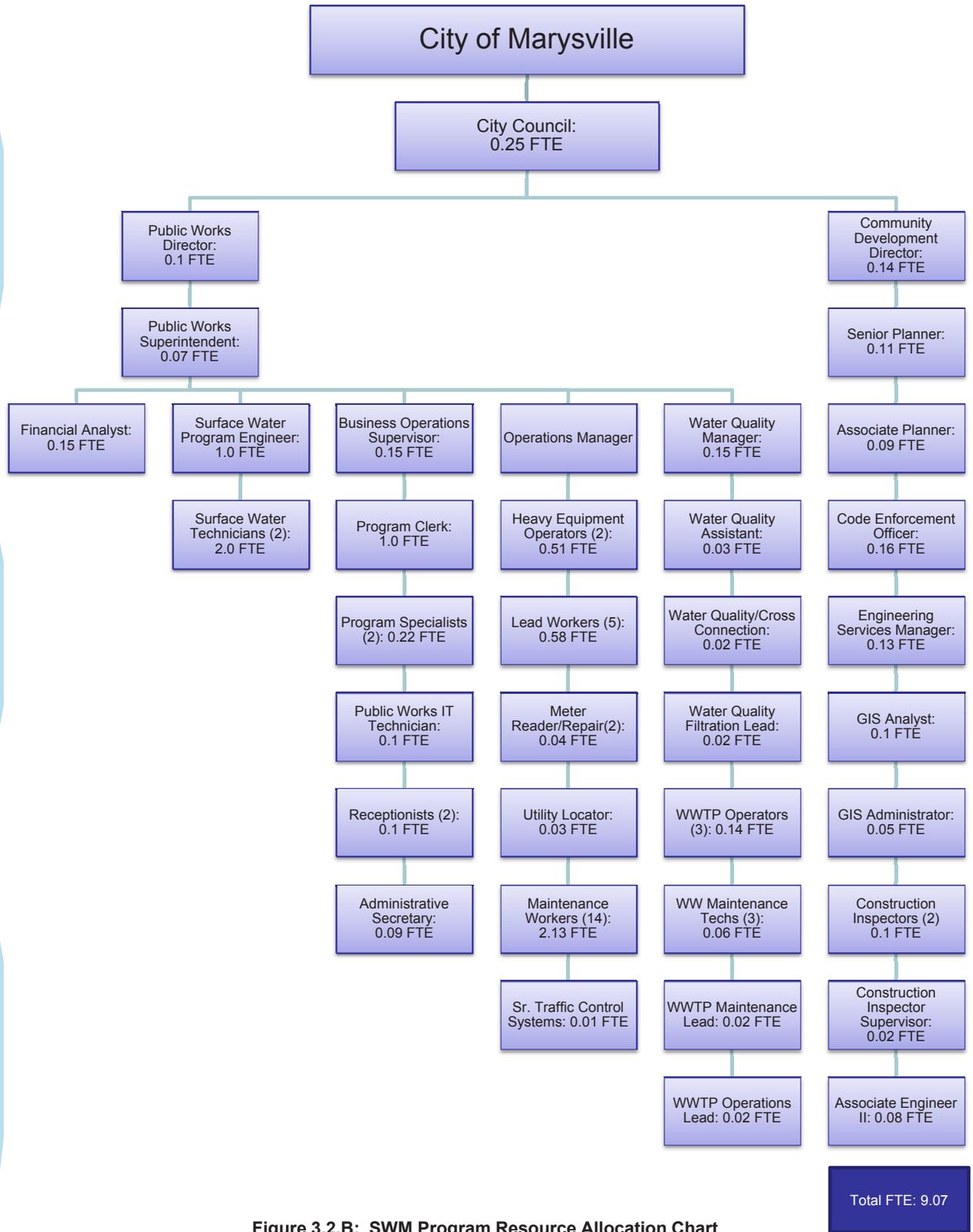


Figure 3.2.B: SWM Program Resource Allocation Chart

3.2.5.2 Existing SWM Facilities

From a budgetary perspective, the majority of the City's current SWM activities relate to the design, installation, and maintenance of the City's stormwater infrastructure. The drainage system within Marysville consists of a network of public and private storm lines and catch basins, roadside ditches, and regional detention systems, along with various private residential and commercial onsite systems. Based on inventory information provided by the City, the City is responsible for maintaining its existing drainage infrastructure, which includes approximately 6,500 catch basins, 100 retention/detention ponds, 40 swales, 10 vaults/tanks, 1.5 miles of stream culverts, 6.5 miles of publicly owned detention pipes, and 114 miles of storm lines of various sizes as shown in Figures 3.2.C and 3.2.D. The entire conveyance system is composed of approximately 122 miles of various mapped conveyance facilities. An inventory and updated mapping of Marysville's drainage system is currently underway by City staff and is nearing completion.

3.2.5.3 SWM Program Management, Direction, and Implementation

Public Works manages the construction of SWM capital improvement projects and maintains all public infrastructure once it has been constructed by developers and accepted by City inspectors. Other SWM-funded activities managed by Public Works include program administration, staff training, spill response, public education, and compliance administration with the City's new NPDES Phase II Permit requirements, as well as with the requirements of the Lower Snohomish River Tributaries TMDL. Public Works personnel also participate on the Allen/Quilceda Watershed Action Team that is working to implement the 1999 Allen/Quilceda Water Plan, which emphasizes water quality monitoring and habitat enhancement.

In 2008, Marysville's SWM operating (\$2.3M) and capital (\$7.6M) needs (including debt service) totaled approximately \$9.9M.

The Community Development Department reviews all new site plans and permit requests for compliance with the MMC, including erosion control and post-construction runoff control. The Community Development Department also manages construction inspection for new development and is responsible for the enforcement of the stormwater aspects of the MMC, including any corresponding violations. All permit tracking is handled by Community Development through a software application called Permits Plus. Community Development also manages the stormwater system mapping and participates in salmon recovery planning.

3.2.5.4 Annual Funding and Budget

Marysville SWM Program funding is divided into two primary categories, operations and capital. In 2008, Marysville's SWM operating (\$2.3M) and capital (\$7.6M) needs (including debt service) totaled approximately \$9.9M. Associated revenues including SWM surface water operating revenue of \$2.7M and capital revenue of \$7.7M totaled \$10.4M in revenues to fund the SWM Program, with the remaining \$0.5M transferred to the fund balance or held in reserve.

Funding for the SWM Program operations comes primarily from three sources totaling \$2,672,800.

1. The Surface Water Utility fee charged to all residents and businesses at the rate of \$8.00 per ERU for 2008, as stated in MMC Title 14.19.050-*Surface Water Utility Rates*. In 2008 the estimated total from the Surface Water Utility fee was \$2,649,900, as calculated by the Gray and Osborne (G&O) financial budget model (G&O financial model) prepared for the City of Marysville. All amounts presented in this section are based on these calculated amounts from the budget model. Marysville has a mechanism to raise rates on an annual basis as stated in MMC Title 14.07.075-*Rate Adjustments*. Beginning in 2006, as part of the budget process, the rates and fees for surface water may be adjusted annually by two percent. Any such adjusted rates and fees become effective January 1st of the new budget year. However, proposed rate increases greater than two percent require a public hearing process prior to adoption.
2. The inter-fund rentals revenues, which totaled \$14,900 in 2008.
3. The revenue from contract services for billing and collection of surface water fees for the City of Arlington, which totaled \$8,000 in 2008.



The funding for the Stormwater Capital Improvement Program came from four sources in 2008 totaling \$7,667,600.

1. Connection charges for regional detention totaling \$663,000.
2. Interest earnings from cash totaling \$108,100.
3. Bond proceeds totaling \$6,500,000.
4. Transfer from the operating fund totaling \$396,500. According to the City, this fourth source of funding will only be tapped if it proves absolutely necessary and should not be counted on.

At the present time, Marysville's SWM Program does not rely on inter-local agreements with any other municipal service providers.

3.2.5.5 Ordinances and Legal Authorities

SWM Program and Utility

In 1999, Ordinance No. 2654 was passed, which formally established Marysville's SWM Program. The City has since codified its SWM requirements within the MMC. Today, Marysville's SWM Program operates primarily through MMC Title 14—*Water and Sewers*. Currently, the MMC does not have a title solely dedicated to stormwater. The City of Marysville is currently working on proposed changes to Title 14—*Water and Sewers* for compliance with its permit and plans to bring ordinance revisions before the Council in the winter of 2009. The establishment of the Surface Water Utility and

fee structure are presented in MMC Title 14.19—*Surface Water Utility*. MMC Titles 14.15—*On-Site Storm Water Drainage Code* (best management practices, private facility maintenance enforcement), 14.16—*Public Storm Drainage System Code* (water quality, public facility maintenance, enforcement), and 14.17—*Private Storm Water Disposal Systems* (private facility maintenance, enforcement).

Water Quality

MMC Title 14.16—*Public Storm Drainage System Code* includes protection of water quality (MMC 14.16.090) and unlawful contamination of stormwater (MMC 14.16.100). MMC Title 14.15—*On-Site Stormwater Drainage Code* adopts the 2001 Ecology Stormwater Management Manual for Western Washington, which includes water quality best management practices and associated design standards for new development and re-development.

In addition to City Code, Marysville has adopted Engineering Design and Development Manual Standards (EDDS). Chapter 4 of the EDDS covers Drainage and Erosion Control Design Standards. The purpose of this Chapter is to implement the City's drainage standards as specified in the MMC. This Chapter also prohibits illicit discharges and provides for enforcement and penalties consistent with MMC Titles 4.0, 14.15, 14.16, 14.17, and 19.28.

Construction Inspection and Maintenance of Facilities

The construction inspection and establishment of maintenance responsibility for both public and private stormwater facilities is addressed in MMC Titles 14.15.120 through 14.15.165. Public facility acceptance and maintenance requirements are addressed in MMC Title 14.16.020 and 14.16.025. Private facility maintenance standards and requirements are addressed in MMC Title 14.17.030 through 14.17.040.

Enforcement

Enforcement of MMC Title 14.15—*On-Site Stormwater Drainage Code* is addressed in MMC Title 14.15.190—*Enforcement*, which references MMC Title 4.0—*Enforcement* that includes enforcement procedures and penalties. Specific penalties associated with public storm drainage systems are also included in MMC Title 14.16.100 for unlawful contamination of stormwater and MMC Title 14.16.140 for damage to storm drainage lines or facilities. For private storm drainage disposal systems, consequences of the failure to perform maintenance are included in 14.17.070.

Further revisions of the MMC may be necessary in order to comply with the Phase II Permit regulations. The need for future code revisions is also identified in the *Summary of Existing Stormwater Management Program* (Appendix 3.2.C) and includes an equivalency review with the 2005 Ecology Manual and more stringent prohibitions for non-stormwater discharges.

3.2.5.6 Existing SWM Program

For the purpose of this planning analysis, Marysville's SWM program has been divided into 17 major SWM Program elements, which are supported by 9.07 FTE. The 17 elements cover Marysville's requirements for the following:

- NPDES Phase II Permit issued January 17, 2007 (Elements 1-7, 10)
- Lower Snohomish River Tributaries Fecal Coliform TMDL June 2003 (Element 9)
- Underground Injection Control (UIC) Rule (Element 11)
- Endangered Species Act (ESA) and associated salmon recovery planning (Element 12)
- Puget Sound Conservation and Recovery Plan (Element 13)
- WRIA 7 Salmon Habitat Recovery (Element 14)
- 2000 Puget Sound Water Quality Management Plan, as defined in the 2007 to 2009 (Element 15)

Please refer to Section 3.1 for a more detailed description of the first 15 elements. Element 16 addresses the Capital Improvement Program (CIP) and Element 17 address additional activities such as equipment, taxes, debt service and other program overhead.

Table 3.2.A provides a summary of the primary activities in each element, associated staffing levels, and associated expenses. Currently, SWM revenue is allocated to eight accounts for SWM Program expenditures. These eight accounts are: Storm Drainage Account (SDA), Utility Administration Account (UAA), Planning Account (PA), Maintenance of General Plant Account (MGPA), Maintenance Equipment Account (MEA), Capital Outlay Account (COA), Storm Drainage Capital Account (SDCA), and Administration Executive Account (AEA). Appendix 3.2.E provides budget back-up information for SWM Program Element expense allocation. Elements 1 through 10 relate to the specific regulatory requirements of the Phase II NPDES Permit.

The top three expenditures include capital projects (\$39,539 + \$7,529,769 = \$7.6M), additional and administrative activities (\$206,467 + 1,456,646 = \$1.7M), and maintenance (\$294,704 + \$155,727 = \$0.5M). This constitutes approximately 98 percent of Marysville's annual SWM program expenditures, with total capital expenditures requiring approximately 76 percent of the total annual budget.

3.2.5.6.1 Overview of Elements

The following sections provide a brief summary of Marysville's existing program by Element corresponding to the table presented in Appendix 3.2.C.

Element 1: Program Implementation (Annual Program/Plan)

Marysville's SWM Program activities are documented in the previous sections. The City has also produced SWM Program documents in conjunction with the annual report to Ecology.

Existing Resources (2008): This is an existing SWM activity for the City that currently requires an allocation of 0.10 FTE at a cost of \$7,730 to the SDA.

Element 2: Public Education and Outreach

Marysville currently has an existing SWM education and outreach strategy. The City currently makes information available to the public in brochures and on their website,

Table 3.2.A: Existing SWM Program Staffing and Expenditures Summary

Program Element	Primary Activity	Staffing FTE (Labor w/benefits)	Expenditure	Account Allocations
1	Program Implementation (Annual Program/Plan)	0.10 (\$7,730)	\$0	Storm Drainage Account
2	Public Education and Outreach	0.10 (\$7,730)	\$10,000	Storm Drainage Account
3	Public Involvement and Participation	0.05 (\$3,865)	\$5,500	Storm Drainage Account and Utility Administration Account
4	Illicit Discharge and Elimination	0.50 (\$38,650)	\$40,000	Storm Drainage Account, Planning Account
5	Controlling Runoff from New Development, Redevelopment, and Construction Sites	0.71 (\$54,883)	\$0	Storm Drainage Account, Planning Account
6	Pollution Prevention and Operation and Maintenance for Municipal Operations	3.81 (\$294,704)	\$155,727	Storm Drainage Account, Utility Administration Account, Maintenance of General Plant Account, Maintenance Equipment Account
7	Total Maximum Daily Load (TMDL) Allocations	0.0 (\$0)	\$0	See Element 9
8	Monitoring	0.0 (\$0)	\$0	None Designated
9	Lower Snohomish River Tributaries TMDL	0.20 (\$15,460)	\$10,000	Storm Drainage Account
10	Reporting	0.0 (\$0)	\$0	None Designated
11	Underground Injection Control	0.0 (\$0)	\$0	Not Applicable
12	Endangered Species Act	0.10 (\$7,730)	\$0	Storm Drainage Account
13	Puget Sound Salmon Recovery Plan	0.31 (\$23,963)	\$0	Storm Drainage Account, Planning Account
14	WRIA #7 Snohomish River Basin Watershed Planning	0.0 (\$0)	\$0	Not Applicable
15	2007-2009 Puget Sound Water Quality Conservation and Recovery Plan	0.0 (\$0)	\$0	None Designated
16	Capital Projects	0.51 (\$39,539)	\$7,529,769	Storm Drainage Capital Account, Capital Outlay Account, Storm Drainage Account
17	Additional Activities (City Specific)	2.67 (\$206,467)	\$1,456,646	Storm Drainage Account, Planning Account, Maintenance of General Plan Account, Maintenance Equipment Account, Administration Executive Account, & Utility Administration Account
Total		9.07 (\$700,719)	\$9,207,643	

including information on how to reduce impacts from car washing and pet waste. The City has also coordinated with local businesses to develop a Clean Water Car Wash Kit.

Marysville is actively participating in public education in cooperation with the Stilly-Snohomish Fisheries Enhancement Task Force to lead an elementary school stormwater education program. In addition, the City makes water quality monitoring equipment available to school districts and other educational groups in Marysville at no cost. The Marysville School District and the Allen/Quilceda Watershed Action Team worked together to dedicate 11.53 acres of a School District-owned parcel adjacent to Jones Creek to be used for the purpose of environmental education, including stormwater management.

Existing Resources (2008): This is an existing SWM activity for the City that currently requires an allocation of 0.10 FTE at a cost of \$7,730 and \$10,000 in expense allocation to the SDA.

Element 3: Public Involvement and Participation

The City of Marysville has public involvement and outreach programs that support some requirements of the NPDES Phase II Permit requirements. Recognizing that public involvement and outreach are vital to the success of the SWM program and compliance with the new NPDES Phase II Permit requirements, Marysville requires public input for the adoption of the Surface Water Management Program. These documents are made available for public review and comment through the City's website, at Council workshops, and at public meetings, which are advertised through the local newspaper.

There is also a long-standing stakeholder advisory panel related to stormwater called the Quilceda/Allen Watershed Action Team, which is comprised of staff from the Department of Ecology, City of Arlington, Snohomish County, Tulalip Tribe, Stilly-Snohomish Fisheries Enhancement Task Force, Conservation District, City of Marysville, and citizens of the watershed. The Action Team was originally created to implement the actions identified in the 1999 Quilceda/Allen Watershed Plan as prepared by Snohomish County and the other municipalities in the watershed. The City hosts a group meeting every other month to discuss issues impacting the Quilceda/Allen watershed.

Marysville plans to continue to address NPDES Phase II Permit requirements by making its SWM Plan and activity reports available to the public on its website.

Existing Resources (2008): This is an existing SWM activity for the City and currently requires an allocation of 0.05 FTE at a cost of \$3,865, including \$5,500 in expense allocation to the SDA and UAA to fund public involvement and participation activities.

Element 4: Illicit Discharge Detection and Elimination (IDDE)

Marysville is making good progress on updating and completing an inventory and mapping of its stormwater infrastructure. The City owns a Trimble Pathfinder Professional sub-meter Global Positioning System, and has used this system over the past

five years to map the majority of its storm sewer system. So far, approximately 75 to 90 percent of structural BMPs have been mapped in ArcGIS using x and y coordinates, as shown in Figures 3.2.C and 3.2.D. Some private storm sewer systems have also been mapped in ArcGIS. Marysville is also utilizing as-built drawings for storm sewer data. These mapping activities are conducted through the Community Development Department, with the SWM Program funding a portion of the FTE allocated to GIS staff.

Marysville has an existing spill response program and citizen hotline to respond to reported spills. The City has published a brochure that outlines inappropriate household habits including illegal dumping of oil or other automotive liquids and pet waste. The City also distributes magnetic stickers to the public with information on how to report spills.

Marysville has taken the first steps to address illicit discharges through spill response, public education, and its drainage ordinance in the MMC, which includes reference to prohibiting illicit discharge on private property or discharge of waste to public stormwater systems. Marysville is also working on development of an IDDE ordinance.

Existing Resources (2008): This is an existing SWM activity for the City that currently requires an allocation of 0.50 FTE at a cost of \$38,650, with an expense allocation of \$40,000 to the SDA and PA.

Element 5: Controlling Runoff from New Development, Redevelopment, and Construction Sites

Marysville's SWM Program includes some components of the requirements of the Permit regarding controlling runoff from new development, redevelopment, and construction sites; specifically, development review, construction inspection, encouraging Low Impact Development, and enforcement. This section documents Marysville's current activities and funding.

Development Review

Marysville has a well-developed program for controlling stormwater runoff from new development, redevelopment, and construction sites that is consistent with the 2001 Ecology Manual requirements. This program addresses plan review, inspection, and maintenance, and is administered through the Community Development and Public Works departments. The City also makes copies of Ecology's *Notice of Intent for Construction Activity* and *Notice of Intent for Industrial Activity* available to developers as required by the Phase II Permit. Marysville is currently working on reviewing the Code to address any existing inconsistencies with the 2005 Ecology Manual, which the City is working towards adopting.

Construction Inspection

Marysville's existing program for controlling stormwater runoff from new development, redevelopment, and construction sites is consistent with the requirements of Ecology's 2005 Stormwater Management Manual.

Low Impact Development (LID) Ordinance

Under the Phase II Permit, Marysville is encouraged to increase the use of innovative techniques, including the use of Low Impact Development (LID). Marysville received a grant in 2006 from the Puget Sound Partnership to fund the development of a LID ordinance. In May 2007, Marysville adopted Ordinance No. 2694 amending the City's development regulations related to LID and establishing a new chapter, 19.49, of the MMC specifically for LID.

Enforcement

As discussed under Ordinances and Legal Authority, enforcement of Marysville's stormwater runoff control ordinance, including water quality and flow control standards, are addressed by MMC Titles 4.0, 14.15, 14.16, 14.17, and EDDS Chapter 4. The City has a limited inspection and enforcement program.

Funding for Development Review Related to Stormwater

Most of the cost of these development review activities is covered by development review fees, and are therefore not shown as a cost to the SWM Program. There is, however, approximately 0.40 FTE of support coming from Community Development and an additional 0.31 FTE of support coming from Public Works for this element that is covered by the SWM Program.

Existing Resources (2008): This is an existing SWM activity for the City that currently requires an allocation of 0.71 FTE at a cost of \$54,883 to the SDA and PA.

Element 6: Pollution Prevention and Operation and Maintenance for Municipal Operations

Marysville has a well-developed maintenance program for stormwater infrastructure that includes street sweeping, catch basin inspection and cleaning, deicing and snow removal, and facility maintenance. In addition, Marysville has an established waste disposal procedure for street sweeping and vector wastes, as well as a composting program for leaf litter.

Marysville's current maintenance program for system cleaning and inspection meets some of the NPDES Phase II Permit requirements. The SWM Program includes inspection and spot checks of stormwater facilities, practices to reduce stormwater impacts, and policies and procedures to reduce pollutants, including the use of best management practices (BMPs). The City currently has an informal training program for maintenance crews and supervisors.

In December 2006, Marysville took a proactive step and developed a Draft Pollution Prevention and Operation and Maintenance for Municipal Operations Plan. This plan outlines maintenance program requirements for stormwater infrastructure that are consistent with the Phase II Permit requirements. Using this manual, the City anticipates meeting these requirements prior to the January 2010 deadline.



Equipment and Materials

The Marysville SWM program is responsible for operating and maintaining the following SWM related equipment:

- 50 percent of a Loader
- 50 percent of a Trommel
- 100 percent of a Storm and Sewer Camera and Recording System
- 25 percent of a 1992 Ford Vactor
- 75 percent of a 2005 Freightliner Vactor
- 75 percent of a 2008 International Vactor
- 25 percent of a Workhorse Step Van
- 100 percent of a Jeep

Expenses identified in the 2008 Storm Drainage budget for equipment and supplies included fuel, supplies, and tools needed for drainage maintenance, uniforms, and clothing, totaling \$31,600. Expenses identified in the 2008 Planning Account, Utility Administrative Executive Account, Maintenance General Account, and Maintenance Equipment Account for equipment supplies included fuel, supplies, and tools expense needed for drainage maintenance, uniforms, and clothing, totaling \$28,898.

Existing Resources (2008): This is an existing SWM activity for the City that currently requires an allocation of 3.81 FTE at a cost of \$294,704 and an expense allocation of \$155,727 to the SDA, UAA, and MGPA.

Element 7: Total Maximum Daily Load Allocations

Under Appendix #2 of the Phase II Permit, a TMDL for the Lower Snohomish River Tributaries for fecal coliform has been established. Marysville is a permit holder with implementation responsibilities for this TMDL. There are no other TMDLs applicable to Marysville at this time and no additional TMDLs are slated to be approved during the Permit cycle. See Element 9 for further details on the TMDL for the Lower Snohomish River Tributaries.

Existing Resources (2008): This is an existing SWM activity for the City that currently covered under Element 9.

Element 8: Monitoring

Marysville is currently not conducting any additional stormwater monitoring other than that specified in its QAPP approved by Ecology for monitoring associated with the Lower Snohomish River Tributaries TMDL.

Requirements of the NPDES Phase II Permit include identification of suitable questions, site selection, and monitoring plans in preparation for the future monitoring of SWM Program effectiveness. Annual reporting of monitoring progress is a requirement of the NPDES Phase II Permit, with compliance being achieved through timely submittal of annual reports.

Existing Resources (2008): This is a future SWM activity for the City that does not require any resource allocation at this time.

Element 9: Lower Snohomish River Tributaries TMDL

For the City of Marysville, the Lower Snohomish River Tributaries TMDL requires an IDDE program including monitoring and implementation requirements that emphasize pollution source control activities, the development of a Bacterial Pollution Control Plan (BPCP), water quality monitoring, and development of a QAPP for water quality monitoring. Marysville's final QAPP for this TMDL was approved by Ecology in December 2007 and is being implemented. The City is currently conducting monitoring in accordance with the QAPP for the Lower Snohomish River Tributaries TMDL. As stated in the QAPP, data from all monitoring locations is used by Marysville to assess stream health and areas of concern. Fecal coliform grab samples are being collected and analyzed as required by the TMDL. The City has voluntarily elected to add additional parameters to its monitoring program to assist in data interpretation. Additional parameters being monitored include dissolved oxygen, temperature, pH, and turbidity.



Existing Resources (2008): This is an existing SWM activity for the City that currently requires an allocation of 0.20 FTE at a cost of \$15,460 and an expense of \$10,000 for lab work to the SDA.

Element 10: Reporting

Marysville has completed and submitted the 2007 Annual Report and the 2007 Surface Water Management Program (SWMP) documents to Ecology. TMDL activity documentation and tracking is incorporated in the Lower Snohomish River Tributaries Elements 7 and 9, and will be included in future Phase II Permit Annual Reports to Ecology. Marysville also reports all spills to Ecology.

Existing Resources (2008): Resources are included in Element 1.

Element 11: Underground Injection Control (UIC)

Marysville is not aware of any publicly owned UICs.

Existing Resources (2008): Not applicable; no funds allocated.

Element 12: Endangered Species Act (ESA)

Marysville is an active member of the Snohomish River Basin Salmon Recovery Forum. See the next section entitled Puget Sound Salmon Recovery Plan (Element 13) for further salmon recovery activities.

Existing Resources (2008): This is an existing SWM activity for the City that requires an allocation of 0.10 FTE at a cost of \$7,730 to the SDA.

Element 13: Puget Sound Salmon Recovery Plan

Marysville is an active participant in salmon conservation planning, and is implementing projects in accordance with the June 2005 Snohomish River Basin Salmon Conservation Plan, published by the Salmon Recovery Forum. Currently, Marysville is supporting the Qwuloolt/Poortinga Estuarine Restoration Project; however, funding has not been allocated specifically for this project in the City of Marysville's 2008 budget. This project is described further in the City's October 2006 Shoreline Inventory and Characterization Report as Project #9.3.1. Coordination with other watershed groups is listed in this same report as Project #9.3.3. Marysville staff involved in salmon recovery planning include surface water staff and a Senior Planner.

Existing Resources (2008): This is an existing SWM activity for the City that currently requires an allocation of 0.31 FTE at a cost of \$23,963 to the SDA and PA.

Element 14: WRIA 7 Snohomish River Basin Watershed Planning

Marysville lies within Water Resources Inventory Area (WRIA) 7. A Phase 1 watershed grant application was prepared with the Tulip Tribes and City of Everett as co-leads, but was never completed and grant funding was never awarded. Consequently, no watershed planning was conducted and a watershed plan was not developed.

Existing Resources (2008): Not applicable; no funds allocated.

Element 15: 2007-2009 Puget Sound Water Quality Conservation and Recovery Plan

Most of the requirements of the Puget Sound Water Quality Conservation and Recovery Plan correlate to requirements of the NPDES Phase II Permit. Element SW-1.2 of the 2000 Puget Sound Water Quality Management Plan (PSWQMP) calls out thirteen specific requirements of local comprehensive stormwater programs, ten of which are fully or partially addressed by the NPDES Phase II Permit, as noted in Elements 1 through 10 in Appendix 3.2.C. The three specific components required by the PSWQMP, not covered by NPDES Phase II Permit requirements include identification and ranking of problems, watershed or basin planning, and creation of an adequate level of local annual funding.



Relative to basin planning, Marysville participates in the implementation of the 1999 Quilceda/Allen Watershed Plan by having representatives on the Quilceda/Allen Watershed Action Team. Plan implementation has been underway for several years. Relative to funding, SWM Program funding options will be evaluated as part of this planning process, and funding recommendations will be included in the final report.

Existing Resources (2008): Resources are allocated to Elements 2, 3, 5, 6, and 9 that correspond to the overlapping NPDES Phase II Permit requirements.

Element 16: Capital Improvements Projects

Marysville has an ongoing CIP that currently totals \$7.6M, as shown in Table 3.2.B and Figure 3.2.E. One of the main objectives of this SWM planning study is to conduct modeling throughout Marysville in order to update the City’s SWM CIP.

Table 3.2.B: CIP Projects Funded in 2008	
Project Title	Total Funded Costs*
Smokey Point Master Plan	\$131,907
North Marysville Master Drainage Plan	\$6,250,000
152nd St NE Conveyance	\$1,000,000
Downtown Master Plan	\$70,000
Stormwater Renewal Replacement	\$50,000
Inter-fund Transfer to Capital Outlay	\$27,892
0.51 FTE	\$39,539
TOTAL	\$7,569,308

*CIP costs and Projects as provided in the G&O financial model.

The City of Marysville provided FTE staff time allocation for the stormwater program along with the G&O financial model that included the cost of CIP projects. According to the City, CIP staffing costs are included in the project costs and determined on a project-by-project basis by the Project Engineer.

Marysville’s 2008 capital facilities plan is included in the 2008 projected City Budget and currently consists of three main projects: the Smokey Point Master Plan at \$131,907; the North Marysville Master Drainage Plan at \$6,250,000; and the 152nd Street NE Conveyance at \$1,000,000. The City also includes \$50,000 for stormwater system replacements as part of its annual CIP costs, and a one time allocation of \$70,000 for the development of the Downtown Master Plan. There is also a transfer to the capital outlay account of \$27,892. Capital Improvements total \$7.6M in the SWM Program budget in 2008, which includes both project and personnel (City staff) costs. CIP projects are selected based on local priorities and development needs. The location of the 2008 CIP Projects are shown in Figure 3.2.E.

As part of this SWM Program update, Marysville’s six-year SWM CIP will be updated to include additional projects aimed at meeting the City’s current and future needs.

Existing Resources (2008): This is an existing SWM activity for the City that currently requires an allocation of 0.51 FTE at a cost of \$39,539 and \$7,529,769 in expenses to the SDA, SDCA, and COA.

Element 17: Additional Activities

Marysville’s 2008 SWM Program budget accounts for the cost of small tools, operating supplies, fuel consumption, uniforms, and additional clothing needs in this category entitled Additional Activities. Program overhead costs include state taxes, water operating permits, and city taxes. Marysville Surface Water staff spends about 1.0 FTE responding to customer complaints and utility billing questions. There are also additional administrative costs covered in miscellaneous items, regular employee pay, overtime pay, social security, retirement, health insurance, workmen’s compensation, and unemployment compensation. Marysville’s NPDES Phase II Permit Fees are estimated at \$15,000 per year. Table 3.2.C provides a summary of the program’s additional activities.

Table 3.2.C: Summary of Additional Activities		
Additional Activity	Staffing FTE (Labor w/benefits)	Expenditure
Program Overhead	0 (\$0)	\$304,771
Professional Services and Interlocal Agreements	0 (\$0)	\$362,850
Customer Response and Utility Billing	1.00 (\$77,299)	\$90,935
Administration	1.67 (\$129,167)	\$85,493
NPDES Phase II Permit Fees	0 (\$0)	\$15,000
Debt Payment for the 2005 Water/Sewer/Storm Revenue Bond	0 (\$0)	\$537,100
Total	2.67 (\$206,467)	\$1,456,646

Existing Resources (2008): This existing SWM activity currently requires an allocation of 2.67 FTE at a cost of \$206,467, with an expense allocation of \$1,456,646 to SF, PA, MGPA, MEA, AEA, and UAA.

3.2.6 Summary of Existing Program Strengths and Opportunities for Enhancement

In reviewing Marysville’s existing SWM Program, it is clear that the City has taken significant steps to come into compliance with many of the aspects of the NPDES Phase II Permit requirements and other regulatory obligations. However, the review also revealed many areas requiring enhancement. Initial observations of Marysville’s existing strengths and opportunities for enhancement to the SWM Program are dis-

cussed below. Note: Section 3.3 provides a detailed comparison of the City's existing SWM Program with each of the requirements of the NPDES Phase II Permit, as well as Marysville's other regulatory and surface water obligations.

3.2.6.1 Major Program Strengths

As clearly reflected by the level and quality of SWM-related activities Marysville is currently undertaking, City staff work hard to address Marysville's primary SWM objectives including:

- Developing a fully functional storm and surface water infrastructure to serve the long-term needs of a growing community
- Establishing program elements to meet local, regional, state, and federal regulations
- Maintaining and enhancing the habitat, water quality, and environmental features associated with the Quilceda/Allen watershed
- Meeting TMDL requirements for the Lower Snohomish River Tributaries.

As a City facing numerous competing demands and increasing regulatory requirements, the City of Marysville has made a significant investment and has established a good basis to meet its various SWM program and regulatory requirements, including:

- Public Education and Involvement
- Stormwater System Mapping
- Spill Response and Reporting
- Controlling Stormwater Runoff
- Operations and Maintenance
- Lower Snohomish River Tributaries TMDL Compliance Planning
- Salmon Recovery Planning
- Capital Improvement Program

3.2.6.2 Opportunities for Enhancement

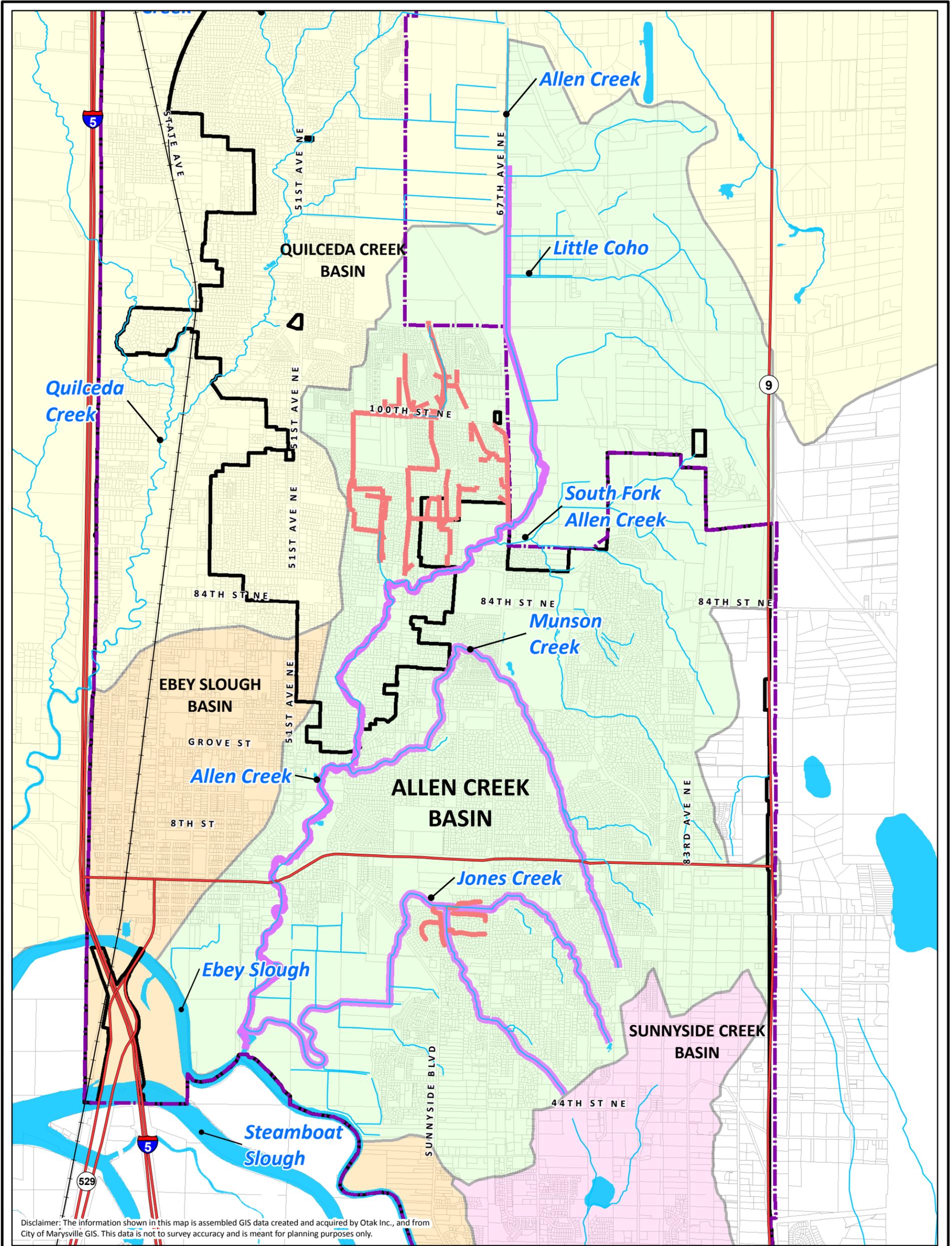
Marysville has responded well to the challenges of serving a growing population in an evolving regulatory environment. However, meeting the requirements of the NPDES Phase II Permit, Lower Snohomish River Tributaries TMDL, and other water quality initiatives, such as the PSWQMP, will require additional investment in staff and resources by the City. The analysis of Marysville's existing program revealed the following opportunities for enhancement:

- Measuring the effectiveness of its Public Education Program
- Updating its stormwater runoff control ordinance for consistency with the 2005 Ecology Manual
- Developing SWPPPs for Maintenance Yards
- Completing development of its IDDE program
- Ongoing record keeping and tracking
- Enhanced staff training
- Program evaluation and assessment

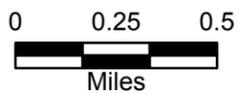
The opportunities for enhancement will be further addressed in Section 3.3, Regulatory Gap Analysis.

- Appendix 3.2.A: Data Request List
- Appendix 3.2.B: Stormwater Activity Questionnaire
- Appendix 3.2.C: Summary of Existing Surface Water Management Program
- Appendix 3.2.D: Staffing Allocations Across Accounts
- Appendix 3.2.E: 2008 Financial Information

This section documented Marysville’s existing surface water management program, including annual funding, staffing, SWM activities, equipment, capital projects, and legal authorities. Specifically, this section evaluated existing activities, services, staffing, and levels of funding with regard to regulatory requirements, capital needs, and other local commitments and highlights areas for possible enhancement to meet Phase II Permit requirements. Section 3.3 presents the results of the conducted stormwater regulatory gap analysis, which compares the City of Marysville’s existing stormwater activities against the various activities required by federal, state, and local regulations and plans.



Disclaimer: The information shown in this map is assembled GIS data created and acquired by Otak Inc., and from City of Marysville GIS. This data is not to survey accuracy and is meant for planning purposes only.



LEGEND

- RAILROAD
- STREAMS
- MODEL COVERAGE
 - HEC-RAS
 - XPSWMM
- MARYSVILLE CITY LIMITS (2008)
- URBAN GROWTH BOUNDARY
- PARCEL BOUNDARY
- WATERBODIES
- ALLEN CREEK BASIN
- EBEY SLOUGH BASIN
- QUILCEDA CREEK BASIN
- SUNNYSIDE CREEK BASIN

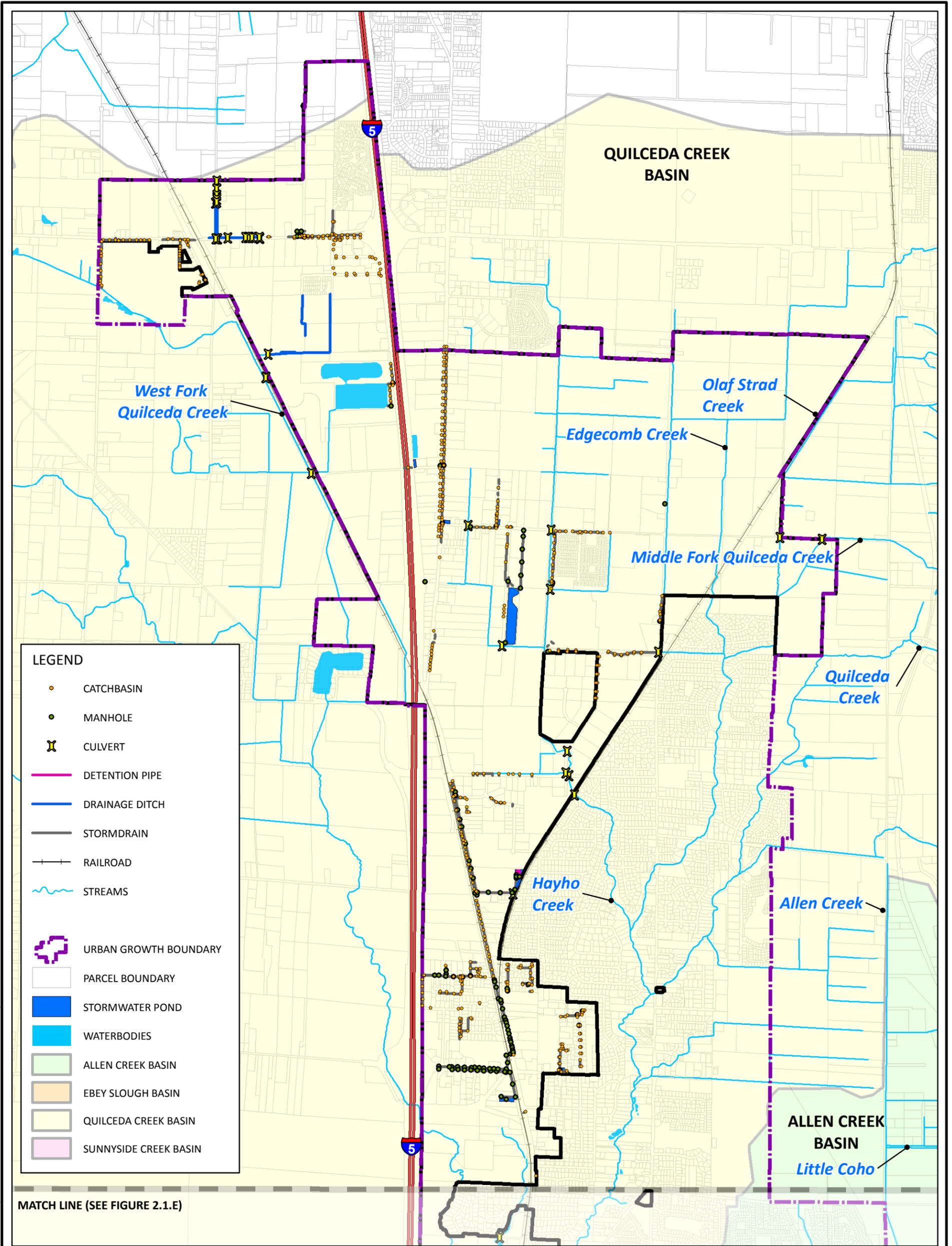
CITY OF MARYSVILLE

STORMWATER COMPREHENSIVE PLAN

FIGURE 2.3.A

MODEL COVERAGE - ALLEN CREEK



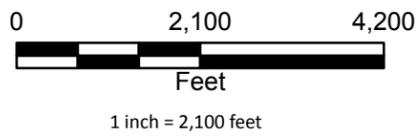
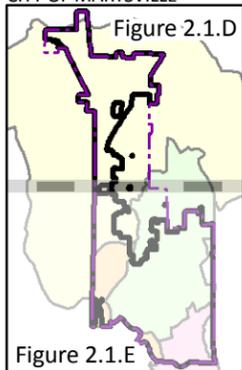


LEGEND

- CATCHBASIN
- MANHOLE
- CULVERT
- DETENTION PIPE
- DRAINAGE DITCH
- STORMDRAIN
- RAILROAD
- STREAMS
- URBAN GROWTH BOUNDARY
- PARCEL BOUNDARY
- STORMWATER POND
- WATERBODIES
- ALLEN CREEK BASIN
- EBEBY SLOUGH BASIN
- QUILCEDA CREEK BASIN
- SUNNYSIDE CREEK BASIN

MATCH LINE (SEE FIGURE 2.1.E)

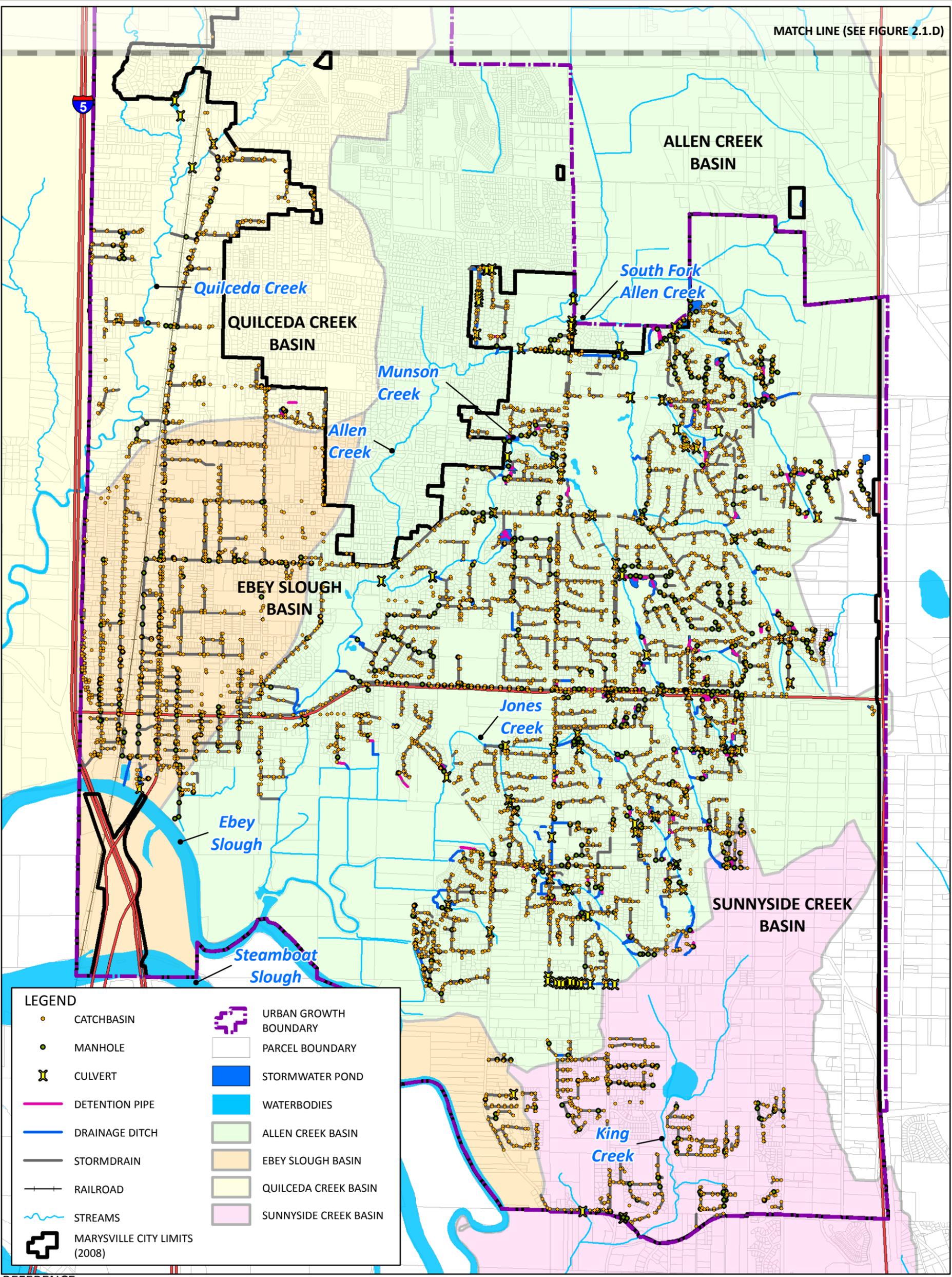
REFERENCE
CITY OF MARYSVILLE



Disclaimer: The information shown in this map is assembled GIS data created and acquired by Otak Inc., and from City of Marysville GIS. This data is not to survey accuracy and is meant for planning purposes only.

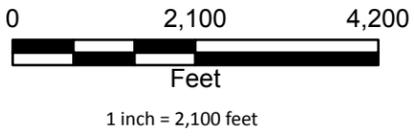
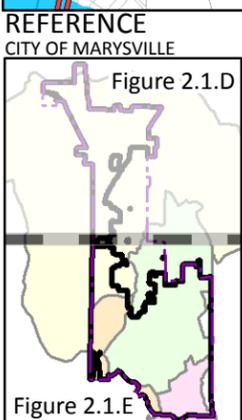
CITY OF MARYSVILLE
STORMWATER COMPREHENSIVE PLAN
FIGURE 3.2.C
MAPPED STORMWATER SYSTEM
NORTH

MATCH LINE (SEE FIGURE 2.1.D)



LEGEND

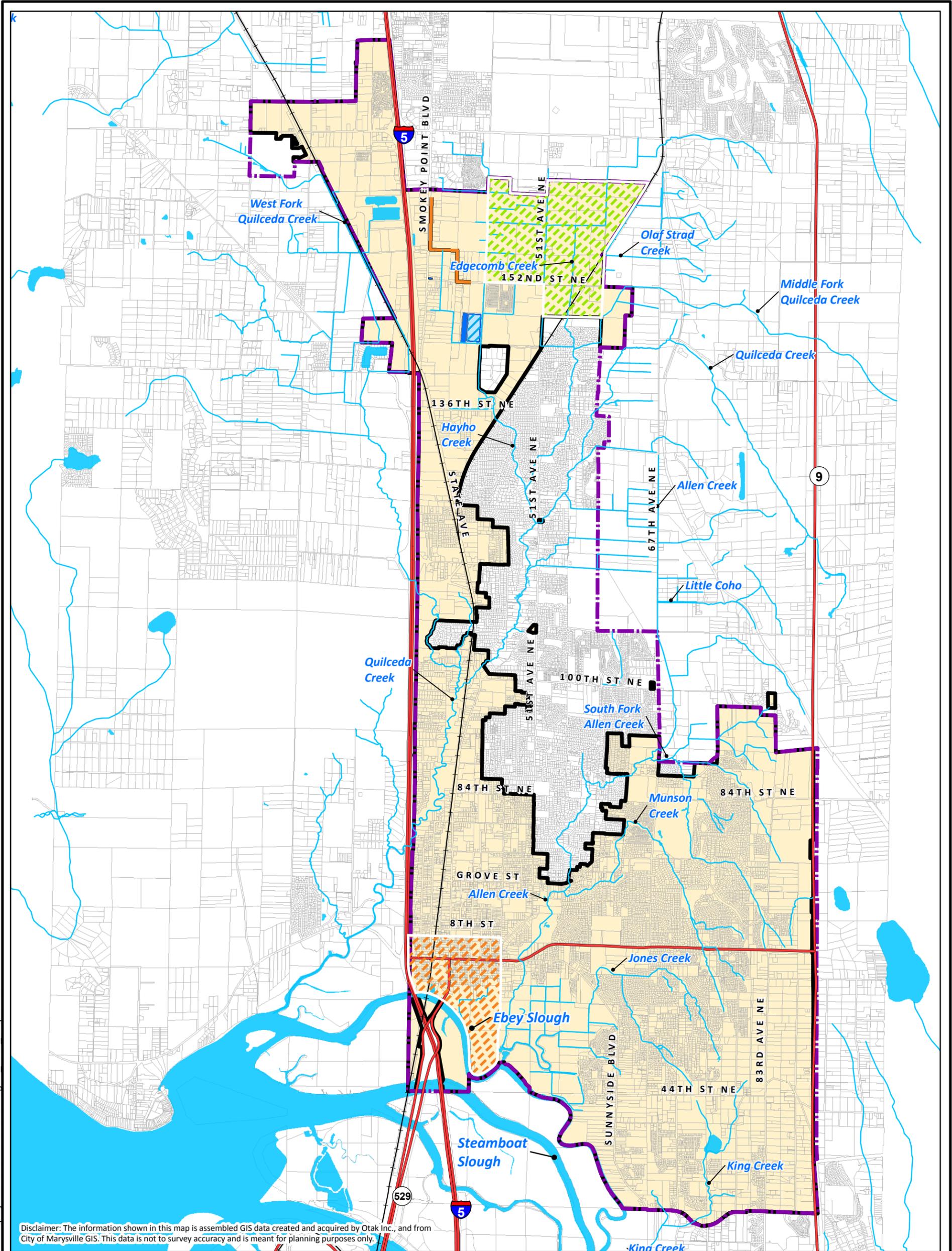
	CATCHBASIN		URBAN GROWTH BOUNDARY
	MANHOLE		PARCEL BOUNDARY
	CULVERT		STORMWATER POND
	DETENTION PIPE		WATERBODIES
	DRAINAGE DITCH		ALLEN CREEK BASIN
	STORMDRAIN		EBEY SLOUGH BASIN
	RAILROAD		QUILCEDA CREEK BASIN
	STREAMS		SUNNYSIDE CREEK BASIN
	MARYSVILLE CITY LIMITS (2008)		



CITY OF MARYSVILLE
STORMWATER COMPREHENSIVE PLAN
FIGURE 3.3.D
MAPPED STORMWATER SYSTEM
SOUTH

Disclaimer: The information shown in this map is assembled GIS data created and acquired by Otak Inc., and from City of Marysville GIS. This data is not to survey accuracy and is meant for planning purposes only.

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N



LEGEND

- RAILROAD
- STREAMS
- CONVEYANCE TO POND 1 (2008 - 2009 Construction)
- MARYSVILLE CITY LIMITS (2008)
- URBAN GROWTH BOUNDARY
- PARCEL BOUNDARY
- WATERBODIES
- NORTH MARYSVILLE MASTER PLAN (formerly Smokey Point)
- DOWNTOWN MASTER PLAN
- EXISTING DETENTION POND
- REGIONAL DETENTION POND EXPANSION

CITY OF MARYSVILLE
 STORMWATER COMPREHENSIVE PLAN
 FIGURE 3.2.E
 CIP PROJECT LOCATION MAP



Section 3.3: Regulatory Gap Analysis

3.3.1 Section Overview

The purpose of this section is to develop and present Marysville’s Surface Water Management (SWM) Programmatic Solutions for addressing the gap between the existing program and regulatory requirements and obligations, including needed annual funding, staffing, SWM activities, equipment, capital projects, and legal authorities. For planning purposes, the gap analysis was extended to 2015 to cover implementation and funding of the Six-Year Capital Improvement Program.

3.3.2 Methods of Analysis

3.3.2.1 Overview

This section documents the comparison of the City of Marysville’s existing SWM Program to required activities, as described in the Phase II Permit and the City’s other SWM Program related obligations. The resulting gap analysis identifies the shortfalls in the existing program and estimates additional activities and resources required for full compliance with the Phase II Permit through the due date of 2011 and funding of the program and CIP through 2015. In general, assumptions for the next Phase II Permit cycle include continuation of most activities. Results are presented in a multi-year implementation plan that reflects the various Phase II Permit due dates and ensures that Marysville meets its other regulatory obligations.



The results of this analysis have been recorded in Appendix 3.3.A: *Surface Water Management Program Gap Analysis and Costs*. Also included in Appendix 3.3.A are the following summary pages:

- Existing Program Review
- Overall Program Requirements—Funding (program cost per element per year)
- Overall Program Requirements—Staffing (staff levels per element per year)

3.3.2.2 Credit for Existing Activities

This SWM Program gap analysis was conducted by first comparing the City of Marysville’s existing SWM Program activities to the Phase II Permit requirements (Program Elements 1-10) and the additional regulatory activities outlined in Program Elements 11-15. The existing program is defined as the activities and staffing levels in place during the 2008 calendar year, as this is the most recent year with complete budget and staffing data. Marysville was given credit for its current levels of staffing, funding, equipment, ordinances, and technical expertise to estimate how close Marysville is to full implementation of each required activity. This comparison is reflected in the “percent complete” column of the attached matrix. The analysis shows that the City

3.3.1 Section Overview.....	Page 3.3 - 1
3.3.2 Methods of Analysis	Page 3.3 - 1
3.3.3 Gap Analysis Results: Program Elements 1-10.....	Page 3.3 - 3
3.3.4 Gap Analysis Results: Program Elements 11-17.....	Page 3.3 - 17

of Marysville's SWM Program currently performs many of the required activities. A number of new and/or expanded activities, however, will need to be undertaken by the City over the next few years to achieve its full compliance with regulatory obligations.

3.3.2.3 Identifying and Addressing the Gaps

For each activity where a gap exists between the existing activities and the regulatory or obligatory requirements (i.e., percent complete is less than 100 percent), the activities needed to meet full compliance have been documented. Once the initial program gaps were identified, the new activities were compared to identify overlaps and areas where a single activity, policy, or resource could meet multiple requirements. In many cases, meeting the Phase II Permit requirements fulfills the majority of the obligations for other state and federal regulations. These overlaps have been identified and addressed in the attached matrix.



In addition to regulatory compliance, activities related to the City of Marysville's stormwater capital program (Element 16) and administrative activities (Element 17), were added to the analysis to develop a complete picture of Marysville's future stormwater program.



3.3.2.4 Staff Time and Consulting Services

In most cases, the gap between existing and required activities can be correlated to a need for increased staff time or material expense. Some limited areas require the purchase of new equipment, additional staff training, software purchases, or other ongoing expenses. The detailed descriptions of each program element identify which activities will be completed by Marysville staff and those that will be completed by outside services. The additional required staff time was estimated based on professional experience, discussions with City of Marysville staff, and knowledge of similar SWM related activities currently being conducted by other local jurisdictions.

3.3.2.5 Needed Staff Resources and Costs

Once a gap was identified, the required staff time was then converted into the required Full Time Equivalents (FTE) and labor costs. Marysville's annual budget assumes one staff position FTE is equivalent to 2,080 hours per year. In 2008, labor costs have been estimated based on an average salary and benefit cost of \$37.16 per hour. This hourly rate was calculated as a prorated average of labor rates and time commitments for all the staff funded by the Stormwater Fund and are based on Marysville's 2008 salary schedule and a benefit rate of approximately 36 percent. Similar to 2008, 2009 labor costs have been estimated based on an average salary and benefit cost of \$37.39 per hour, in accordance with Marysville's 2009 budget figures. This financial information is included in Appendix 3.3.B: *Budget Model Integration 2009*. For future years, salary and benefit costs were adjusted over the planning period at an annual rate of 3 percent to reflect projected annual cost of living increases.

From 2008 to 2009, the total FTE allocation decreased from 9.07 FTE to 8.98 FTE. The reason for the decrease in FTE allocations is the redistribution of time of several employees. Each year FTE and salary allocations are analyzed based on the projected workloads; if it is apparent that one division is consistently being assigned a greater workload, then the FTE allocations may be readjusted to give additional support to that division.

3.3.2.6 Total Program Costs

Total annual cost for each of the 17 major program Elements over the planning period (2009 through 2015) was developed by adding projected annual equipment and material costs to the projected annual labor costs. In each year, the costs account for maintaining existing obligations, for accelerating certain program elements, so that they are fully implemented by the required deadlines set forth in the Phase II Permit, and for local SWM Program implementation priorities. The total required expenditure for each of the 17 major Elements was then compared to the existing (2008) Marysville SWM Program projected expenditure, as outlined in Chapter 3.2, *City's Existing Surface Water Management Program*. This comparison reveals the overall gap in the City of Marysville's existing SWM Program in terms of resources needed for full compliance with the Phase II Permit.

3.3.2.7 Annual Inflation Factor and Proposed Rates

With the exception of the 2008 Existing Program costs, all dollars shown in this analysis are based on 2009 labor and expense figures. Similar to the salary and benefit figures, an annual 3 percent increase was added to the costs for some of the items in Element 6, Pollution Prevention and Operations and Maintenance for Municipal Operations, to account for increasing maintenance inventory and Element 17, Additional Activities, for materials and supplies and overhead. Otherwise, no adjustments have been made to account for inflation or to project the costs into future years.

The following proposed bi-monthly rates were assumed from 2010 to 2015:

2010:	\$21.22
2011:	\$24.40
2012:	\$24.89
2013:	\$25.38
2014:	\$25.89
2015:	\$26.41

Additional revenue not need for programmatic implementation was assumed to be spent on CIP.

3.3.3 Gap Analysis Results: Program Elements 1–10

Compliance with the federal NPDES Phase II Permit, as issued and enforced by the Washington State Department of Ecology, is achieved by successfully addressing the first ten Program Elements. Each of these requirements correlates directly with the corresponding requirement in the NPDES Phase II Permit. Elements 1–6 are requirements of Section S5 of the Phase II Permit. Elements 7–10 are requirements of Sections S7, S8 and S9 of the Phase II Permit, respectively.

For each Element, the Phase II Permit Due Date Requirement section lists the current status of each permit requirement for that Element. The status of the Phase II Permit requirement is listed as one of the following:

- *Not Started:* This requirement has not yet been implemented and the planning for implementation has been included in this gap analysis.
- *In Progress:* This requirement is being implemented and Marysville is working towards full compliance.
- *Completed:* This requirement has already been addressed by Marysville and is in full compliance.
- *Ongoing:* Implementation of this requirement is ongoing during the Phase II Permit cycle such as the Annual Reporting to Ecology, and is currently being addressed as needed by Marysville.

The status of each Element reflects the status in February 2009 when this analysis was completed.

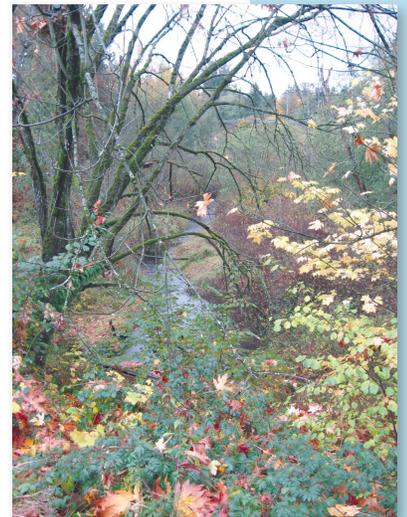
Element 1: Program Implementation, Annual Program/Plan

Reference: Phase II Permit, Section S5.A.1-3, 5, p. 9-10, and S5.B, p. 10-11.

Requirement: Ecology expects that Marysville will annually provide the needed technical direction and supervision to properly staff, fund and equip Marysville's SWM Program, as well as to conduct the required tracking, documentation, and reporting. All of this administrative support of Marysville's SWM Program, as well as effective implementation of the Phase II Permit requires an adequate level of local SWM Program funding through the establishment and maintenance of SWM Utility rates.

Compliance Analysis: Additional resources will be needed for this Element. Most elements needed for compliance with the Program Implementation requirements overlap with other SWM Program activities. SWM Plan Documentation (Element 1.2) includes resources for Marysville to develop its SWMP in time for the annual report deadline of March 31. Marysville submitted its SWMP and 2007 Annual Report to Ecology prior to the March 31, 2008 due date and its SWM Plan and 2008 Annual Report to Ecology prior to the March 31, 2009 due date. In 2008, these tasks were estimated to require 208 hours or 0.10 FTE at an expense of \$7,730. For the remainder of the planning period, an additional 80 hours or 0.04 FTE annually has been allocated to update the SWM Plan.

Program Tracking (Element 1.3) is addressed by the tracking associated with the development and submittal of annual reports to Ecology in Element 10.2. By implementing the SWM activities outlined in Elements 2 through 6, the City of Marysville will also meet the requirements to reduce pollutant discharges to the Maximum Extent Practicable (Element 1.5). Additional staff time has also been allocated to manage and coordinate the SWM Program with the Surface Water Staff and the Public Works Director (Element 1.1) and with other permittees (Element 1.4). This includes coordination between departments, long term planning, identifying annual staffing and budgeting needs, assigning responsibilities and tracking of Marysville staff activities



that contribute to the SWM Program and looking for opportunities to collaborate with other agencies on Phase II Permit compliance.

Annual Staffing Needs and Funding

- *Existing (Year 2/2008)*: 208 hours (0.10 FTE) at \$7,730.
- *Future (Years 3–9/2009-2015)*: In Year 3, 208 staff hours (0.10 FTE) at \$8,011 was budgeted, but an additional 264 staff hours (0.13 FTE) at \$10,167 will be required totaling 472 staff hours (0.23 FTE) at \$18,178. In Years 4 through 9, 472 staff hours (0.23 FTE) at an average \$20,185 per year have been included for increasing coordination and updating the annual SWM Program document.

Phase II Permit Due Date Requirements

This Phase II Permit requirement has various due dates throughout the life of the Phase II Permit, according to each of its sub-elements.

- Develop and implement a SWM Plan that covers the geographic area subject to the Phase II Permit by the end of the Phase II Permit (In Progress).
- Prepare written documentation of the SWM Plan and maintain annual updates starting in 2008 (Ongoing).
- Track the cost of development and implementation of the SWM Plan, including the number of inspections, enforcement actions, and public education activities annually starting in 2009 (Ongoing).
- Include in the SWM Plan, a mechanism to coordinate with other jurisdictions on stormwater management activities, as needed starting in 2008 (Not Started).
- Design the SWM Program to reduce the discharge of pollutants from the City's municipal stormwater system to the Maximum Extent Practicable (MEP) and meet State requirements to use all known, available, and reasonable methods of prevention, control and treatment of stormwater runoff through the Phase II Permit term (In Progress). (Note: Complying with the Phase II Permit addresses this requirement of meeting MEP.)



Element 2: Public Education and Outreach

Reference: Phase II Permit, Section S5.C.1.a-c, p. 11-12.

Requirement: The Public Education and Outreach element includes conducting educational activities for specific target audiences, measuring the results of those efforts, and maintaining records.

Compliance Analysis: Additional resources will be needed to comply with this SWM Program Element. Marysville currently has an education and outreach program that consists of working with the Allen/Quilceda Watershed Action Team and the Marysville School District. The City of Marysville also has water quality equipment that is loaned to the school districts for education purposes. In addition, Marysville has developed information brochures for the public and has recently coordinated with local businesses to develop a Clean Water Car Wash Kit.

The City of Marysville will need to develop and implement a formalized comprehensive education and outreach program that focuses on target audiences and subject

areas. In Year 3, Marysville will need to develop a formalized program using about 80 hours of staff time and \$5,000 in additional expense for materials. As a result of starting the formalized program in Year 3, the Phase II Permit implementation time line requirements for this element may not be met. Continue the educational program development and implementation annually with a total of 288 hours of staff time.

Marysville has conducted a baseline survey of elementary school children to measure the effectiveness of its education program. In Year 3, it is recommended that Marysville conduct an additional baseline survey of targeted audiences prior to formalizing the development and implementation of its education and outreach program. In Year 5, it is recommended that the City conduct a follow-up survey to measure the effectiveness of the outreach program based on changes in understanding and behaviors of the target audiences. Surveys will be developed and conducted by Marysville staff at a total of 160 hours each.

Annual Staffing Needs and Funding

- Existing (Year 2/2008): 208 staff hours (0.10 FTE) at \$7,730 and \$10,000 in expense.
- Future (Years 3–9/2009-2015): 208 staff hours (0.10 FTE) at \$8,011 and \$10,000 in expense was budgeted in Year 3, but an additional 240 staff hours (0.12 FTE) at \$9,243 and \$5,000 in expense is required to continue and expand the educational program, which includes 160 staff hours (\$6,162) to conduct a baseline survey totaling 448 staff hours (0.22 FTE) at \$17,254 and \$15,000 in expense. In Year 4, allocate 288 staff hours (0.14 FTE) at \$11,424 and \$15,000 in expense for the public education and outreach program. In Year 5, allocate 288 staff hours (0.14 FTE) at \$11,767 and \$15,000 in expense for the public education and outreach program and additional 160 staff hours (0.08 FTE) for the follow up survey. In Years 6-9, maintain 288 staff hours (0.14 FTE) at an average of \$12,676 and \$15,000 in expense each year.

Phase II Permit Due Date Requirements

This Phase II Permit requirement has various due dates throughout the life of the Phase II Permit, according to each of its sub-elements.

- Develop an Education and Outreach Program by the end of Year 2 (In Progress).
- Identify target audiences and continue existing public education activities by the end of Year 2 (In Progress).
- Measure Results of the Educational Activities by the end of Year 2 (In Progress).
- Track and maintain records of educational activities on an annual basis (Not Started).

Element 3: Public Involvement and Participation

Reference: Phase II Permit, Section S5.C.2.a-b, p.12.

Requirement: The Public Involvement and Participation element requires that Marysville provide opportunities for the public to participate in the development of the SWM Program. The City of Marysville must also continue to post the Annual NPDES Report to Ecology on the City of





Marysville's website and continue to make SWM Program documentation available to the public.

Compliance Analysis: Additional resources will be needed to comply with this SWM Program Element.

Marysville's current efforts to involve the public in SWM planning have included making all documents related to stormwater available for public review and comment and involvement in the Quilceda/Allen Watershed Action Team. The City of Marysville also posted the SWM Plan on their website and provided notification in the local newspaper. Marysville may want to consider creating additional opportunities for the public to participate in the SWM planning and implementation process.

Marysville currently posts stormwater program information on its website, including the Annual Report and SWM Plan. The City of Marysville will also need to maintain copies of final documents at City Hall that can be reviewed or copied by the public. Additional staff time (20 hours) has been assumed to maintain all final documents at City Hall each year.

Additional staff resources to enhance the website in Year 3 (80 hours) and ongoing quarterly maintenance of the website (20 hours each quarter) is needed to meet all the public involvement and participation requirements of the Phase II Permit.

Annual Staffing Needs and Funding

- *Existing (Year 2/2008):* 104 staff hours (0.05 FTE) at \$3,865 and \$5,500 in expense.
- *Future (Years 3-9/2009-2015):* 104 staff hours (0.05 FTE) at \$4,005 and \$5,300 in expense was budgeted in Year 3, but an additional 100 staff hours (0.05 FTE) at \$3,851 is needed to implement the public involvement and participation requirements of the Phase II Permit totaling 204 staff hours (0.10 FTE) at \$7,856 and \$5,300 in expense. In Years 4 and 5, 204 staff hours (0.10 FTE) at an average of \$8,214 and \$5,000 in expense to continue involvement in the Quilceda/Allen Watershed Action Team and other public involvement efforts, along with additional staff time to maintain copies of final SWM related documents at City Hall each year. In Years 6-9, maintain the 204 staff hours (0.10 FTE) at an average of \$8,979 and an expense of \$5,000 to continue efforts.

Phase II Permit Due Date Requirements

This Phase II Permit requirement has various due dates throughout the life of the Phase II Permit, according to each of its sub-elements.

- Create opportunities for the public to participate in the development of the SWM Plan and a process by which to consider public comments by the end of Year 1 (Ongoing).
- Post the SWM Plan, the Annual Report and all other required permit submittals on Marysville's website by March 31 each year starting in 2008 (Ongoing).
- Make all SWM records available to the public and Ecology by March 31 each year starting in 2008 (Ongoing).

Element 4: Illicit Discharge Detection and Elimination

Reference: Phase II Permit, Section S5.C.3.a-f, p. 12-16.

Requirement: The Illicit Discharge Detection and Elimination (IDDE) requirements include the development of a map of the municipal storm sewer system, adoption of an IDDE ordinance, and developing and annually conducting a formal program to detect and eliminate illicit discharges and illegal spills. The program must have mechanisms for the public to report spills, to track activities, and to train staff on IDDE techniques and methodologies.

Compliance Analysis: Additional resources will be needed to comply with this SWM Program Element.

Marysville has a spill report hotline through which public calls are routed to report spills. Marysville distributes information to target audiences on pet waste management, and the proper disposal of oil or other automotive liquids. Marysville also makes magnets available to the public that provide information on how to report a spill. The current level of effort at 104 staff hours annually will be maintained for public education and spill reporting. No additional expense is required for spill reporting.

Marysville has invested significant resources in mapping the existing stormwater conveyance system in ArcGIS; however the City has not mapped conveyance or roadside ditches and has some gaps in the outfall inventory. Completing the conveyance system mapping and addressing the remaining mapping needs will be the focus of Year 3 (2009). Years 4 through 9 will focus on a mapping maintenance effort to address any new facilities added to Marysville's inventory.

Marysville has adopted the Marysville Municipal Code (MMC) 14.16, which addresses prohibiting illicit discharges on private property or the discharge of waste to public stormwater systems. Marysville's IDDE ordinance should be updated by the middle of Year 3 using in-house resources at 250 hours. Sample ordinances are available from several sources, including the Center for Watershed Protection. Once the updated ordinance is in place, the City of Marysville will need to develop a formalized IDDE Program, including procedures. Beginning in Year 4, Marysville will need to begin focused field assessments of priority receiving waters and investigations of outfalls to locate any unknown illicit connections. Staff time will be needed to develop the plan, including prioritizing receiving waters, developing procedures and conducting project management.



The City of Marysville has no formalized program for evaluation, assessment or tracking the number and type of spills identified, inspections made and feedback from public education efforts. Under the Phase II Permit, the City of Marysville is required to adopt and implement procedures for program evaluation and assessment, including tracking number and type of spills identified, inspections made and feedback from public education efforts.

Finally, staff training is needed. As part of the Phase II Permit requirements, Marysville will need to train responsible staff on illicit discharge identification, investigation, termination, cleanup, and reporting. Marysville will also need to provide ongoing training for all municipal field staff on illicit discharge identification and reporting. Follow up training is to be provided on an as-needed basis to address changes in procedures. Marysville is also responsible to document and maintain training records.

There is a hidden cost in this element that is difficult to predict or plan for financially. It is the type of field work, monitoring, investigations, enforcement, legal fees, and system retrofits needed to fix identified problem areas and illegal discharges. It is likely that the City of Marysville will need to fix these illicit discharges with City funds and then establish a reimbursement mechanism to recover costs from private parties. An annual contingency fund of \$20,000 has been added to address these likely, but currently unknown, water quality problem areas.

Annual Staffing Needs and Funding

- *Existing (Year 2/2008):* 1,040 staff hours (0.50 FTE) at \$38,650 and \$40,000 in expense.
- *Future (Years 3–9/2009-2015):* In Year 3, the budget showed 835 staff hours (0.40 FTE) at \$32,133 and \$40,000 in expense, but an additional 576 staff hours (0.28 FTE) at \$22,183 and \$100 are required to develop formal plan, prioritize receiving waters and address staff training totaling 1,411 staff hours (0.68 FTE) at \$54,316 and \$40,100 in expense. In Years 4 through 9, between 882 staff hours (0.42 FTE) and 900 staff hours (0.43 FTE) at an average of \$38,242 per year will be needed to implement the program and address ongoing training needs with an expense of \$60,100.

Phase II Permit Due Date Requirements

This Phase II Permit requirement has various due dates throughout the life of the Phase II Permit, according to each of its sub-elements.

- Map facilities and outfalls by the end of Year 4 (early 2011) (In Progress).
- Develop and implement an ordinance prohibiting non-stormwater discharge to the Municipal Separate Storm Sewer System (MS4) by Year 2.5 (In Progress).
- Develop and implement an ongoing program to detect and address non-stormwater discharges, spills, illicit connections and illegal dumping. This requirement includes variable due dates depending on the program sub-element; (Not Started)
- Establish a public education and spill reporting program by the permit end (Completed).
- Establish a reporting hotline by end of Year 2 (Completed).

- A program evaluation and spill reporting summary must be included with each Annual Report (Completed for 2007 and 2008) (Ongoing).
- Train responsible staff on illicit discharge identification, investigation, termination, clean-up, and reporting by the end of Year 2.5 (Not Started).
- Establish an ongoing IDDE training program for all municipal field staff on spill identification and reporting with follow up training as needed to address changes by end of Year 3 (Not Started).
- Complete IDDE Program development and implementation by the end of the Phase II Permit term in Year 5 (In Progress).

Element 5: Controlling Runoff from New Development, Redevelopment, and Construction Sites

Reference: Phase II Permit, Section S5.C.4.a-f, p.17-20.

Requirement: Element 5 addresses the development review process. These requirements center on establishing and enforcing the standards of a local stormwater management ordinance through plan review, construction site inspection, enforcement, facility inspection, and staff training, as needed to establish equivalency with the Ecology 2005 Manual. This requirement of the Phase II Permit specifically requires that the City of Marysville adopt the 2005 Ecology Stormwater Management Manual for Western Washington (2005 Ecology Manual) or an equivalent, as approved by Ecology.

Compliance Analysis: Additional resources will be needed to comply with this SWM Program Element.

Marysville currently has adopted the 2001 Ecology Western Washington Stormwater Management Manual (Ecology Manual) and is planning on adopting the 2005 Ecology Manual in 2009.

Marysville currently conducts site plan review and construction inspection to ensure compliance with its existing stormwater runoff control ordinance for new development, redevelopment and on construction sites. Marysville also makes copies of Ecology’s “Notice of Intent for Construction Activity” and “Notice of Intent for Industrial Activity” available to developers as part of its development review process. Staff time will be needed for staff to inspect project sites during and after construction to ensure that facilities are being constructed per the approved plans. Each of these plan reviews, construction inspections, and facility inspections must be documented and a system developed for tracking and reporting these activities. Marysville’s existing plan review and inspection costs are covered partially by developer fees with 0.71 FTE paid for by the SWM Fund for conducting site plan review and permitting.

In Year 3, the City will need to conduct a review of its maintenance standards and revise them as necessary for consistency with the 2005 Ecology Manual.

Note that the requirements of Element 5.3—*Long Term Operation and Maintenance* have significant overlap with Element 5.2—*Site Plan Review and Permitting*, Element 6.2—*Annual Inspection of Water Quality and Flow Control Facilities*, and Element 6.4—*Catch Basin Inspection*. All relate to the inspection and maintenance of the City’s stormwater system.

For the purpose of this analysis, staff time for inspections and maintenance during construction and long-term private facility maintenance has been accounted for under Elements 5.2 and 5.3, while staff time for long-term inspection and maintenance and repairs for public facilities is accounted for under Elements 6.2, 6.3, and 6.4.

Staff training on development review will likely be conducted in-house in Year 3. Follow-up training in Years 4 through 9 are assumed to be conducted in-house.

Annual Staffing Needs and Funding

- *Existing (Year 2/2008)*: 1,477 staff hours (0.71 FTE) at \$54,883 and \$0 in expense.
- *Future (Years 3–9/2009-2015)*: 1,477 staff hours (0.71 FTE) at \$56,875 and \$0 in expense was budgeted in Year 3, but an additional 666 staff hours (0.32 FTE) at \$25,649 is needed to adopt the 2005 Ecology Manual, develop maintenance standards and private facility maintenance enforcement program, review, enhance and administer required record keeping systems, and address all necessary staff training totaling 2,143 staff hours (1.03 FTE) at \$85,524 and \$0 in expense. In Years 4-9, between 1,581 and 1,621 staff hours (0.76 FTE and 0.78 FTE) at an average of \$68,232 is required to continue development review processes, record keeping, and staff training with an expense of \$100 each year for training materials.

Phase II Permit Due Date Requirements

This Phase II Permit requirement has various due dates throughout the life of the Phase II Permit, according to each of its sub-elements.

- Adopt the 2005 Ecology Manual by Year 2.5 (In Progress).
- Establish an ongoing Development Review, Inspection, and Enforcement Program by Year 2.5 (Ongoing).
- Adopt an ordinance identifying parties responsible for maintenance and inspection of facilities; requiring inspection and establishing enforcement procedures, and adopting maintenance standards by Year 2.5 (In-Progress).
- Develop procedures for keeping records by Year 2.5 (In Progress).
- Make available the Notice of Intent for the Ecology NPDES Construction and Industrial Permits available to developers starting February 16, 2007 (Ongoing).
- Conduct training for staff in permitting, plan review, construction site inspection and enforcement by Year 2.5 (Not Started).

Element 6: Pollution Prevention and Operation and Maintenance for Municipal Operations

Reference: Phase II Permit, Section S5.C.5.a-j, p. 20-23.

Requirement: Element 6 addresses the Operation and Maintenance (O&M) activities related to stormwater management. This includes creating and establishing maintenance standards (addressed in Element 5.3), and the annual inspection and maintenance of the City of Marysville's water quality treatment and flow control facilities, as well as catch basins and regional detention facilities. Road and property maintenance activities must also implement practices to reduce stormwater impacts. As with Elements 4 and 5, Element 6 includes requirements for staff training and record keeping. In addition, Marysville will need to develop a Stormwater Pollution Prevention Plan (SWPPP) for its City Shop facility.

Compliance Analysis: Additional resources will be needed to comply with this SWM Element.

In general, Marysville's existing O&M activities meet or exceed the requirements of the Phase II Permit. City of Marysville maintenance staff conduct the inspection, maintenance and repair of facilities as the needs are identified, and so only a small cost increase is needed to account for additional inventory created by new development. The City of Marysville's catch basin inspection and cleaning program services the City's 6,500 catch basins, which are divided into five grids; one of which is inspected and cleaned each year. The catch basin cleaning program needs to be reviewed to ensure the program is meeting Phase II Permit requirements for frequency and disposal practices.

Marysville's current program to spot check facilities after storm events is to use best judgment regarding which facilities need to be inspected. However, the City needs to develop a system to document and record these spot checks to ensure this information can be easily extracted for reporting purposes. Along with annual facility inspection and maintenance, the City needs to increase efforts to track and maintain records of O&M activities. The City of Marysville has recently started a record system to track catch basin and detention facility maintenance. A system is needed that allows tracking of frequency, schedule and resource needs of existing and future maintenance work, in order to support the preparation and justification of annual O&M Program budget requests. Staff time should also be allocated to correlate work activities to the Phase II Permit requirements, per the annual reporting requirements of the Phase II Permit.

Marysville's road maintenance program includes street sweeping along 20 street sweeping routes, ditch maintenance, pipe and culvert cleaning, utility installation BMPs, dust control and deicing and snow removal. For non-roadway properties, such as open space, parks, right-of-way and maintenance yards, a comprehensive maintenance manual needs to be compiled to document existing practices for application of fertilizers, pesticides, and herbicides, sediment and erosion control, landscape maintenance and vegetation disposal, trash management, and building exterior cleaning and maintenance. The Park and Recreation group practices planting of native trees and other plant materials in the local City Parks and open spaces. A group from the Department of Corrections is utilized for noxious weed removal. Marysville also provides buffers of natural vegetation to protect stream channels.

The City of Marysville needs to set aside additional dedicated time for staff training. Training should be provided for a portion of the 22 maintenance staff on an annual basis. Trainings on road maintenance practices could be satisfied through the City's participation in the ESA Regional Road Maintenance Guidelines training program.

In addition, Marysville will need to develop a SWPPP for its heavy equipment maintenance or storage yards, and materials storage facilities.

Annual Staffing Needs and Funding

- *Existing (Year 2/2008)*: 7,930 staff hours (3.81 FTE) at \$294,704 and \$155,727 in expense.
- *Future (Years 3–9/2009-2015)*: 8,295 staff hours (3.99 FTE) at \$319,460 and \$177,871 expense is needed in Year 3 to maintain current staffing budgeted in 2009. An additional 588 staff hours (0.28 FTE) at \$22,645 is also needed to evaluate maintenance practices, develop a system to document spot checks and inspections, and a SWPPP, plus implement staff training and record keeping, and \$2,500 in expense for training activities totaling in Year 3 8,883 staff hours (4.27 FTE) at \$342,105 and \$180,371 in expense. In Year 4, 8,292 staff hours (4.13 FTE) at \$340,819 and \$185,539 in expense is needed to address ongoing maintenance, training, facility maintenance manual, and pollution prevention planning. In Years 5 through 9, the program increases staff hours to a maximum of 9,913 (4.77 FTE) at \$455,841 and a maximum of \$213,801 in expenses to address increasing maintenance demand and training needs. Expenses are increased each year by 3 percent to account for new stormwater facilities added through new development.



Phase II Permit Due Date Requirements

This Phase II Permit requirement has various due dates throughout the life of the Phase II Permit, according to each of its sub-elements.

- Establish the maintenance program, including the maintenance standards consistent with the 2005 Ecology Manual by the end of Year 3 (In Progress).
 - Conduct ongoing annual facility inspections and perform necessary maintenance in accordance with established maintenance standards by the end of Year 3 (Ongoing).
 - Establish a program to spot check stormwater treatment and flow control facilities after major storm events (<10-year recurrence interval) by the end of Year 3 (In Progress).
 - Inspect all catch basins and inlets at a minimum of once by the end of Year 5 (Ongoing).
 - Implement practices to reduce stormwater impacts for street, parking lots and highway runoff by the end of Year 3 (Ongoing).
 - Implement practices to reduce stormwater impacts from non-roadway property runoff by the end of Year 3 (Ongoing).
 - Implement ongoing staff training activities for construction, maintenance, and operations personnel by the end of Year 3 (In Progress).
- Develop and implement SWPPPs for all equipment maintenance and stormwater yards not covered under the Industrial Stormwater General Permit by the end of Year 3 (Not Started).
 - Ongoing O&M records tracking and documentation are to be included in each Annual Report (Ongoing).

Element 7: Total Maximum Daily Load Allocations

Reference: Phase II Permit, Appendix A, Section S7.A-C, p. 30-31.

Requirement: This element is included in the matrix to follow the order of permit requirements and identifies the applicable Total Maximum Daily Load Allocations (TMDLs) to the City.

Compliance Analysis: Marysville is currently subject to the Lower Snohomish River Tributaries TMDL for fecal coliform, which is treated separately in Element 9. The Ecology website does not list any new TMDLs under development at this time that would affect the City. As such, no dollars or FTE have been allocated to this program element.

Annual Staffing Needs and Funding

- *Existing (Year 2/2008):* No staff time or budget was expended on this activity in 2008.
- *Future (Years 3–9/2009-2015):* Current TMDL requirements are addressed in Element 9. No future allocations are needed unless or until additional TMDLs are identified, which is not anticipated during this Phase II Permit cycle.



Required Implementation

Other than that addressed by Element 9, no additional resources are required at this time or anticipated during this Phase II Permit cycle.

Element 8: Monitoring

Reference: Phase II Permit, Appendix A, Section S8.B, p. 31, S8.C.1.a-b, p.30-33, S8.C.2.a p.33-34.

Requirement: The City of Marysville is required to prepare for future monitoring by identifying two suitable sites (one commercial, one high density residential), identifying questions for future monitoring, and developing a monitoring plan for each of these two questions. Because the analysis goes beyond the first cycle of the Phase II Permit, it is assumed that for the second permit cycle initiation of monitoring will be required.

Compliance Analysis: Additional resources will be needed to comply with this SWM Program Element.

This is a new requirement for Marysville that will require attention in Year 4, including site selection, development of questions and monitoring plans for program effectiveness monitoring. In Years 6 through 9, monitoring is assumed to proceed in the second permit cycle.

Annual Staffing Needs and Funding

- *Existing (Year 2/2008):* This is a new SWM activity for the City. No staff time or budget was expended on this activity in 2008.

- *Future (Years 3–9/2009-2015):* In Year 4, 260 staff hours (0.13 FTE) at \$10,314 is required in preparation for stormwater and SWMP effectiveness monitoring. In Year 6, 376 staff hours (0.18 FTE) at \$15,823 and \$50,000 in equipment and lab expense is required for monitoring and equipment selection/installation. In Years 7-9, 256 hours of staff time (0.12 FTE) at an average of \$11,443 and \$30,000 in lab costs for stormwater monitoring and SWMP effectiveness monitoring.

Phase II Permit Due Date Requirements

This Phase II Permit requirement has various due dates throughout the life of the Phase II Permit, according to each of its sub-elements.

- All stormwater monitoring and studies are to be described and included in the Annual Report starting March 31, 2008 (Not Started).
- Identify two outfalls or conveyances suitable for monitoring, document the site selection and provide justification for the selection by December 31, 2010 (Not Started).
- Develop a monitoring plan for each site selected by December 31, 2010 (Not Started).
- Report the status of identifying sites, questions and development of monitoring plan in Years 4 and 5 (Not Started).

Element 9: Lower Snohomish River Tributaries TMDL

Reference: Phase II Permit, Appendix 2, p.9.

Requirement: The City of Marysville is required to comply with the Lower Snohomish River Tributaries TMDL. The TMDL requires Marysville to expand its IDDE program to address commercial animal handling areas and composting facilities to include source control BMPs equivalent to the 2005 Ecology Manual. The City is required to submit a QAPP to Ecology for approval and begin monitoring under the QAPP nine months after Phase II Permit issuance. Marysville is also required to develop and submit a Bacterial Pollution Control Plan (BPCP).

Compliance Analysis: Additional resources will be needed to comply with this SWM Element.

In December of 2007, Ecology approved Marysville's QAPP for the Lower Snohomish River Tributaries. The City is working towards the development of an IDDE program and BPCP.

Annual Staffing Needs and Funding

- *Existing (Year 2/2008):* 416 staff hours (\$15,460) and \$10,000 expense.
- *Future (Years 3–9/2009-2015):* 416 staff hours (0.20 FTE) at \$16,021 and \$10,000 expense was budgeted in Year 3, however an additional 80 staff hours (0.04 FTE) at \$3,081 is required for compiling a list of sites and conducting inspections totaling 496 staff hours (0.24 FTE) at \$19,102 and \$10,000 in expense. Between 416 and 616 staff hours (0.22 FTE and 0.30 FTE) at an average of \$19,385 is required between Years 4-9 to continue monitoring and inspections. Additional time of 160 staff hours (0.08 FTE) is required in Year 4 to develop a BPCP and conduct public review.



Phase II Permit Due Date Requirements

This Phase II Permit requirement has various due dates throughout the life of the Phase II Permit, according to each of its sub-elements.

- Compile list of commercial animal handling and composting facilities and begin to conduct inspections no later than 30 days from the effective date of the Phase II Permit (Not Started).
- Update the list no later than six months prior to the expiration of the Phase II Permit and submit at time of renewal application (Not Started).
- Complete inspections no later than 46 months (3 years, 10 months) after the effective date of the Phase II Permit (Not Started).
- Develop a QAPP for monitoring of the TMDL (Completed).
- Monitoring under the QAPP (Ongoing).
- Develop a BPCP no later than 12 months prior to Phase II Permit renewal application; conduct public review process no later than nine months prior to Phase II Permit renewal application; and submit final BPCP at time of Phase II Permit renewal application. (Not Started).

Element 10: Reporting

Reference: Phase II Permit, Section S9.A-B, p. 34, S9.C, p. 34, S9.D, p. 34.

Requirement: The reporting requirements of the Phase II Permit include ongoing tracking of NPDES activities, maintaining records, the submittal of an Annual Report and SWM Plan document, using forms and formats provided by Ecology, and providing access to this information by the public.

Compliance Analysis: Additional resources will be needed to comply with this SWM Program Element.

The development of the SWM Plan is covered in Element 1.2, although it must be submitted with the Annual Report. In 2008, the City of Marysville submitted its first Annual Report to Ecology (for 2007) in accordance with its Phase II Permit requirements. Staff time for annual reporting is a new activity and Annual Reports will need to be submitted throughout the Phase II Permit term, as covered in Element 1.2. While Marysville's existing record keeping provides some of the necessary tracking information, additional time is needed on a monthly basis to review staff hours and correlate them to the various Phase II Permit activities and track progress toward upcoming milestones and deadlines.

Annual Staffing Needs and Funding

- *Existing (Year 2/2008):* Staff time or budget expended on this activity in 2008 is included in Element 1.
- *Future (Years 3–9/2009-2015):* 8 hours of staff time (0.004 FTE) at \$308 is needed to conduct record keeping required by the Phase II Permit that was not budgeted in Year 3. In Years 4-9, 8 hours of staff time (0.004 FTE) at an average of \$342 is required to meet the record keeping requirements of the Phase II Permit. In Years 3-9, additional staff time and budget for reporting are included in Element 1.

Phase II Permit Due Date Requirements

This Phase II Permit requirement has various due dates throughout the life of the Phase II Permit, according to each of its sub-elements.

- Annual reporting and submittal of an updated SWM Plan is required by March 31 starting in 2008 (Ongoing).
- Other ongoing activities include the maintenance and public access to SWM Program records, reports, and documents (Ongoing).

3.3.4 Gap Analysis Results: Program Elements 11–17

The remaining SWM Program Elements address the City's other local, regional, and State SWM requirements, such as local salmon and water quality enhancement programs. They are generally thought of as being critical and vital activities of an effective SWM Program. This includes activities, such as the creation and maintenance of a local SWM revenue source and a capital improvement program, to address local flooding and provide for public safety and protection of City infrastructure.

Element 11: Underground Injection Control (UIC) Rule

Reference: Washington Administrative Code (WAC) 173-218

Requirement: The State's new Underground Injection Control (UIC) Rule was adopted by Ecology on January 3, 2006. The intent of the UIC is to protect underground aquifers and regional water supply resources by regulating injection wells that inject fluids above the uppermost groundwater aquifer. Some examples of UIC wells include dry wells, French drains used to manage stormwater, and drain fields.

Compliance Analysis: Additional resources will be not needed to comply with this SWM Element.

The City of Marysville is not aware of any publicly owned infiltration facilities that qualify as UIC wells for stormwater management.

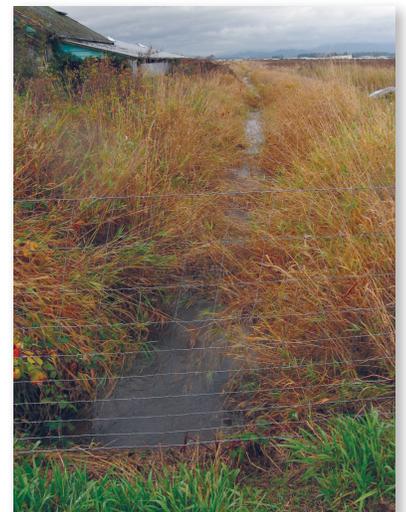
Annual Staffing Needs and Funding

- Existing (Year 2/2008): Not Applicable.
- Future (Years 3–9/2009-2015): Not Applicable

Due Date Requirements

By February 9, 2009 for well registration; by February 2, 2011 for well assessments; reports on changes in well status must be submitted annually. (Not Applicable)

The following element is needed to maintain the City of Marysville's current level of involvement in complying with the ESA.



Element 12: Endangered Species Act (ESA)

Reference: Code of Federal Regulations (CFR) 50, part 223

Requirement: The City of Marysville is also required to be in compliance with the Final Rules for Salmon and Steelhead under the ESA.

Compliance Analysis: Continue current resources to comply with this SWM Element.

The City of Marysville is an active member of the Snohomish River Basin Salmon Recovery Forum, which is implementing ESA compliance strategies.

Annual Staffing Needs and Funding

- *Existing (Year 2/2008):* This is an existing City stormwater related activity and obligation that the City will continue to support and participate in, as supplemented by SWM Element 13; 208 staff hours (0.10 FTE) at \$7,730 and no expenses.
- *Future (Years 3–9/2009-2015):* Maintain 208 staff hours (0.10 FTE) at an average of \$8,769 and no expenses for Years 3-9.

Due Date Requirements

- The majority of ESA related activities and obligations have been addressed in Element 13.

The following element is needed to maintain the City of Marysville's current level of involvement in complying with its current Puget Sound Salmon Plan obligations and activities.

Element 13: Puget Sound Salmon Plan

Reference: Puget Sound Chinook ESA Salmon Recovery Plan, Shared Strategy for Puget Sound, January 2007.

Requirement: The Snohomish Basin Salmon Recovery Forum serves as the local watershed planning unit, which includes Marysville and guides the City's salmon protection and restoration efforts. It is built on the foundation of cooperative effort with members representing the variety of perspectives found in the basin, including local government. The plan is one part of a regional effort taking place over the next decade to ultimately recover Chinook salmon populations in Puget Sound using a scientifically based and feasible course of action to address recovery needs in the areas of habitat, harvest and hatcheries.

Compliance Analysis: Continue current resources to comply with this SWM Program Element.

Marysville was an active participant in developing the June 2005 Snohomish River Basin Salmon Conservation Plan published by the Salmon Recovery Forum. Currently the City is supporting the Qwuloolt/Poortinga Estuarine Restoration Project; however, no funding has been allocated for this project. This project is listed in the City of Marysville's October 2006 Shoreline Inventory and Characterization Report, as

adopted by ordinance, as Project #9.3.1. In this same Report, Project #9.3.3, covers the City of Marysville's commitment under the plan for coordination with other watershed groups. Currently, staff time and materials are the City of Marysville's only resource commitment toward plan implementation.

Annual Staffing Needs and Funding

- Existing (Year 2/2008): 645 staff hours (0.31 FTE) at \$23,963.
- Future (Years 3-9/2009-2015): Maintain 645 staff hours (0.31 FTE) at an average of \$27,190 and no expenses in Years 3-9.

Due Date Requirements

Not Applicable.

Element 14: Water Resource Inventory Area (WRIA) 7 Salmon Habitat Recovery

Reference: Revised Code of Washington (RCW) 90.71

Requirement: The Watershed Planning Act provides local governments with a framework and resources for developing local solutions to watershed issues on a watershed basis that addresses water supply, water quality, habitat, and flood control. The Act prescribes a specific process for the adoption of a watershed plan and voluntary acceptance of obligations under the plan.

Compliance Analysis: Not Applicable.

Watershed planning was not conducted in WRIA 7.

Annual Staffing Needs and Funding

- Existing (Year 2/2008): Not Applicable.
- Future (Years 3-9/2009-2015): Not Applicable.

Due Date Requirements

Not Applicable.

Element 15: 2005-2007 Puget Sound Water Quality Conservation and Recovery Plan

Reference: Revised Code of Washington (RCW) 90.71

Requirement: The 2007-2009 Puget Sound Water Quality Conservation and Recovery Plan is the bi-annual work plan that guides implementation of the 2000 Puget Sound Water Quality Management Plan (PSWQMP).

Compliance Analysis: Additional resources may be needed to comply with this SWM Program Element in the future; presently most of these requirements are being addressed through Marysville's compliance with the Phase II Permit.

It is important for Marysville to continue to be in compliance with the thirteen municipal stormwater management requirements of the State's PSWQMP. While the PSWQMP overlaps with many of the requirements of the Phase II Permit, it also requires the City to develop adequate SWM Program funding, participate in water-

shed planning, encourage the use of Low Impact Development (LID) for new and redevelopment, set local water quality priorities and conduct water quality monitoring to ensure local and regional water quality objectives are being met. It also demonstrates compliance with the Lower Snohomish River Tributaries TMDL water quality implementation plans. Marysville has adopted a stormwater utility to fund its SWM Program. Funding requirements can be addressed through the updated SWM Program financial plan produced as part of this SWM Plan update. Marysville is participating in watershed planning through the Quilceda/Allen Watershed Action Team and has adopted an LID ordinance that addresses LID design standards and implementation. Marysville will need to develop a trend monitoring strategy that monitors the impact of development on water quality, flow, and habitat to assist the City in measuring program effectiveness.

Annual Staffing Needs and Funding

- Existing (Year 2/2008): Although this State requirement has been in effect for a number of years, this will be a new SWM activity for the City. No staff time or budget was expended on this activity in 2008.
- Future (Years 3–9/2009-2015): 80 staff hours (0.04 FTE) at \$3,081 and no expense in Year 3 to evaluate the existing monitoring program and identify gaps. 120 staff hours (0.06 FTE) for Years 4–9 at an average of \$5,132 and \$5,000 in expenses to develop and implement the trend monitoring program.

Due Date Requirements

Most of the work plan requirements are addressed by the Phase II Permit. For the remaining items, RCW 90.91.070 specifies that local governments implement actions defined in the work plans to be subject to the availability of appropriated funds, and public input into its decision making process; this gives Marysville some flexibility and discretion regarding plan implementation timeframes.

The following element is not required by any federal or state regulatory program, however, the repair of existing and construction of new stormwater management facilities is a major responsibility of the City of Marysville and is consistent with the City's commitment to develop and implement an effective storm drainage system and supporting Comprehensive Land Use Plan to attract and sustain economic development.

Element 16: Capital Improvement Projects (CIP)

Reference: Updated Capital Improvement Projects Plan

Requirement: This element focuses on the City of Marysville's need for capital facilities to address flooding, water quality, and needed infrastructure replacement; it is not specifically required by Phase II Permit or regulation.

Analysis: Additional resources will be needed to support this SWM Element.

The City of Marysville has an ongoing CIP Plan. In addition to the existing CIP from the 2008 and 2009 budgets for citywide projects, Marysville has identified and prioritized several new CIP for the planning period. In 2009, the bulk of funding for CIP comes from bond proceeds. In Years 4–9, the gap analysis assumed CIP will be funded

by the revenue from the stormwater utility and the remainder of the stormwater utility revenue not needed for programmatic compliance at approximately on average \$1.2M each year, excluding FTE costs. The City of Marysville will need to maintain 0.51 FTE to support citywide CIP management, design and construction.

For more information on the CIPs, please see Chapter 2.

Annual Staffing Needs and Funding

- *Existing (Year 2/2008)*: 1,064 staff hours (0.51 FTE) at \$39,539 and \$457,032 expense.
- *Future (Years 3–9/2009-2015)*: For Years 3-9, 1,064 staff hours (0.51 FTE) at an average cost of \$44,855. In Year 3, \$8,000,000 in expense for CIP projects and for Years 4-9 the average for CIP is \$1.2 M each year.

Implementation Timeframe

Implementation timeframes are determined by City elected officials with input from City staff and the public as part of the annual budget update process.

Element 17: Additional Activities (City-Specific)

Reference: City's 2008 Annual Budget Document

Requirement: Each year Marysville adopts an annual budget for the SWM Program Fund that specifies approved expenditures to meet the SWM Program operation, taxes, and administrative needs.

Analysis: Additional resources will be needed to support this SWM Element.

The 2008 Budget identifies office supplies and equipment replacement, customer response and utility billing, program overhead, professional services agreements, Phase II Permit fees, debt service, and administration and support. Marysville's Stormwater Fund pays for a number of program overhead items such as insurance, billing administration, and city taxes. The SWM Program uses professional service contracts and agreements to hire outside help as the need arises throughout the year. Customer Response and Utility Billing is allocated 2,080 staff hours (1.0 FTE) and an average of \$177,298 in expenses. For the planning period, \$15,000 was included for the City's annual Phase II Permit fees. Program Administration includes 3,476 staff hours (1.67 FTE) and \$91,278 in expenses. Annual debt service is scheduled at \$537,100 per year for 2009 through 2012 and at \$700,000 per year for 2013 through 2015.

Annual Staffing Needs and Funding

- *Existing (Year 2/2008)*: 5,556 staff hours (2.67 FTE) at \$206,467 and \$1,256,646 in expense.
- *Future (Years 3–9/2009-2015)*: In Year 3, 5,213 staff hours (2.51 FTE) at \$200,765 with \$1,520,980 in expense. In Years 4-9, maintain 5,213 staff hours (2.51 FTE) at an average of \$222,931 and an average of \$1,451,491 in expense for Years 4-9.

Implementation Timeframe

This SWM Program Element includes the annual operating costs needed for program overhead and administration, and is critical for program development and implemen-

Appendix 3.3.A—Surface Water Management Program Gap Analysis and Costs
Appendix 3.3.B—Budget Model Integration 2009

This chapter presented Marysville’s SWM Programmatic Solutions for addressing the gap between the existing program and regulatory requirements and obligations, including needed annual funding, staffing, SWM Program activities, equipment, capital projects, and legal authorities. Section 3.4 presents a summary of the findings and observations from the gap analysis of Marysville’s SWM Program, as well as proposed activities to help the City to meet its SWM Program priorities and needs consistent with Phase II Permit requirements and CIP demands.

Section 3.4: Surface Water Management Program Activities and Costs

3.4.1 Section Overview

This section presents a summary of the findings and observations from the gap analysis of Marysville’s Surface Water Management (SWM) Program, as well as proposed activities to help the City to meet its SWM Program priorities and needs consistent with Phase II Permit requirements and CIP demands.

The total SWM Program descriptions, milestones, staffing needs, and costs are detailed in the matrix in Appendix 3.3.A. SWM Program funding can be divided into three major categories: Regulatory Program Activities (Program Elements 1-15), CIP (Element 16), and Additional City-specific Activities (Element 17). While this section is focused on programmatic activities, CIP and administrative recommendations have also been summarized to provide a complete picture of Marysville’s SWM Program needs and their respective costs.

3.4.2 Programmatic Observations and Solutions

The general programmatic observations from the gap analysis are presented by Element below.

Element 1: Program Implementation

In 2008 and 2009, Marysville submitted its SWM Plan and Annual Reports to Ecology. Each year thereafter, Marysville will need to submit the updated SWM Plan with Annual Reports. Starting in 2009, a greater annual staff coordination effort will be required for SWM Program implementation and management. This element requires a small increase from 0.10 FTE to 0.23 FTE each year with no expense dollars.

Element 2: Public Education and Outreach

Marysville’s existing SWM Program already provides extensive education and outreach opportunities. Marysville will need to develop and implement a formal comprehensive education and outreach program that continues to focus on current and target audiences and subject areas specified in the Phase II Permit. The program will need additional funding and/or staff resources. Resources will measure the results of education activities in target audiences in addition to the elementary school children that have already been surveyed, and maintain records. This element requires a slight increase from 0.10 FTE to 0.14 FTE in Years 3-9 for annual program development and administration with a boost in Years 3 and 5 to 0.22 FTE to measure program effectiveness. This element also requires an additional \$5,000 in expense beyond the existing \$10,000 expense for materials development and distribution.

3.4.1 Section Overview.....	Page 3.4 - 1
3.4.2 Programmatic Observations and Solutions.....	Page 3.4 - 1
3.4.3 Summary of Results.....	Page 3.4 - 5
3.4.4 Urban Growth Annexation Impacts of SWM Program.....	Page 3.4 - 6

Element 3: Public Involvement and Participation

The City of Marysville's existing SWM Program already provides for public involvement in SWM Planning through the City Council and involvement in the Quilceda/Allen Watershed Action Team. The City may want to consider creating additional opportunities for the public to provide input into the SWM Program planning, development and implementation activities. This element requires a slight increase from 0.05 FTE to 0.10 FTE in Year 3 to enhance the City's website and conduct ongoing quarterly maintenance, and manage and maintain stormwater documents for public review, with no increase in expense each year.



Element 4: Illicit Discharge Detection and Elimination

The City should complete its stormwater system mapping this year and will see a decrease in staff resources in this area as it moves to a mapping maintenance effort in 2010. This is also true for the IDDE ordinance work which will require additional one-time resources in 2009. Most of the City's effort will be maintained at its existing level over the remainder of the planning period, with a slight increase in FTE in the area of staff training. Overall, the total staffing needs rise from the current 0.50 FTE to 0.68 FTE in Year 3 and then drop to 0.42-0.43 FTE each year thereafter over the planning period. The City of Marysville will rely on the Community Development Department for storm system mapping, including their GIS Analyst and GIS Administrator, to assist in completing the base mapping. Surface Water staff will continue their work updating the ordinance, establishing procedures, conducting field assessments, characterizing discharges, tracing sources, and eliminating illicit connections. To implement the IDDE program, this element requires an expense increase of \$20K annually starting in 2010 for clean-up charges that may be incurred in illicit discharge investigations from \$40,100 to \$60,100.

Element 5: Controlling Runoff from New Development, Redevelopment and Construction Sites

Marysville's current development review and inspection process is managed by the Community Development Department. Development review is an area where Marysville receives credit for meeting Phase II Permit compliance goals and is partially subsidized through the City's SWM Fund with the remainder of costs funded through development review fees. The City may want to consider recovering the full costs for development review wholly from development review fees rather than subsidizing that activity with SWM utility revenues. Marysville will need to adopt the 2005 Ecology Manual, ensure their record keeping methods meet all Permit requirements and conduct additional training in permitting, plan review, construction site inspection and enforcement concerning the Stormwater Runoff Control program. The City of Marysville will also need to finalize the Pollution Prevention and Operation Maintenance Plan and create a private facility maintenance enforcement program in Year 3. In Year 3, staffing for this element will rise from 0.71 FTE to 1.03 FTE. In Years 4-9, staffing for this element will drop and stabilize at close to the existing level with a slight increase to 0.76- 0.78 FTE. Starting in Year 3, \$100 in expense is included for training materials.

Element 6: Pollution Prevention and Operation and Maintenance for Municipal Operations

Marysville has made good progress in meeting the requirements of pollution prevention and operation and maintenance for municipal operations. However, Marysville needs to develop a system to ensure and document spot checks of stormwater treatment and flow control facilities after 10-year and greater storm events. The City also needs to document and/or develop practices that reduce stormwater impacts from roadway and non-roadway properties, and needs to develop a SWPPP for the City's equipment maintenance and storage yard. Staff training will require ongoing resources. In addition, the City of Marysville needs to assure that its record keeping system tracks all inspection and maintenance records, so they can be easily accessed for annual reporting. This element requires a small increase in staffing from 3.99 FTE to 4.27 FTE in Year 3, then a slight drop to 4.13 FTE in Year 4 with a steady incremental rise to 4.77 FTE by Year 9, mostly associated with an assumed increase in facility inventory over time. Similarly, expenses rise in Year 3 by approximately \$75K and continue to rise slightly on an annual basis over the planning period from roughly \$523K in Year 3 to \$670K in Year 9.



Element 7: Total Maximum Daily Load Allocation

The Lower Snohomish River Tributaries TMDL for fecal coliform is addressed in Element 9. The Ecology website does not list any new TMDLs under development at this time that would affect Marysville.



Element 8: Monitoring

Marysville currently does not perform stormwater quality monitoring to evaluate the effectiveness of its SWM Program. The City will need to identify sites for future stormwater monitoring and identify questions suitable to program effectiveness monitoring, select sites, and develop monitoring plans. Preparation for monitoring begins in Year 4 and requires 0.13 FTE in that year for monitoring site identification, including site field visits and documentation and to develop suitable questions to assess the stormwater program effectiveness. It is assumed that implementation of monitoring will occur during the next Phase II Permit cycle. Consequently, additional staff time and expense will be needed for equipment selection and installation and sample collection.

Element 9: Lower Snohomish River Tributaries TMDL

Marysville has been conducting monthly monitoring in compliance with its QAPP under the TMDL. In Years 3-5, additional resources will be needed to compile/update a listing of commercial animal handling and composting facilities, as well as to conduct inspections for source controls. In Year 4, Marysville will need to develop a BPCP and conduct a public review process. Staffing needs rise by 0.10 FTE in Year 4, to 3.0

FTE then level off to 0.20 FTE for the remainder of the planning period. An existing expense of \$10K annually is maintained throughout the planning period.

Element 10: Reporting

Marysville has initiated and will need to continue annual reporting. Staff time and expenses are included under Element 1 for all reporting requirements.

Element 11: Underground Injection Control

Marysville is not aware of any publicly owned infiltration facilities that qualify as UIC wells for stormwater management. This element will require no additional staff time or expense.

Element 12: Endangered Species Act

Marysville is an active member of the Snohomish River Basin Salmon Recovery Forum and devotes 0.10 FTE annually to participation in this group. See Element 13 Puget Sound Salmon Plan for additional ESA compliance strategies.

Element 13: Puget Sound Salmon Plan

Marysville is an active participant in salmon conservation planning in accordance with the June 2005 Snohomish River Basin Salmon Conservation Plan. Marysville staff will continue to devote 0.31 FTE for the duration of the planning period with no expense dollars to continue participation and implementation of the plan.

Element 14: WRIA 7 Salmon Habitat Recovery

Watershed planning was not conducted in WRIA 7; therefore, there is no staff time or expense allocated for this element.

Element 15: 2007-2009 Puget Sound Conservation and Recovery Plan

Marysville has adopted Ordinance No. 2694 amending the City's development regulations and the City has completed a chapter in the MMC related to Low Impact Development and design standards. The City will need to evaluate their existing monitoring program and identify gaps in trend monitoring at 0.04 FTE in Year 4 and implement trend monitoring each year thereafter at 0.06 FTE and \$5,000 in expenses.

Element 16: Capital Improvement Projects

Marysville's capital program will require significant financial resources in order to complete proposed projects as currently scheduled. Capital projects and infrastructure aging (i.e. depreciation) and replacement should be considered in Marysville's funding and rate review being conducted by the City. This element requires 0.51 FTE and an average design and construction cost of \$1.2M from Years 4-9 and \$8,000,000 in Year 3.

Element 17: Additional Activities (City-Specific)

Marysville will have ongoing administrative and overhead costs for SWM Program implementation and regulatory compliance including Professional Services, Phase II Permit Fee, Debt Services, and Customer Response and Utility Billing.



3.4.3 Summary of Results

While the City of Marysville has an established, well-funded and well-staffed SWM Program, it is slightly under-funded and understaffed in some areas, depending on Phase II Permit due dates. Additional staff time and funding is needed to meet the Phase II Permit requirements as summarized in Table 3.4.A.

Program Categories	Existing Year 2 2008	Year 3 2009	Year 4 2010	Year 5 2011	Year 6 2012	Year 7 2013	Year 8 2014	Year 9 2015	Total \$ Yr 2-9
Staffing Level (FTE)	9.07	10.23	9.71	9.69	9.91	9.97	10.10	10.24	N/A
Regulatory Program Activities*	\$676	\$828	\$833	\$853	\$945	\$954	\$991	\$1,030	\$7,110
CIP*	\$497	\$8,041**	\$722	\$1,231	\$1,318	\$1,269	\$1,361	\$1,457	\$15,896
Additional Activities*	\$1,463	\$1,722	\$1,557	\$1,587	\$1,557	\$1,750	\$1,782	\$1,814	\$13,232
Totals	\$2,636	\$10,591	\$3,112	\$3,671	\$3,820	\$3,973	\$4,134	\$4,301	\$36,238

* Includes expense, labor and benefit costs

** Includes \$6.5 mil for design and construction of a Regional Pond expansion in the Hayho Basin which has been delayed. Unused money will carry over to the next year's budget.

This planning analysis shows that compared to what Marysville is currently allocating for surface water management, by 2015, through the end of the planning period, the City will need to:

- Increase staff by 1.17 FTE from 9.07 FTE to 10.24 FTE.
- Increase annual regulatory compliance funding by \$354K from \$676K to \$1.03M.
- With the exception of Year 3 (2009), fund CIP construction at an annual average level of approximately \$1.2 million.
- Continue to fund annual administrative, professional services, and overhead costs amounting to about \$1.81 million by 2015.

Through the end of the Phase II Permit cycle, by Year 5 (2011), this SWM Program Gap Analysis indicates that annual funding needed for regulatory compliance and staff needs will rise to \$853K, a 26% increase over 2008. Compared to the City of Marysville's existing program, by 2011 the City's annual SWM Program will need to increase staffing 7% by approximately 0.62 FTE from 9.07 FTE to 9.69 FTE, and increase annual funding by roughly 39% from about \$2.6M to about \$3.7M, in order to achieve regulatory compliance, meet CIP needs, and meet the myriad of other Marysville stormwater related obligations.

General Comments

- In comparing the program needs to existing expenditures, it is important to note that existing program estimates are based on the 2008 budget year.
- Marysville has three full time Surface Water staff and numerous other support staff for a total of 8.98 FTE contributing to stormwater management in 2009. This is a decrease of 0.09 FTE from the 2008 FTE allocations based on the City's review and reallocation of resources across divisions. This 8.98 FTE allocation has been projected for the duration of the planning period. This SWM Program staffing approach allows the City to rely on in-house staff to meet most of its program needs and reduces the need for consultant expense to support the City's growing SWM Program.

3.4.4 Potential Impact to City's SWM Program from Urban Growth Annexation

The City of Marysville plans to annex the area within their Urban Growth Boundary (UGA) by December 31, 2009. The total area of this annexation adds approximately 3,080 acres, or about 30 percent of new service area, to the City's existing SWM Program service area, for a combined total of 10,525 acres, as shown in Figure 3.1A. Currently this area is within the SWM service area of Snohomish County's NPDES Phase I Permit. (Note: a map of the City's existing Permit area is presented in the graphic produced by the Department of Ecology¹.)

Similar to area within incorporated City limits, the City of Marysville will need to meet various milestones and submit an Annual Report and SWM Plan to Ecology showing compliance and documenting progress toward full implementation of the Phase II Permit within the annexation area. The City should be able to pick up where the County left off and just extend the services of the City's current SWM Program.

Since the City's Phase II Permit applies to any land within the new City limits, the City will need to expand its existing SWM Program services into this area in order to maintain compliance with its Permit. To assist the City in making this transition, a table listing the SWM Program services that will be needed within this new area has been developed and is presented in Table 3.4B.

This annexation will increase the amount of staff time and resources needed to fully implement the City's SWM Program, and maintain compliance with the Phase II Permit. The additional staff time and resources needed from 2010 to 2015 is about \$196,000 per year, \$138,761 for staffing (for an additional 1.6 FTE) and an additional \$57,387 for expenses. These new costs will be partially offset by the new additional revenue generated by these new parcels being brought into the City SWM utility (service area).

1. For a copy of the Department of Ecology's graphic please visit: <http://www.ecy.wa.gov/programs/wq/stormwater/phase2/urbanmaps/maps08/ua55333.pdf>

Table 3.4.B: Additional Staffing and Expense Needed with UGA Annexiation for 2010-2015

Element	Average Annual Additional FTE	Additional Annual FTE Costs	Additional Average Annual Expenses	Total
Element #1 - Special Conditions S5.A and S5.B, Program Implementation, Program Implementation	0	\$0.00	\$0.00	\$0.00
Element #2 - Special Condition S5.C.1, Public Education and Outreach	0	\$0.00	\$0.00	\$0.00
Element #3 - Special Condition S5.C.2, Public Involvement and Participation	0	\$0.00	\$0.00	\$0.00
Element #4 - Special Condition S5.C.3, Illicit Discharge Detection and Elimination	0.05	\$4,348	\$0.00	\$4,348
Element #5 - Special Condition S5.C.4, Controlling Runoff from New Development, Redevelopment, and Construction Sites	0.22	\$19,393	\$0.00	\$19,393
Element #6 - Special Condition S5.C.5, Pollution Prevention and Operation and Maintenance for Municipal Operations	1.33	\$115,020	\$57,387	\$172,407
Element #7 - Special Condition 7, Total Maximum Daily Load Allocations	0	\$0.00	\$0.00	\$0.00
Element #8 - Special Condition S8, Monitoring	0	\$0.00	\$0.00	\$0.00
Element #9 - Lower Snohomish River Tributaries TMDL	0	\$0.00	\$0.00	\$0.00
Element #10 - Special Condition S9, Reporting	0	\$0.00	\$0.00	\$0.00
Element #11 - Underground Injection Control (UIC)	0	\$0.00	\$0.00	\$0.00
Element #12 - Endangered Species Act (ESA)	0	\$0.00	\$0.00	\$0.00
Element #13 - Puget Sound Salmon Recovery Plan	0	\$0.00	\$0.00	\$0.00
Element #14 - WRIA #7 Salmon Habitat Recovery	0	\$0.00	\$0.00	\$0.00
Element #15 - 2007-2009 Puget Sound Water Quality Conservation and Recovery Plan	0	\$0.00	\$0.00	\$0.00
Element #16 - Capital Improvement Program1	N/A	N/A	N/A	\$0.00
Element #17 - Additional Activities (City Specific)	0.75	\$64,930	\$224,906	\$289,836
Grand Total	1.60	\$138,761	\$57,387	\$196,149

Notes

1. Projects within the UGA were already included in the analysis.

The type of land use being annexed (i.e. residential, commercial, and agricultural) will generally dictate the type of SWM Program services that need to be provided. The primary impact to the City's existing SWM Program for this annexation is in the areas of maintenance and SWM Program administration. The other services, such as development review, public education, public involvement, and training should carry over from the City's existing SWM Program at minimal additional costs.

Specific elements of the SWM Program that will require additional resources include the following:

- **Element #4: Illicit Discharge Detection and Elimination:** The City of Marysville will need to implement the Detection and Elimination Program in the annexation area, along with ensuring the stormwater system mapping for this area is complete. This element requires an average of additional staff time and resources from 2010 to 2015 at 0.05 FTE at \$4,348.
- **Element #5: Controlling runoff from New Development, Redevelopment and Construction Sites:** The City of Marysville will need to allow staff time for site plan review and permitting for new development in the annexation area, along with keeping records applicable to this element. (This additional staff time should be reimbursed by developer fees.) This element requires an average of additional staff time and resources from 2010 to 2015 at 0.22 FTE at \$19,393.
- **Element #6: Pollution Prevention and Operation and Maintenance for Municipal Operations:** The City of Marysville maintenance crews will be required to perform annual inspections of water quality and flow control facilities, spot check catch basins after storm events and perform catch basins inspections and maintenance, as needed, within the annexation area. The amount of maintenance that will be required is dependent on the current condition of the stormwater facilities. This element requires an average of additional staff time and resources from 2010 to 2015 at 1.33 FTE at \$115,020 and \$57,387 in expense.
- **Element #17: Additional Activities (City Specific):** The City of Marysville will need to budget staff time and expenses for the additional equipment, materials, supplies, program overhead (including taxes), program administration and customer response and utility billing services. This element requires an average of additional staff time and resources from 2010 to 2015 at 0.75 FTE at \$64,930 and \$244,906 in expense.

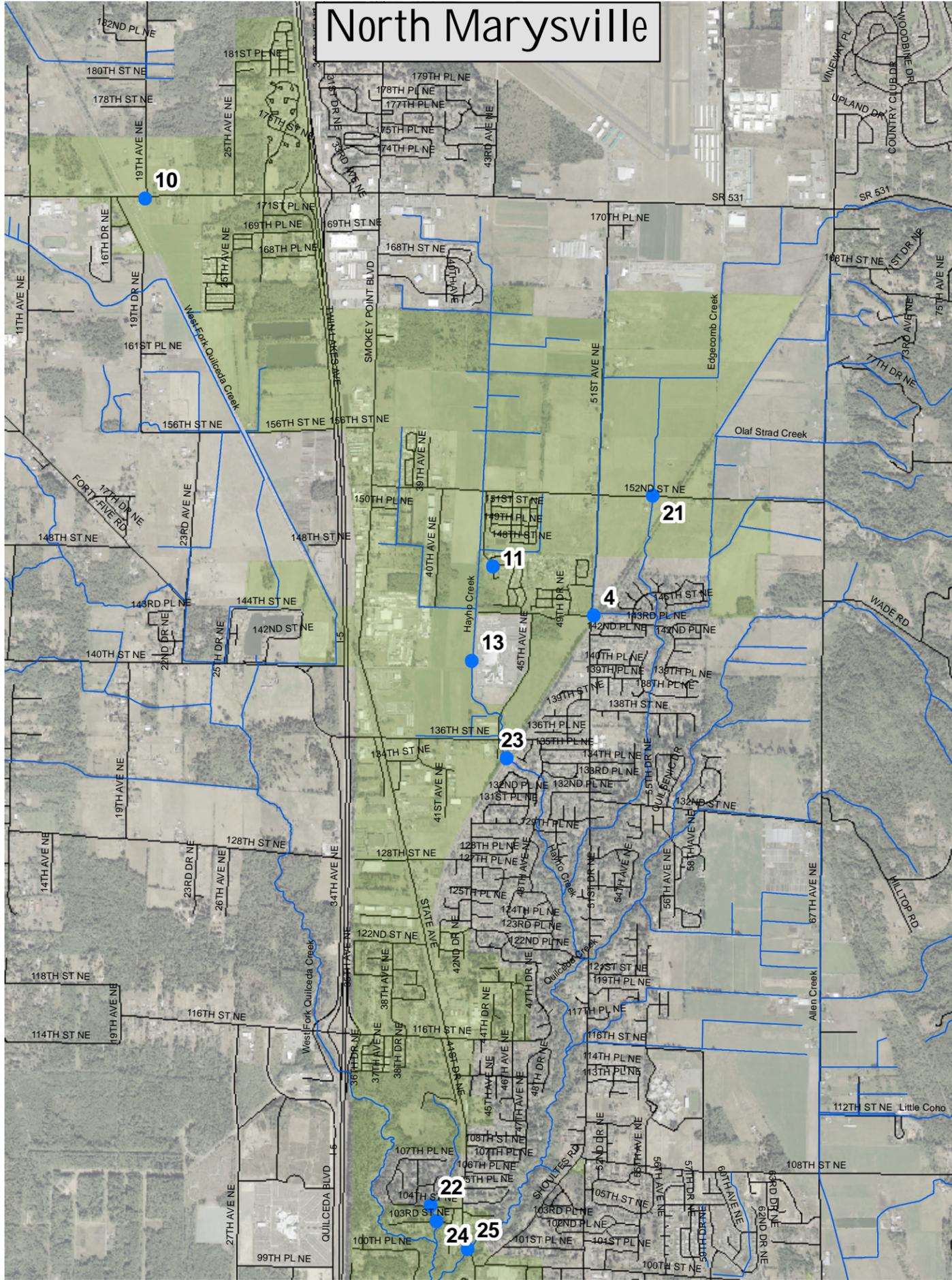
Appendix 2.1.A
City Staff-Identified Problem Areas

City Provided Drainage Complaints

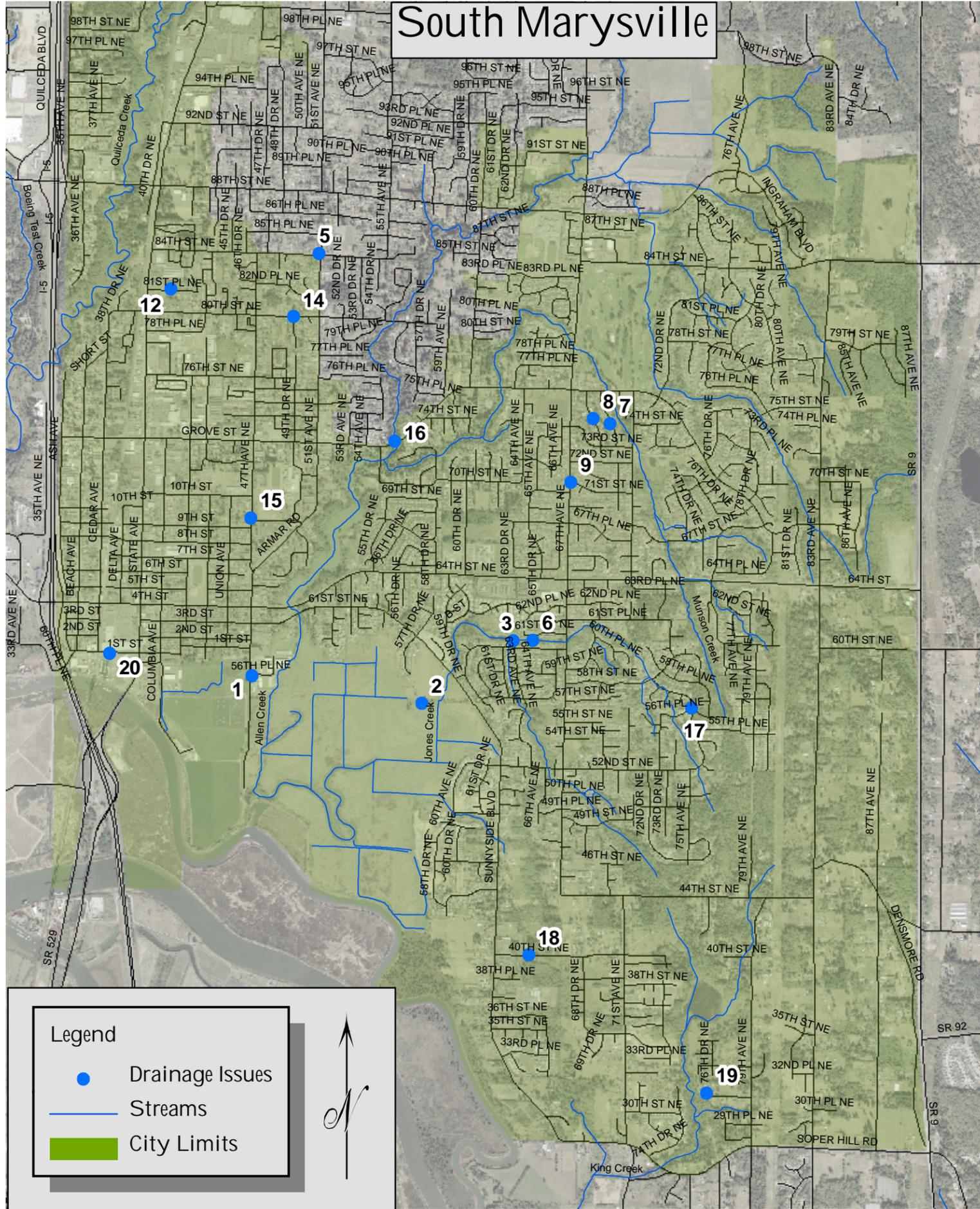
This list of drainage problems was provided by the City of Marysville in March, 2008. ID numbers correspond to mapped problem locations. The drainage problems on this list are largely based on complaint data. Drainage problems have not been confirmed with analysis.

Id	Comments	Owner	Severity	Feature	Solution	Proj Type	Problem Source
1	Flooding Complaint in the Marysville Industrial Park. Should be fixed as part of the Qwuloolt Project.	Public	Roadway	Conveyance	Qwuloolt Project?	Flooding	City
2	Complaint of a basement flooding at 5602 Sunnyside Blvd. Maybe affected as part of the Qwuloolt Project.	Private	Basement	Groundwater	Qwuloolt Project?	Flooding	City
3	Numerous Flooding complaints in the Sunnyside Hills neighborhood.	Public	Yard & Road	Unknown	Potential CIP	Flooding	City
4	Flooding complaint at 14333 51st Ave. Most likely due to the construction dewatering up stream	Private	Temporary	Unknown	Unknown	Flooding	City
5	Complaints of flooding at this location. County fixed drainage issue here which should remedy the situation	Public	Unknown	Drainage	Fixed by County	Flooding	City
6	Jones creek spilled from its normal channel in this location and flowed north to the street and then west down toward the de-sac where it pooled. House with sinkhole.	Public	Roadway / cul-de-sac	Channel	Potential CIP	Flooding	City
7	Complaints of front yard flooding in by Ralph Almond. Problem was fixed with CB at low point by the City in 2006. The ditches have been filled in all along 67th.	Private	Yard	Catchbasin	Fixed by City, 2006	Flooding	City
8	Complaints in area. No drainage and reports of flooding. The ditches have been filled in all along 67th.	Private	Unknown	Drainage	Potential CIP	Flooding	City
9	Groundwater seeping into roadway. Reported by streets division; concerns with icing.	Public	Roadway	Groundwater	Potential CIP	Flooding	City
10	Creek choked with vegetation. Reports of flooding. Corrections crew cleaned ditch. Maintenance concerns due to adjacent land activities.	Public	Unknown	Creek	Maintenance	Flooding	City
11	Beaver dams in stream channel causing periodic flooding of this development. Retirement center.	Public	Development	Beaver dams	Hayho Restoration Plan	Flooding / Habitat	City
12	Flooding. City installed an infiltration trench to capture road water.	Unknown	Unknown	Infiltration trench	Fixed by City	Flooding	City
13	Beaver dams in stream channel causing periodic flooding. Adjacent parcel to be developed. Require developer to remedy flooding concerns.	Private	Property	Beaver dams	Hayho Restoration Plan	Flooding / Habitat	City
14	SnoCo Housing Authority. Flooding city right of way. Due to the lack of maintenance on SnoCo's infiltration trench.	Public	Right of way	Infiltration trench	Maintenance	Flooding	City
15	Puddling	Unknown	Unknown	Unknown	Unknown	Flooding	City
16	Puddling per streets department. Lack of CB causes puddling within right of way. Street Crowned incorrectly.	Public	Right of way	Lack of CB	Potential CIP	Flooding	City
17	Drainage issue fixed in house. Water was running from right of way into garage. City installed a french drain to fix the problem.	Private	Garage	Surface water	Fixed by City (french drain)	Flooding	City
18	Groundwater over roadway. Maintenance department attempted to fix but the fix failed. Icing concerns. Road sloughing into dirt.	Public	Roadway	Groundwater	Potential CIP	Flooding	City
19	Flooding from neighboring development. To be remedied with the city.	Public	Development	Unknown	Potential CIP	Flooding	City
20	Outfall concerns by Geddes. Currently in legal negotiations with the city.	Private	Unknown	Outfall	Downtown plan will address?	Flooding	City
21	Undersized Culvert. To be addressed as part of the Smokey Point Master Plan implementation. Neighbors complain of water on property.	Public	Property	Culvert	Smokey Point Master Plan	Flooding	City
22	Undersized Culvert. Complaints from property owners regarding flooding. City has performed emergency pumping at times.	Public	Property	Culvert	Potential CIP	Flooding	City
23	Channel needs to be breached for new culvert. Old railroad culvert was never removed as part of new culvert installation.	Public	Unknown	Channel	Potential CIP	Flooding	City
24	Undersized Culvert. Complaints from property owners regarding flooding. City has performed emergency pumping at times.	Public	Property	Culvert	Potential CIP	Flooding	City
25	Undersized Culvert. Expensive project. A bridge would have to be installed here. Railroad culvert downstream may be insufficient as well. Deep with lots of fill over existing project.	Public	Unknown	Culvert	Potential CIP	Flooding	City

North Marysville



South Marysville



Legend

- Drainage Issues
- Streams
- City Limits



Appendix 2.1.B
Public-Identified Problem Areas

Summary of Survey Results

from survey

Id	Comments	Address
1	Water flows downhill and floods crawl space and yard. Partial ditch along road is plugged.	4526 67th Ave Ne
2	Neighbor funnels water from gutters under his house to this property	6225 67th Ave Ne
3	Water fills back half of our parking lot after heavy rains.	4010 136th St Ne
4	During heavy rains there is standing water between our property and the road. I have dug drains for downspouts but it hasn't helped.	5512 70th St Ne
5	Water drains down the street until it hits our driveway and then pools. It comes from the end of the cul de sac.	5808 65th Dr Ne
6	During rain events ground water from upper parcels flows down the hill and floods our crawl space. Also the neighbor above drains water from crawl space over our rockwall into our yard.	6301 67th Ave
7	Water is constantly collecting on the drives through the complex and not effectively leaving through the drains. We have a pump but that does not fix the problem.	4807 76th St Ne
8	Parking strip area floods.	305 Columbia
9	Water flows into our yard and floods the basement one to two days a year.	7518 54th Pl Ne
10	Drain pipe in alley gets pulled or smashed by garbage trucks entering the alley. The result is a large area of water that doesn't drain and backs up.	1804 7th St Ne
11	Water backs up out of street drains and runs down driveway. Also, continuous drainage year round that goes under 60th Dr and under and around house. 100 sq. feet void under house. House is settling and basement and garage floor is cracking	5628 60th Dr Ne
12	Water comes out of Jones Creek channel, flows through a yard into the street and floods the cul de sac. Yards and driveways also flood.	6406 61st St Ne
13	Ponding in driveway & swampy back yard	16201 98th St Ne



City of Marysville
Surface Water Drainage Questionnaire

#1

1. Name (Optional): William (Bill) A. Skinner
Phone Number (Optional): 425 334 3609
Address (Please Include): 4526 67th Ave NE
Marysville, WA, 98270-8845



2. How many years have you lived or conducted business at the above address? 40

3. Have you ever experienced flooding at this location? as described in item #17

4. If so, how often do you experience flooding?

- Every time it rains
- Frequently – most of the time when it rains
- Sometimes – only when it rains very hard
- Infrequently – only in rare occasions
- Never



5. Is the flooding a result of a problem with a public or private drainage system?

- Public system located within city right-of-way
- Private system located on private property
- I don't know

6. Can you provide photographs of any flooding? Yes No

(If yes, please include a copy with the completed questionnaire)

7. Please describe the flooding (For example: Water bubbles out of catch basins and floods one lane of the street for about an hour during big storms. Or, water flows downhill into our yard and floods the basement for one to two days every winter).

Water Flows downhill and floods crawl space and yard becomes very wet. Water "rolls" down driveway when it rains. There is partial ditch along road but it is plugged.

8. Using the following scale, when it floods, how bad is the flooding?

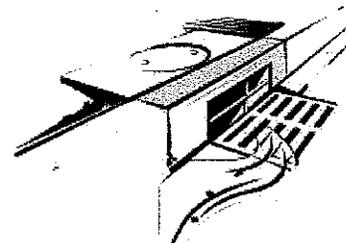
- Very bad
- Bad
- Somewhat bad
- Not bad at all

9. Can we contact you to discuss the flooding you have reported? Yes No

10. When is the best time to contact you? Retired, so anytime you try to contact me is ok.

Please send your completed questionnaire to:

City of Marysville
Surface Water Management Division
80 Columbia Ave.
Marysville, WA 98270



If you have any questions regarding this survey, please call (360) 363-8100

survey title:

City of Marysville Surface Water Questionnaire 12/07

Public System

Neighbor has a Building permit for the work done. 6230 68th Ave.

Displaying 6 of 13 respondents

Response Type: Normal Response

Collector: City of Marysville Surface Water Questionnaire (Web Link)

Custom Value: empty

IP Address: 98.203.217.158

Response Started: Wed, 1/16/08 4:39:55 PM

Response Modified: Wed, 1/16/08 5:14:29 PM

1. Your Information:

Your Name (Optional): - Wendy Langstraat

Phone Number (Optional): - 360-651-1970

Your Address (Required): - 6225 67th Ave NE Marysville

2. How many years have you lived or conducted business at the above address?

15+ years

3. Have you ever experienced flooding at this location?

Yes

4. If so, how often do you experience flooding?

Sometimes - only when it rains very hard

5. Is the flooding a result of a problem with a public or private drainage system?

Private system located on private property

6. Can you provide photographs of any flooding? If yes, please email them to us at surfacewater@ci.marysville.wa.us or mail them to: City of Marysville Surface Water Management 80 Columbia Ave. Marysville WA, 98270 (Please be sure to include your name and address so we may reference your photos to this survey)

yes

7. Please describe the flooding (For example: Water bubbles out of catch basins and floods one lane of the street for about an hour during big storms. Or, water flows downhill into our yard and floods the basement for one to two days every winter).

We have flooded 3 times all caused by neighbor. He funnels his water from gutters and under his house to our property and the neighbors properties causing us to all flood. He was told the 1st time to cap off the pipe causing the flooding. He redesigned his drainage after the 3rd time we flooded without any adequate design or equipment

survey title:

**City of Marysville Surface
Water Questionnaire 12/07***Private*

Displaying 7 of 13 respondents

Response Type: Normal Response**Collector:** City of Marysville Surface Water
Questionnaire (Web Link)**Custom Value:** *empty***IP Address:** 24.113.4.72**Response Started:** Wed, 1/16/08 10:02:34 PM**Response Modified:** Wed, 1/16/08 10:07:14 PM**1. Your Information:**

Your Name (Optional): - David K. Eitner

Phone Number (Optional): - 360-659-7334

Your Address (Required): - 4010 136th St NE

2. How many years have you lived or conducted business at the above address?

5 years

3. Have you ever experienced flooding at this location?

Yes

4. If so, how often do you experience flooding?

Sometimes – only when it rains very hard

5. Is the flooding a result of a problem with a public or private drainage system?

I don't know

6. Can you provide photographs of any flooding? If yes, please email them to us at surfacewater@ci.marysville.wa.us or mail them to: City of Marysville Surface Water Management 80 Columbia Ave. Marysville WA, 98270 (Please be sure to include your name and address so we may reference your photos to this survey)

No Response

7. Please describe the flooding (For example: Water bubbles out of catch basins and floods one lane of the street for about an hour during big storms. Or, water flows downhill into our yard and floods the basement for one to two days every winter).

Water fills the back half of our parking lot after heavy rains. drainage rates vary with the water table and duration of rain. The drainage ditch that borders the south o four property will fill as high as the level of the parking lot.

survey title:

City of Marysville Surface Water Questionnaire 12/07

road drainage issue?

Displaying 5 of 13 respondents

Response Type: Normal Response	Collector: City of Marysville Surface Water Questionnaire (Web Link)
Custom Value: empty	IP Address: 71.112.238.225
Response Started: Thu, 1/10/08 7:14:26 PM	Response Modified: Thu, 1/10/08 7:23:46 PM

1. Your Information:

Your Name (Optional): - Mark Metz

Phone Number (Optional): - 360-659-9716

Your Address (Required): - 5512 70th St. N.E.

2. How many years have you lived or conducted business at the above address?

27 years

3. Have you ever experienced flooding at this location?

Yes

4. If so, how often do you experience flooding?

Sometimes – only when it rains very hard

5. Is the flooding a result of a problem with a public or private drainage system?

I don't know

6. Can you provide photographs of any flooding? If yes, please email them to us at surfacewater@ci.marysville.wa.us or mail them to: City of Marysville Surface Water Management 80 Columbia Ave. Marysville WA, 98270 (Please be sure to include your name and address so we may reference your photos to this survey)

No Response

7. Please describe the flooding (For example: Water bubbles out of catch basins and floods one lane of the street for about an hour during big storms. Or, water flows downhill into our yard and floods the basement for one to two days every winter).

During heavy rains there is standing water between our property and the road (filling the water meter) and during the fall and winter months the crawl space under the house is continually wet with sometimes 1"-3" of standing water. I have dug drains for the downspouts, but it hasn't helped.

survey title:

**City of Marysville Surface
Water Questionnaire 12/07**

Public

Displaying 8 of 13 respondents

Response Type: Normal Response

Collector: City of Marysville Surface Water
Questionnaire (Web Link)

Custom Value: *empty*

IP Address: 207.200.116.8

Response Started: Thu, 1/17/08 3:39:25 PM

Response Modified: Thu, 1/17/08 3:46:07 PM

1. Your Information:

Your Name (Optional): - Phillip & Carol Avey

Phone Number (Optional): - 3606598153

Your Address (Required): - 5808 65th Dr. N.E. Marysville, Washington 98270

2. How many years have you lived or conducted business at the above address?

30 years

3. Have you ever experienced flooding at this location?

Yes

4. If so, how often do you experience flooding?

Frequently – most of the time when it rains

5. Is the flooding a result of a problem with a public or private drainage system?

I don't know

6. Can you provide photographs of any flooding? If yes, please email them to us at surfacewater@ci.marysville.wa.us or mail them to: City of Marysville Surface Water Management 80 Columbia Ave. Marysville WA, 98270 (Please be sure to include your name and address so we may reference your photos to this survey)

No Response

7. Please describe the flooding (For example: Water bubbles out of catch basins and floods one lane of the street for about an hour during big storms. Or, water flows downhill into our yard and floods the basement for one to two days every winter).

Water drains down the street until it hits our driveway and then it pools and we have to walk thru water to get our mail, it very seldom dries up. It comes from the end of the cul da sac and drains all year around whether dry or raining. I have complained but have no call back from anyone. It doesnt just happen when it rains it is there all of the time and

survey title: *Private*
City of Marysville Surface Water Questionnaire 12/07

Displaying 10 of 13 respondents

Response Type: Normal Response	Collector: City of Marysville Surface Water Questionnaire (Web Link)
Custom Value: empty	IP Address: 208.71.163.202
Response Started: Fri, 1/18/08 1:24:14 PM	Response Modified: Fri, 1/18/08 1:35:41 PM

1. Your Information:
 Your Name (Optional): - Gary & Debra Bray
 Phone Number (Optional): - 360-654-2608 Work #
 Your Address (Required): - 6301-67th Avenue NE., Marysville, Wa. 98270

2. How many years have you lived or conducted business at the above address?
 20+ Years

3. Have you ever experienced flooding at this location?
 Yes

4. If so, how often do you experience flooding?
 Every time it rains

5. Is the flooding a result of a problem with a public or private drainage system?
 Private system located on private property

6. Can you provide photographs of any flooding? If yes, please email them to us at surfacewater@ci.marysville.wa.us or mail them to: City of Marysville Surface Water Management 80 Columbia Ave. Marysville WA, 98270 (Please be sure to include your name and address so we may reference your photos to this survey)
 We own a home at 6301-67th Avenue NE Marysville and use it as rental property. Our primary residence is 7603-47th Avenue NE. Marysville.Wa

7. Please describe the flooding (For example: Water bubbles out of catch basins and floods one lane of the street for about an hour during big storms. Or, water flows downhill into our yard and floods the basement for one to two days every winter).
 Our home is located at the bottom of a hill. As ground water from upper parcels saturates the water tables that water overflows onto the adjoining parcel. Since we are located at the bottom of the hill it is not uncommon to have standing

survey title:

City of Marysville Surface Water Questionnaire 12/07

Private?

Displaying 13 of 13 respondents

Response Type: Normal Response

Collector: City of Marysville Surface Water Questionnaire (Web Link)

Custom Value: empty

IP Address: 71.113.90.10

Response Started: Mon, 1/21/08 9:31:22 PM

Response Modified: Mon, 1/21/08 9:37:27 PM

1. Your Information:

Your Name (Optional): - Adah Butler

Phone Number (Optional): - 360-653-7090

Your Address (Required): - 4807 76th St NE, Marysville WA 98270

2. How many years have you lived or conducted business at the above address?

9 months

3. Have you ever experienced flooding at this location?

Yes

4. If so, how often do you experience flooding?

Frequently - most of the time when it rains

5. Is the flooding a result of a problem with a public or private drainage system?

I don't know

6. Can you provide photographs of any flooding? If yes, please email them to us at surfacewater@ci.marysville.wa.us or mail them to: City of Marysville Surface Water Management 80 Columbia Ave. Marysville WA, 98270 (Please be sure to include your name and address so we may reference your photos to this survey)

No Response

7. Please describe the flooding (For example: Water bubbles out of catch basins and floods one lane of the street for about an hour during big storms. Or, water flows downhill into our yard and floods the basement for one to two days every winter).

Water is constantly collecting on the drives through the complex and water is not effectively leaving through the drains. We have a pump, but that does not fix the problem. One particular area can collect water past the curb and into the yard.

survey title:

**City of Marysville Surface
Water Questionnaire 12/07**~~#~~ Public

Displaying 11 of 13 respondents

Response Type: Normal Response**Collector:** City of Marysville Surface Water
Questionnaire (Web Link)**Custom Value:** empty**IP Address:** 66.12.68.46**Response Started:** Fri, 1/18/08 3:34:03 PM**Response Modified:** Fri, 1/18/08 3:36:13 PM**1. Your Information:**

Your Name (Optional): - Terah Regan

Your Address (Required): - 305 Columbia

2. How many years have you lived or conducted business at the above address?

10

3. Have you ever experienced flooding at this location?

Yes

4. If so, how often do you experience flooding?

Frequently – most of the time when it rains

5. Is the flooding a result of a problem with a public or private drainage system?

Public system located within City right of way

6. Can you provide photographs of any flooding? If yes, please email them to us at surfacewater@ci.marysville.wa.us or mail them to: City of Marysville Surface Water Management 80 Columbia Ave. Marysville WA, 98270 (Please be sure to include your name and address so we may reference your photos to this survey)

No Response

7. Please describe the flooding (For example: Water bubbles out of catch basins and floods one lane of the street for about an hour during big storms. Or, water flows downhill into our yard and floods the basement for one to two days every winter).

Parking strip area is flooded

8. Using the following scale, when it floods, how bad is the flooding?

yes

#9

survey title:

**City of Marysville Surface
Water Questionnaire 12/07**

Displaying 14 of 14 respondents

Response Type: Normal Response

Collector: City of Marysville Surface Water
Questionnaire (Web Link)

Custom Value: empty

IP Address: 67.170.11.179

Response Started: Sat, 1/26/08 1:23:20 AM

Response Modified: Sat, 1/26/08 1:25:28 AM

1. Your Information:

Your Name (Optional): - Christopher Chico

Phone Number (Optional): - 206-372-0249

Your Address (Required): - 7518 54th pl ne marysville, wa 98270

2. How many years have you lived or conducted business at the above address?

1

3. Have you ever experienced flooding at this location?

Yes

4. If so, how often do you experience flooding?

Sometimes – only when it rains very hard

5. Is the flooding a result of a problem with a public or private drainage system?

I don't know

6. Can you provide photographs of any flooding? If yes, please email them to us at surfacewater@ci.marysville.wa.us or mail them to: City of Marysville Surface Water Management 80 Columbia Ave. Marysville WA, 98270 (Please be sure to include your name and address so we may reference your photos to this survey)

no

7. Please describe the flooding (For example: Water bubbles out of catch basins and floods one lane of the street for about an hour during big storms. Or, water flows downhill into our yard and floods the basement for one to two days every winter).

water some how flows into our yard and floods the basement for one to two days every winter

8. Using the following scale, when it floods, how bad is the flooding?

Somewhat bad

9. Can we contact you to discuss the flooding you have reported?

Yes

10. When is the best time to contact you?

any time

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survey title:

**City of Marysville Surface
Water Questionnaire 12/07**

Displaying 17 of 17 respondents

Response Type: Normal Response

Collector: City of Marysville Surface Water
Questionnaire (Web Link)

Custom Value: empty

IP Address: 71.112.209.249

Response Started: Wed, 1/30/08 8:17:58 PM

Response Modified: Wed, 1/30/08 8:22:33 PM

1. Your Information:

Your Name (Optional): - Lafern Lian

Phone Number (Optional): - 360-659-3879

Your Address (Required): - 1804 7th ST, Marysville

2. How many years have you lived or conducted business at the above address?

55

3. Have you ever experienced flooding at this location?

Yes

4. If so, how often do you experience flooding?

Frequently – most of the time when it rains

5. Is the flooding a result of a problem with a public or private drainage system?

Public system located within City right of way

6. Can you provide photographs of any flooding? If yes, please email them to us at surfacewater@ci.marysville.wa.us or mail them to: City of Marysville Surface Water Management 80 Columbia Ave. Marysville WA, 98270 (Please be sure to include your name and address so we may reference your photos to this survey)

No Response

7. Please describe the flooding (For example: Water bubbles out of catch basins and floods one lane of the street for about an hour during big storms. Or, water flows downhill into our yard and floods the basement for one to two days every winter).

Drainage pipe in alley often gets pulled or smashed by garbage trucks entering the alley. The results is a very large area of water that doesn't drain and can also back up to in front of the duplex located behind our house.

8. Using the following scale, when it floods, how bad is the flooding?

Somewhat bad

9. Can we contact you to discuss the flooding you have reported?

Yes

10. When is the best time to contact you?

10 am to 3pm

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survey title:

**City of Marysville Surface
Water Questionnaire 12/07**

Displaying 16 of 17 respondents

Response Type: Normal Response

Collector: City of Marysville Surface Water
Questionnaire (Web Link)

Custom Value: empty

IP Address: 24.22.199.12

Response Started: Wed, 1/30/08 5:42:43 PM

Response Modified: Wed, 1/30/08 5:50:46 PM

1. Your Information:

Your Name (Optional): - Ronald K Terry

Phone Number (Optional): - 3606538394

Your Address (Required): - 5628 60th Dr NE

2. How many years have you lived or conducted business at the above address?

21 yrs

3. Have you ever experienced flooding at this location?

Yes

4. If so, how often do you experience flooding?

Infrequently – only in rare occasions

5. Is the flooding a result of a problem with a public or private drainage system?

Public system located within City right of way

6. Can you provide photographs of any flooding? If yes, please email them to us at surfacewater@ci.marysville.wa.us or mail them to: City of Marysville Surface Water Management 80 Columbia Ave. Marysville WA, 98270 (Please be sure to include your name and address so we may reference your photos to this survey)

na

7. Please describe the flooding (For example: Water bubbles out of catch basins and floods one lane of the street for about an hour during big storms. Or, water flows downhill into our yard and floods the basement for one to two days every winter).

Water backs up and out of street drains, runs down my driveway. Also there is continous drainage year round that goes under the 60th Dr NE and under and around my drive and house. I now have an approximate 100 sq ft void under my drive, house is setteling and basement and garage floor is cracking.

<p>8. Using the following scale, when it floods, how bad is the flooding?</p> <p>Bad</p>
<p>9. Can we contact you to discuss the flooding you have reported?</p> <p>Yes</p>
<p>10. When is the best time to contact you?</p> <p>evenings or week ends</p>

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survey title:

**City of Marysville Surface
Water Questionnaire 12/07**

Displaying 15 of 17 respondents

Response Type: Normal Response

Collector: City of Marysville Surface Water
Questionnaire (Web Link)

Custom Value: empty

IP Address: 67.170.117.7

Response Started: Wed, 1/30/08 2:43:51 PM

Response Modified: Wed, 1/30/08 2:53:40 PM

1. Your Information:

Your Name (Optional): - Kirk and Dayleen Westover

Phone Number (Optional): - 360-722-7872

Your Address (Required): - 6406 61st St NE, Marysville, WA

2. How many years have you lived or conducted business at the above address?

4 1/2 years

3. Have you ever experienced flooding at this location?

Yes

4. If so, how often do you experience flooding?

Sometimes - only when it rains very hard

5. Is the flooding a result of a problem with a public or private drainage system?

Public system located within City right of way

6. Can you provide photographs of any flooding? If yes, please email them to us at surfacewater@ci.marysville.wa.us or mail them to: City of Marysville Surface Water Management 80 Columbia Ave. Marysville WA, 98270 (Please be sure to include your name and address so we may reference your photos to this survey)

Will email pictures

7. Please describe the flooding (For example: Water bubbles out of catch basins and floods one lane of the street for about an hour during big storms. Or, water flows downhill into our yard and floods the basement for one to two days every winter).

Water overflows Jones Creek and flows through a neighbors yard, down the street flooding the cul-de-sac and has flooded our front yard and runs down the north side of our house and backyard into the ditch at the back of our property.

<p>8. Using the following scale, when it floods, how bad is the flooding?</p> <p>Very bad</p>
<p>9. Can we contact you to discuss the flooding you have reported?</p> <p>Yes</p>
<p>10. When is the best time to contact you?</p> <p>business hours</p>

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Called on 1/23/08 & left message telling Sally she is in the County & needs to contact the County regarding her issue
County #13

survey title:
City of Marysville Surface Water Questionnaire 12/07

Displaying 12 of 13 respondents

Response Type: Normal Response **Collector:** City of Marysville Surface Water Questionnaire (Web Link)
Custom Value: empty **IP Address:** 76.121.150.188
Response Started: Sun, 1/20/08 4:13:49 PM **Response Modified:** Sun, 1/20/08 4:17:48 PM

1. Your Information:
Your Name (Optional): - Sally A. Potterf
Phone Number (Optional): - 360-651-1858
Your Address (Required): - 6201 98th Street NE

2. How many years have you lived or conducted business at the above address?
5

3. Have you ever experienced flooding at this location?
Yes

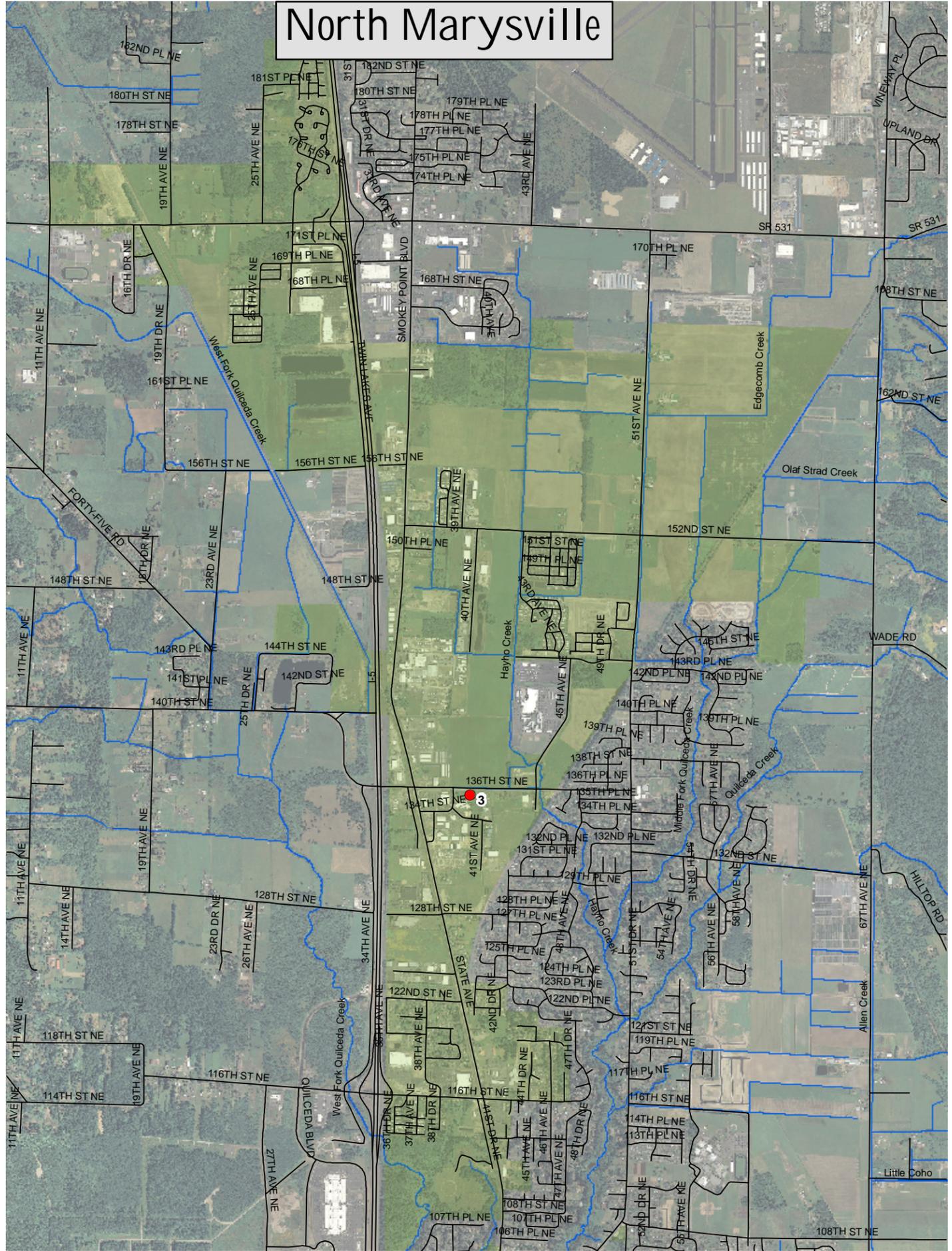
4. If so, how often do you experience flooding?
Every time it rains

5. Is the flooding a result of a problem with a public or private drainage system?
Public system located within City right of way

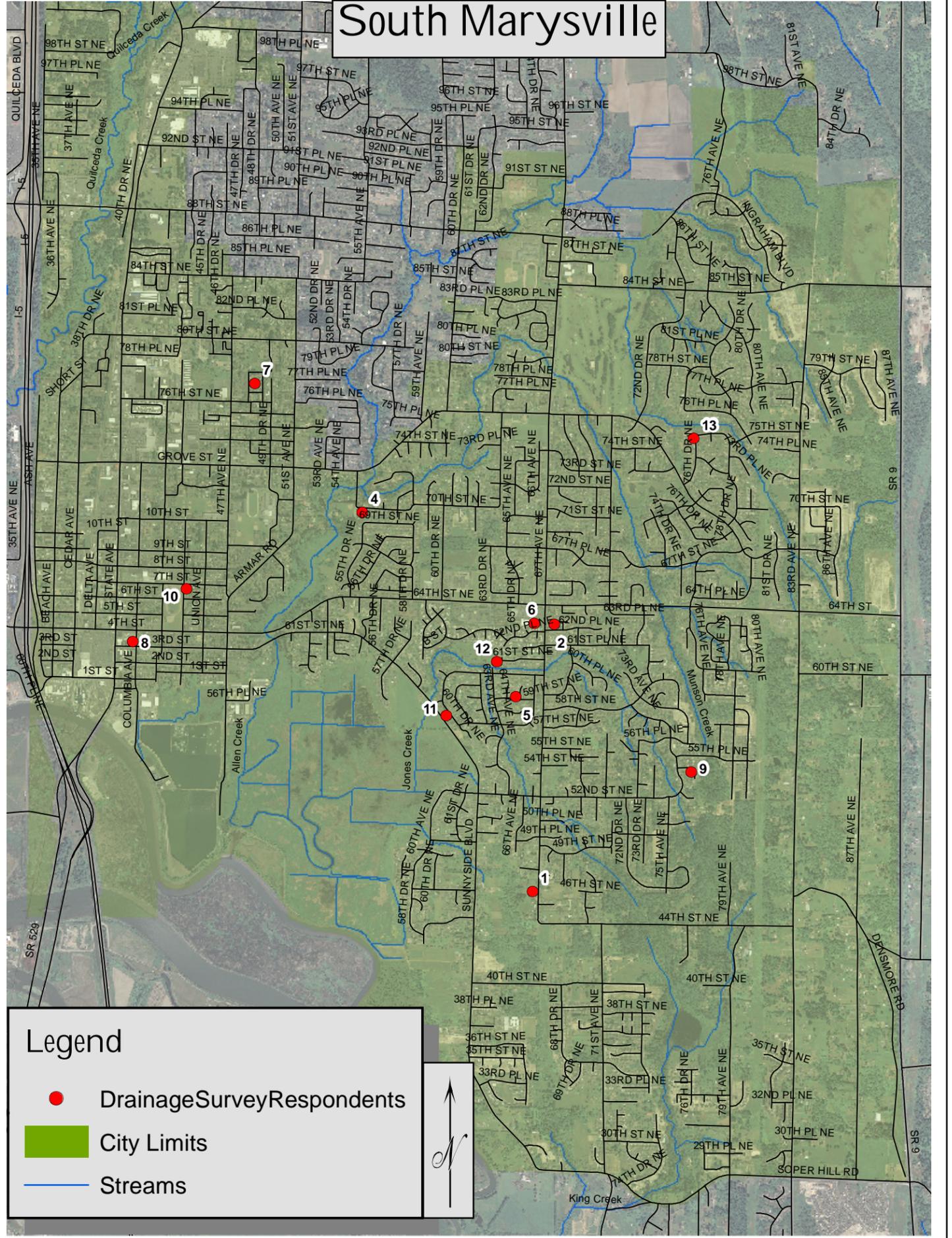
6. Can you provide photographs of any flooding? If yes, please email them to us at surfacewater@ci.marysville.wa.us or mail them to: City of Marysville Surface Water Management 80 Columbia Ave. Marysville WA, 98270 (Please be sure to include your name and address so we may reference your photos to this survey)
No Response

7. Please describe the flooding (For example: Water bubbles out of catch basins and floods one lane of the street for about an hour during big storms. Or, water flows downhill into our yard and floods the basement for one to two days every winter).
Because of a barrier that prevent water from draining out of my driveway, our driveway fills approx. 1/3 to 1/2 with water. Also, our backyard is a swamp every winter due to housing built where a creek had once been and drainage is poor.

North Marysville



South Marysville



Legend

- DrainageSurveyRespondents
- City Limits
- Streams



Appendix 2.1.C
Selection of Analysis Areas (Meeting Minutes)

Meeting Minutes



10230 NE Points Drive
Suite 400
Kirkland, WA 98033
Phone (425) 822-4446
Fax (425) 827-9577

Meeting: Selection of Analysis Areas

Project No.: 31099B

Meeting Date: Wednesday, March 19, 2008 ;
Documentation of the 4/10/08 phone call between Kari and Laura has been added.

Meeting Time: 8:30 AM

Location: City of Marysville

Attendees: Kari Chennault, John Cowling, and Adam Bailey of the City of Marysville;
Russ Gaston and Laura Ruppert of Otak

Minutes By: lcr

The purpose of this meeting was to determine what problem areas within the City of Marysville (City) and the Urban Growth Area (UGA) have been adequately addressed by other studies and what areas should be studied in more detail by this Master Drainage Plan. New Capital Improvement Program (CIP) projects will be identified during by this process. Otak will meet again with the City to prioritize the new CIPs with those already identified.

Proposed study areas

The following table documents the areas discussed at the meeting. Locations are identified on the attached map by the ID#. Additional analysis will be provided as part of this study at locations 1-12. Except for areas where there is overlap, no additional analysis will be provided within the four study areas listed at the bottom of the table.

Location	ID #	Analysis	Analysis Type	Potential CIP Funding source
Quilceda Creek (culverts and channel erosion)	1	Update DNR Study	HEC RAS	Rate
Cedar Ave. Conveyance	2	Verify Downtown Study	XPSWMM	Rate/GFC
State Ave. Conveyance (downtown)	3	Verify Downtown Study	XPSWMM	Rate/GFC
State Ave. Conveyance (upper reach)	4	Verify Study by others (if available)	XPSWMM	Rate/GFC
Sunnyside Neighborhood (flooding, & groundwater)	5	New analysis	XMSWMM	Rate
Lakewood (Infiltration requirements for developers)	6	New analysis	Qualitative	GFC

Meeting Minutes

Wednesday, March 19, 2008

Page 2

UGA Neighborhood (future annexation area)	7	New analysis	Qualitative	Rate
Drywells (maintenance recommendations)	8-11	New analysis	Qualitative	Rate/GFC
Upper Munson Creek (impacts from future development)	12	New analysis	Qualitative	GFC
Downtown MDP	NA	By Others	MDP	Rate
Qwuloolt Project	NA	By Others		
Otak MDP / Hayho Basin	NA	Under separate Otak contract	MDP	GFC
Smokey Pt. MDP	NA	Under separate Otak contract	MDP	GFC

Additional discussion about the Sunnyside Neighborhood

This is a high priority drainage problem area for the City. There are not many as-built drawings available for this area so this area will likely need to be surveyed. A map of the proposed study area is attached; the drainage infrastructure within the highlighted area will be modeled. There are a number of issues in this neighborhood including:

- High groundwater
- Direct discharge to Jones Creek with no water quality treatment
- Sanitary sewer runs along Jones Creek
- Sink holes have developed near an existing buried pipe (estimated diameter is 42-inches)
- The City would like Otak to provide permitting recommendations. Jones Creek used to be a ditch but is now classified as a stream.

Other direction provided by the City

- The City plans to annex UGA areas by the 2010, therefore, these areas should be given the level of effort as other areas within the current City boundary.
- CIP projects recommended by other studies (MDPs listed above and DNRs) shall remain on the list unless they have already been constructed or they are no longer needed.
- Follow the DNR style of documenting CIPs with a map followed by a table.
- Keep a list of small drainage problems and maintenance issues on a list so the City can budget for their miscellaneous maintenance budget (small works).
- CIP projects recommended by other studies should fit into one of the following categories: constructed, no longer applicable, CIP (rate and/or GFC funded), or small works.

Action Items

Otak – Contact Snohomish County to get a list of DNR projects that have been constructed or are in design and currently planned for construction.

City – Confirm the table (above) and map (attached) accurately display the areas to be studied, type

Meeting Minutes

Wednesday, March 19, 2008

Page 3

of analysis, and level of detail to be provided by Otak under Part B, Task 5 of the Marysville SWMP.

Follow up Phone Call (Kari and Laura 4/10/08)

The following table documents a follow up telephone conversation between Kari and Laura.

Location	ID #	Discussion / City comments
Quilceda Creek (culverts and channel erosion)	1	Check to see what other projects have been done in the area. Rerun the model if land use conditions have changed.
Cedar Ave. Conveyance	2	There is not very much tributary area connected to this system. Determine if there is space available to alleviate nearby drainage problems. Kari does not anticipate that the downtown study will do much analysis of this system, but she does think this system (and State Ave.) were analyzed recently, and wants us to review work done by others before doing any additional analysis in this area.
State Ave. Conveyance (downtown)	3	See comment for #2.
Sunnyside Neighborhood (flooding, & groundwater)	5	The City has an emergency HPA (for 60 days but as of 4/10/08 it has not been issued) to fix the sink hole in this neighborhood. They plan to pull out the mystery pipe and clean out the vegetation in Jones Creek. The City does not plan on doing any major work in this neighborhood until Otak provides recommendations.
Lakewood (Infiltration requirements for developers)	6	It is preferred that the Lakewood Area continue to developed using LID in accordance with Ecology's requirements. No additional analysis is needed for this area. It was originally thought that this area would need regional ponds and was therefore added to the CIP list, however the infiltration has been working well so no additional analysis is needed for this area.
Drywells (maintenance recommendations)	8-11	These should be listed as maintenance recommendations for budget planning purposes. One solution alternative is to tie into near-by conveyance systems with available capacity.
Other Studies		Include a summary of recommendations from other studies.
Industrial Park	13	Include a discussion of the problems in this area and the anticipated affects of the Qwuloolt Project. This area is located in the City's right of way, however, the City does not want Otak to survey this area or perform any additional analysis. Recommendations should be based on analysis performed by others.

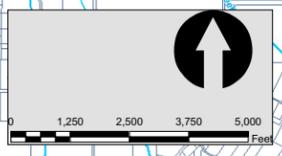
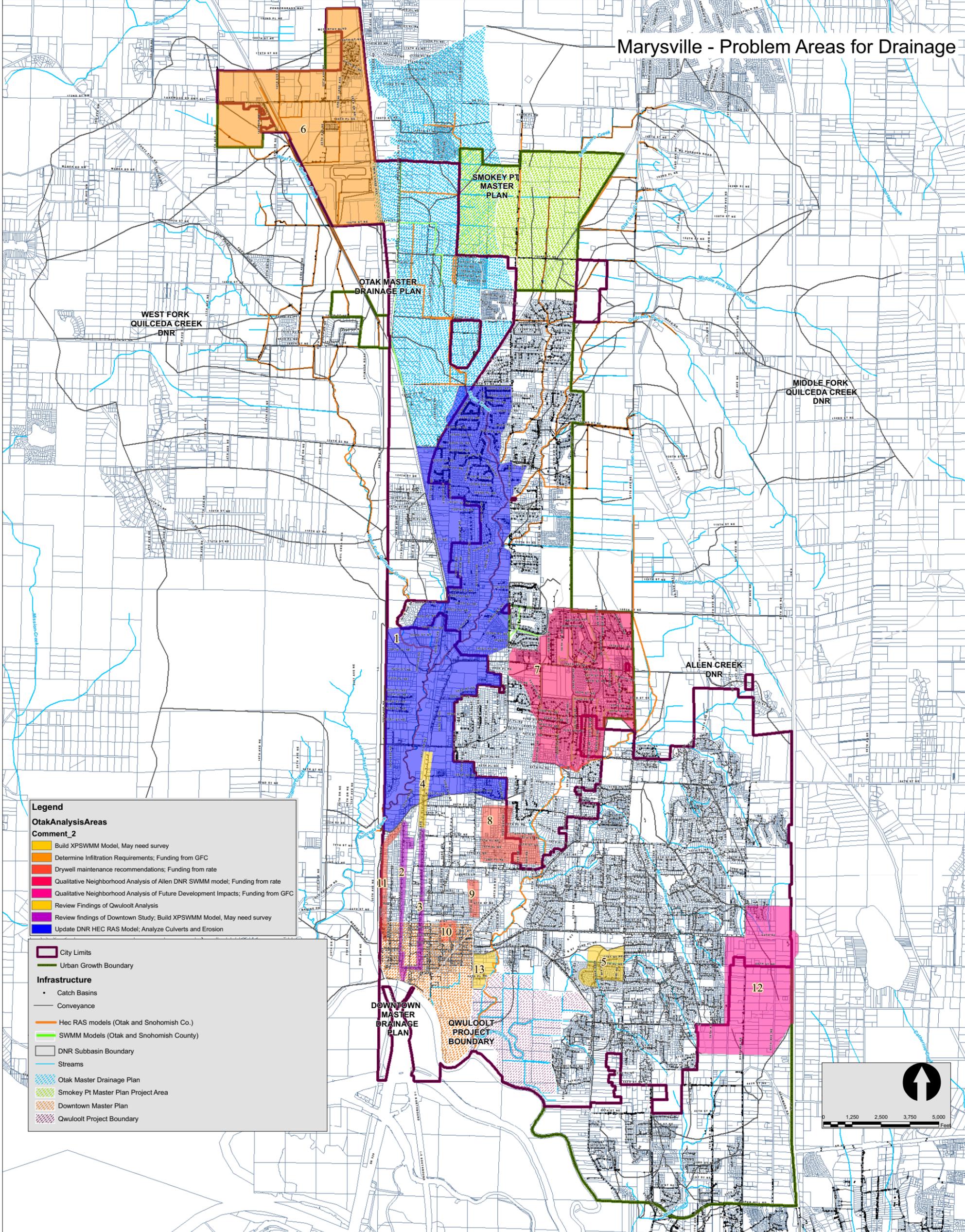
Action Items:

Kari to provide Cedar and State Ave design reports.

Marysville - Problem Areas for Drainage

- Legend**
- OtakAnalysisAreas**
- Comment_2**
- Build XPSWMM Model, May need survey
 - Determine Infiltration Requirements; Funding from GFC
 - Drywell maintenance recommendations; Funding from rate
 - Qualitative Neighborhood Analysis of Allen DNR SWMM model; Funding from rate
 - Qualitative Neighborhood Analysis of Future Development Impacts; Funding from GFC
 - Review Findings of Qwuloolt Analysis
 - Review findings of Downtown Study; Build XPSWMM Model, May need survey
 - Update DNR HEC RAS Model; Analyze Culverts and Erosion

- City Limits
 - Urban Growth Boundary
- Infrastructure**
- Catch Basins
 - Conveyance
 - Hec RAS models (Otak and Snohomish Co.)
 - SWMM Models (Otak and Snohomish County)
 - DNR Subbasin Boundary
 - Streams
 - Otak Master Drainage Plan
 - Smokey Pt Master Plan Project Area
 - Downtown Master Plan
 - Qwuloolt Project Boundary



Appendix 2.2.A
Quilceda Basin - CIP Project Summary Sheets,
Cost Estimates and Schematics

Appendix 2.2.A Quilceda Basin CIPs

ID #	Project	Page
MQ-HH-09	Flooding of 43rd Ave. and Emerald Hills Estates (Hayho Creek)	3
MQ-HH-10	Upper Channel conveyance enhancement/Hayho Restoration Plan	7
MQ-HH-16	Channel Realignment and Floodplain Restoration (Hayho Creek)	11
MQ-HH-19	Install Fish Screen at 165th Avenue NE	15
MQ-HH-32	North Marysville Master Drainage Plan (Hayho Creek)	19
MQ-HH-36	Marysville Drainage Inventory	23
MQ-HH-37	Breach Hayho bank at Railroad Culvert	25
MQ-HH-38	Erosion Control Measures - Railroad culverts to 47th Dr. NE (Hayho Creek)	29
MQ-EC-01	Culvert Replacement at 152nd St. NE (Edgecomb Creek)	33
MQ-EC-02	Field Access Culvert Removal and Bridge Installation	37
MQ-EC-03	Field Access Culvert Removal and Bridge Installation at Edgecomb Creek	39
MQ-EC-05	Field Access Culvert Removal and Bridge Installation at Edgecomb Creek	41
MQ-EC-06	Field Access Culvert Removal and Bridge Installation at Edgecomb Creek	43
MQ-EC-13	North Marysville Master Drainage Plan (Edgecomb Creek)	45
MQ-MQ-04	Field Access Culvert Removal/Bridge Installation and Stream Restoration (Quilceda Creek)	49
MQ-MQ-07	Culvert Replacement at 152nd St. NE (Olaf Strad Creek)	53
MQ-QC-09	Culvert Replacement at State Ave. (Quilceda Creek)	57
MQ-QC-12	Culvert Replacement at Railroad (Quilceda Creek)	61
WQ-WQ-08	Culvert Modifications at 104th St. (West Quilceda Tributary)	65
WQ-WQ-09	Culvert Replacement at 103rd St. (West Quilceda Tributary)	69

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PROJECT SUMMARY SHEET

Project Title: Flooding of 43rd Ave. and Emerald Hills Estates (Hayho Creek)

Problem Description: Beaver dams in Hayho Creek cause periodic flooding of 43rd Ave. NE culvert overtopping road and retirement community along the Hayho Creek Tributary to the east.

Project Description: Install berm on downstream side of 43rd Ave culvert. Excavate ditch on northwest side of the berm to allow collection of street runoff and backwatering from Hayho Creek.

Design Considerations: None at this time

Associated Projects: Coordination should occur with North Marysville MDP for Hayho Creek channel improvements (MQ-HH-32).

Source: City

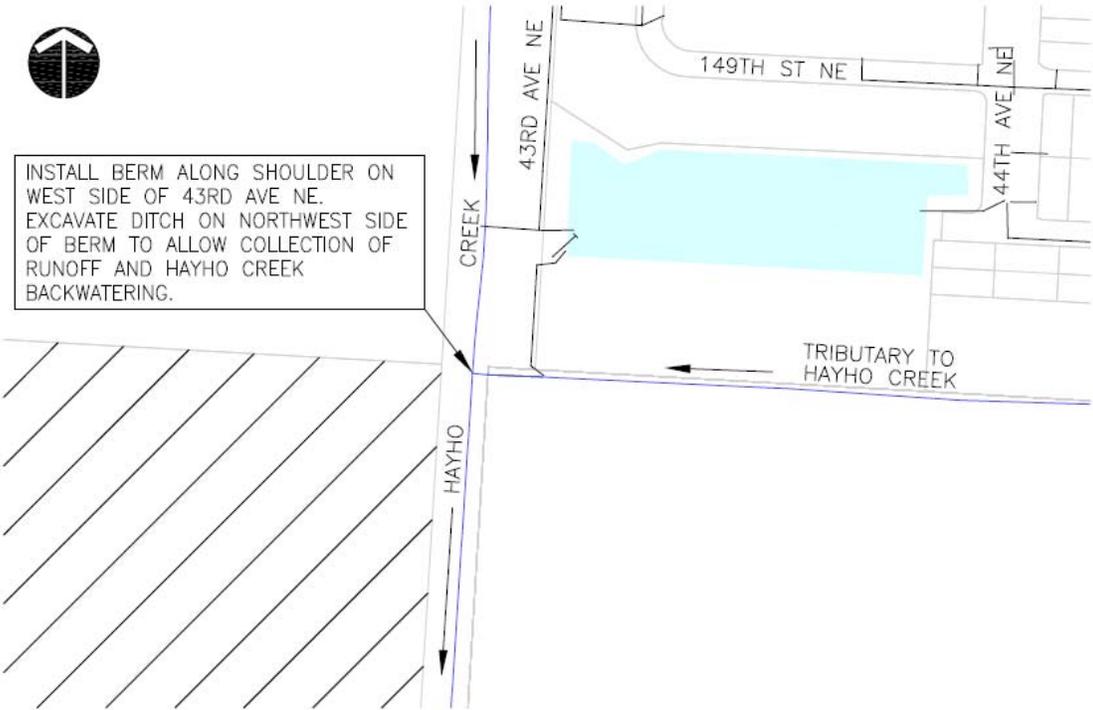
Estimated Project Cost: \$43,000

Rank: 3



43rd Ave. culvert outlet into Hayho Creek looking west

PROJECT SKETCH



PROJECT COST ESTIMATE

PLANNING LEVEL PROJECT COST					
PROJECT: Flooding of 43 rd Ave. and Emerald Hills Estates (Hayho Creek)		CHECK BY: LR			
PROJECT ID: MQ-HH-09		DATE: 7/1/2009			
BY: MK					
ITEM NO.	ITEM	QUANTITY	UNIT	UNIT PRICE	AMOUNT
<i>Construction Elements</i>					
1	CLEARING AND GRUBBING	0.10	AC	\$ 28,750.00	\$ 2,875
2	COMMON EXCAVATION	10	CY	\$ 100.00	\$ 1,000
3	EMBANKMENT COMPACTION	10	CY	\$ 50.00	\$ 500
4	RIPARIAN PLANTINGS	1,270	SY	\$ 4.00	\$ 5,080
5	QUARRY SPALLS	5	TON	\$ 92.00	\$ 460
Subtotal Construction + Ancillary					\$ 9,915
<i>Required Ancillary Items</i>					
5	DEWATERING		5%		\$ 496
6	EROSION & SEDIMENTATION CONTROL		10%	(see note 3)	\$ 992
7	TRAFFIC CONTROL		5%	(see note 4)	\$ 496
8	CONTINGENCY		30%		\$ 2,975
Subtotal Ancillary					\$ 4,958
Subtotal Construction + Ancillary					\$ 14,900
<i>Mobilization</i>					
9	MOBILIZATION		10%		\$ 1,490
Subtotal Construction + Ancillary + Mobilization					\$ 16,390
<i>Tax/Engineering/Management/Permitting</i>					
10	STATE SALES TAX		8.6%		\$ 1,500
11	ENGINEERING/LEGAL/ADMIN		50%		\$ 8,200
12	CONSTRUCTION MANAGEMENT		10%		\$ 1,700
13	PERMITTING		10%		\$ 1,700
14	LAND RIGHT OF WAY	0.10	AC	\$ 131,000.00	\$ 13,100
Subtotal					\$ 26,200
Subtotal Construction + Ancillary + Mobilization + Tax/Engineering/Management/Permitting					\$ 42,590
2009 Dollars		Total Estimated Project Cost (Rounded)			\$ 43,000
Notes:					
1. The above cost opinion is in 2009 dollars and does not include future escalation, financing, or O&M costs.					
2. The order-of-magnitude cost opinion has been prepared for guidance in project evaluation from the information available at the time of preparation and for the assumptions stated. The final costs of the project will depend on actual labor and material.					
3. Increase percentage markup if work is in or immediately adjacent to flowing or standing water, steep slope, and/or other erosion-prone conditions.					
4. Increase percentage markup if work is in or immediately adjacent to secondary, arterial, or other high-volume road or temporarily closes a roadway.					
5. Land Acquisition unit costs include Administrative Costs and Condemnation.					

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PROJECT SUMMARY SHEET

Project Title: Channel Conveyance Enhancement/Hayho Restoration Plan

Problem Description: The channel from 152nd Street NE to the southwest corner of the Navy Complex (upstream and downstream) is undersized and is subject to frequent overtopping into adjacent agricultural fields. The channel constricts flows and prevents the entire sub-basin from proper drainage during the winter months. Beaver dams in channel causing adjacent flooding.

Project Description: Dig a deeper and wider channel to accommodate greater flows and provide hydraulic support for the planned habitat enhancement features. Meanders will be added to the channel for diversity, wood for channel roughing, and the riparian area may be re-planted to provide shade.

Design Considerations: Opportunity for natural functions such as flow attenuation, and water quality benefits to be incorporated into the re-design of the channel. Adjacent parcel to be developed.

Associated Projects: Coordination should occur with North Marysville MDP for Hayho Creek channel improvements, MQ-HH-16, MQ-HH-19, MQ-HH-32, MQ-HH-37

Source: WDFW Agreement

Estimated Project Cost: \$ 3,146,000

Rank: 4

PROJECT SKETCH



PROJECT COST ESTIMATE

PLANNING LEVEL PROJECT COST							
PROJECT:		Channel Conveyance Enhancement/ Hayho Restoration			CHECK BY: LR		
PROJECT ID:		MQ-HH-10			DATE: 7/1/2009		
BY:		MK					
ITEM NO.	ITEM	QUANTITY	UNIT	UNIT PRICE	AMOUNT		
<i>Conveyance Construction Elements</i>							
1	CLEARING AND GRUBBING	3	AC	\$ 9,000.00	\$	27,000	
2	CHANNEL EXCAVATION	4620	CY	\$ 30.00	\$	138,600	
3	RE-VEGETATION	9680	SY	\$ 63.00	\$	609,840	
4	STREAMBED GRAVEL	1600	TN	\$ 100.00	\$	160,000	
5	LARGE WOODY DEBRIS	200	EA	\$ 1,500.00	\$	300,000	
Subtotal Construction Elements					\$	1,235,440	
<i>Required Ancillary Items</i>							
6	DEWATERING		10%			123,544.00	
7	EROSION & SEDIMENTATION CONTROL		10%			123,544.00	
8	TRAFFIC CONTROL		1%	(see note 4)		12,354.40	
9	CONTINGENCY		30%			370,632.00	
Subtotal Ancillary					\$	630,074	
Subtotal Construction + Ancillary + Mobilization + Restoration					\$	1,865,514	
<i>Tax/Engineering/Management/Permitting</i>							
10	STATE SALES TAX		8.6%		\$	160,500	
11	ENGINEERING/LEGAL/ADMIN		25%		\$	466,400	
12	CONSTRUCTION MANAGEMENT		20%		\$	373,200	
13	PERMITTING		15%		\$	279,900	
Subtotal					\$	1,280,000	
Subtotal Construction + Ancillary + Mobilization + Tax/Engineering/Management/Permitting					\$	3,145,600	
2009 Dollars		Total Estimated Project Cost (Rounded)				\$	3,146,000
Notes:							
1. The above cost opinion is in 2009 dollars and does not include future escalation, financing, or O&M costs.							
2. The order-of-magnitude cost opinion has been prepared for guidance in project evaluation from the information available .at the time of preparation and for the assumptions stated. The final costs of the project will depend on actual labor and material.							
3. Increase percentage markup if work is in or immediately adjacent to flowing or standing water, steep slope, and/or other erosion-prone conditions.							
4. Increase percentage markup if work is in or immediately adjacent to secondary, arterial, or other high-volume road or temporarily closes a roadway.							
5. Land Acquisition unit costs include Administrative Costs and Condemnation.							

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PROJECT SUMMARY SHEET

Project Title: Channel Realignment and Floodplain Restoration (Hayho Creek)

Problem Description: Hayho Creek headwater base flow attenuation improves efficiency of detention performance of regional facilities by augmenting base flows within Hayho Creek.

Project Description: Realign Hayho Creek through 15 acre restoration site, connecting Hayho Creek to existing and constructed wetlands.

Design Considerations: Project is identified in the North Marysville MDP for the Hayho Creek Basin.

Associated Projects: MQ-HH-10, MQ-HH-19, MQ-HH-32, MQ-HH-37

Source: City

Estimated Project Cost: \$913,000

Rank: 5



Looking southwest into the proposed site bordering Hayho Creek

PROJECT SKETCH



PROJECT COST ESTIMATE

PLANNING LEVEL PROJECT COST					
PROJECT: Channel Realignment and Floodplain Restoration (Hayho Creek)		CHECK BY: LR			
PROJECT ID: MQ-HH-16		DATE: 7/1/2009			
BY: MK					
ITEM NO.	ITEM	QUANTITY	UNIT	UNIT PRICE	AMOUNT
<i>Construction Elements</i>					
1	CLEARING AND GRUBBING	4.5	AC	\$ 20,000.00	\$ 90,000
2	CHANNEL EXCAVATION INCL. HAUL	10,900	CY	\$ 5.00	\$ 54,500
3	WETLAND PLANTINGS	4.5	AC	\$ 65,000.00	\$ 292,500
Subtotal Construction Elements					\$ 437,000
<i>Required Ancillary Items</i>					
4	DEWATERING	4.5	AC	\$ 27,000.00	121,500.00
5	EROSION & SEDIMENTATION CONTROL	4.5	AC	\$ 1,000.00	4,500.00
6	TRAFFIC CONTROL		1%	(see note 4)	4,370.00
7	CONTINGENCY		15%		65,550.00
8	MOBILIZATION		8%		34,960.00
Subtotal Ancillary					\$ 230,880
Subtotal Construction + Ancillary + Mobilization + Restoration					\$ 667,880
<i>Tax/Engineering/Management/Permitting</i>					
8	STATE SALES TAX		8.6%	\$	57,438
9	ENGINEERING/LEGAL/ADMIN		15%	\$	100,182
10	CONSTRUCTION MANAGEMENT		10%	\$	66,788
11	PERMITTING		3%	\$	20,036
Subtotal					\$ 244,444
Subtotal Construction + Ancillary + Mobilization + Tax/Engineering/Management/Permitting					\$ 912,324
2009 Dollars		Total Estimated Project Cost (Rounded)			\$ 913,000
Notes:					
1. The above cost opinion is in 2009 dollars and does not include future escalation, financing, or O&M costs.					
2. The order-of-magnitude cost opinion has been prepared for guidance in project evaluation from the information available at the time of preparation and for the assumptions stated. The final costs of the project will depend on actual labor and material.					
3. Increase percentage markup if work is in or immediately adjacent to flowing or standing water, steep slope, and/or other erosion-prone conditions.					
4. Increase percentage markup if work is in or immediately adjacent to secondary, arterial, or other high-volume road or temporarily closes a roadway.					
5. Land Acquisition unit costs include Administrative Costs and Condemnation.					

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PROJECT SUMMARY SHEET

Project Title: Install Fish Screen at 160th Ave NE (Hayho Creek)

Problem Description: Designed to prevent fish from swimming or being drawn into a diversion in a channel where water is taken for human use.

Project Description: Install fish screen.

Design Considerations: The project will require consultation with regulatory agencies and a biological assessment of the stream and riparian corridor.

Associated Projects: MQ-HH-10, MQ-HH-16, MQ-HH-32, MQ-HH-37

Source: WDFW Agreement

Estimated Project Cost: \$209,000

Rank: 3



Looking west at an existing fish screen on a tributary to Hayho Creek

PROJECT SKETCH



PROJECT COST ESTIMATE

PLANNING LEVEL PROJECT COST						
PROJECT: Install Fish Screen at 160th AVE NE			CHECK BY: LR			
PROJECT ID: MQ-HH-19			DATE: 7/1/2009			
BY: MK						
ITEM NO.	ITEM	QUANTITY	UNIT	UNIT PRICE	AMOUNT	
<i>Construction Elements</i>						
1	TEMPORARY STREAM BYPASS	1	EA	\$ 20,000.00	\$	20,000
2	FISH SCREEN BARRIER	1	EA	\$ 28,143.00	\$	28,143
3	VERTICAL IN-STREAM TRASH RACK	1	EA	\$ 14,072.00	\$	14,072
4	STRUCTURE EXCAVATION	5	CY	\$ 29.00	\$	145
Subtotal Construction + Ancillary						\$ 62,360
<i>Required Ancillary Items</i>						
5	DEWATERING		10%			6,236.00
6	EROSION & SEDIMENTATION CONTROL		10%			6,236.00
7	TRAFFIC CONTROL		3%	(see note 4)		1,870.80
8	CONTINGENCY		30%			18,708.00
Subtotal Ancillary						\$ 33,051
Subtotal Construction + Ancillary + Mobilization + Restoration						\$ 95,500
<i>Mobilization</i>						
9	MOBILIZATION		10%		\$	9,550
Subtotal Construction + Ancillary + Mobilization						\$ 105,050
<i>Tax/Engineering/Management/Permitting</i>						
10	STATE SALES TAX		8.6%		\$	9,100
11	ENGINEERING/LEGAL/ADMIN		50%		\$	52,600
12	CONSTRUCTION MANAGEMENT		10%		\$	10,600
13	PERMITTING		15%		\$	15,800
14	LAND ACQUISITION	4,356	SF	\$ 3.00	\$	13,100
15	TEMPORARY CONSTRUCTION EASEMENT	1,500	SF	\$ 1.75	\$	2,700
Subtotal						\$ 103,900
Subtotal Construction + Ancillary + Mobilization + Tax/Engineering/Management/Permitting						\$ 208,950
2009 Dollars			Total Estimated Project Cost (Rounded) \$ 209,000			
Notes:						
1. The above cost opinion is in 2009 dollars and does not include future escalation, financing, or O&M costs.						
2. The order-of-magnitude cost opinion has been prepared for guidance in project evaluation from the information available at the time of preparation and for the assumptions stated. The final costs of the project will depend on actual labor and material.						
3. Increase percentage markup if work is in or immediately adjacent to flowing or standing water, steep slope, and/or other erosion-prone conditions.						
4. Increase percentage markup if work is in or immediately adjacent to secondary, arterial, or other high-volume road or temporarily closes a roadway.						
5. Land Acquisition unit costs include Administrative Costs and Condemnation.						

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PROJECT SUMMARY SHEET

Project Title: North Marysville Master Drainage Plan – Hayho Creek

Problem Description: Promote economic growth in North Marysville while improving aquatic resource function.

Project Description: Develop a conveyance and stormwater detention system for future development.

Design Considerations: Dependent upon the Office of Regulatory Assistance.

Associated Projects: MQ-HH-10, MQ-HH-16, MQ-HH-19, MQ-HH-37, MQ-EC-13

Source: City

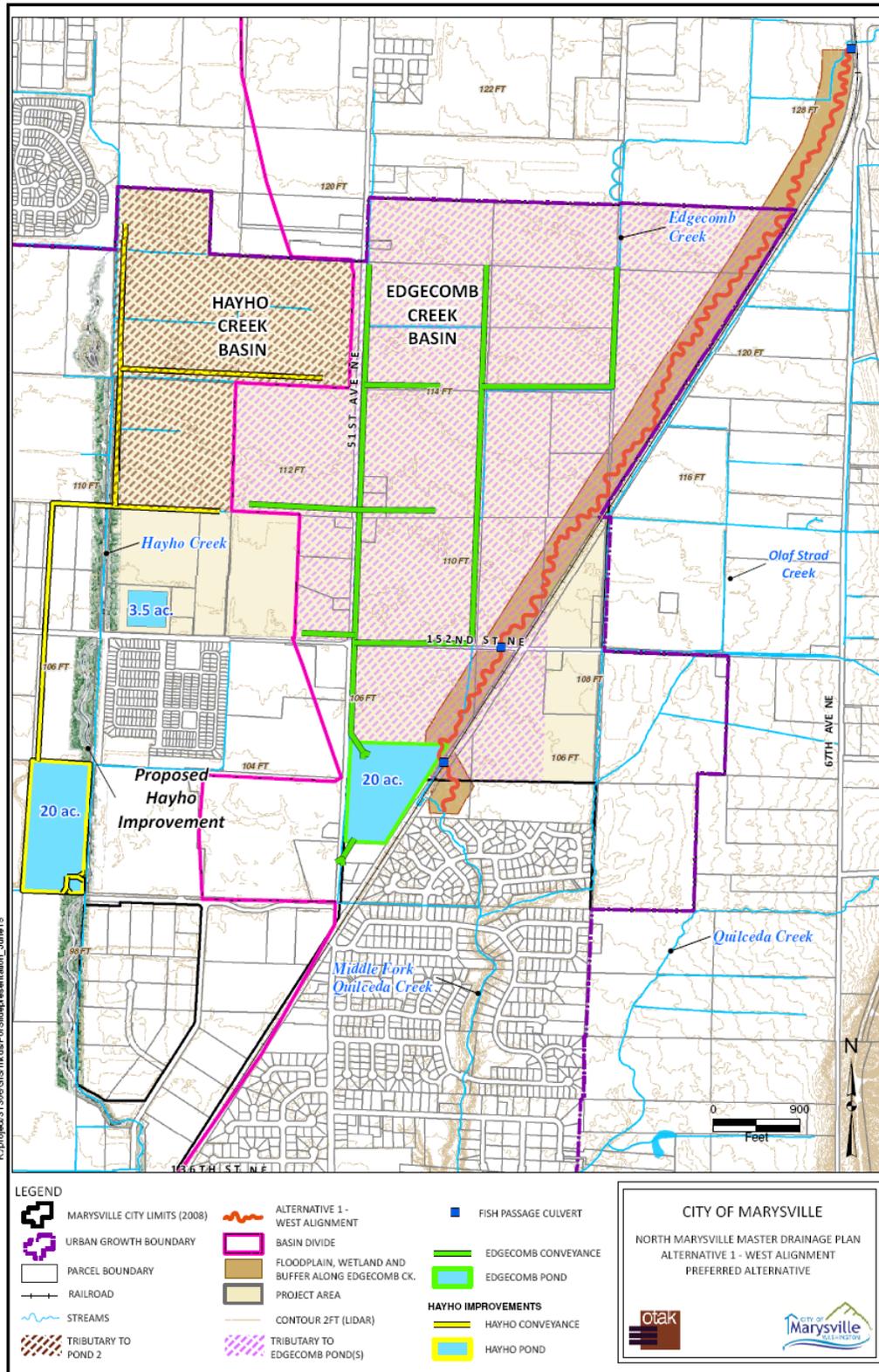
Estimated Project Cost: \$ 10,379,000

Rank: 5



Looking north at Hayho Creek from 152nd Street NE

PROJECT SKETCH



PROJECT COST ESTIMATE

PLANNING LEVEL PROJECT COST					
PROJECT: North Marysville Master Drainage Plan- Hayho Creek		CHECK BY: LR		Hayho Service Area: 159.0 ac	
PROJECT ID: MQ-HH-32		DATE: 7/1/2009			
BY: MK					
ITEM NO.	ITEM	QUANTITY	UNIT	UNIT PRICE	AMOUNT
<i>Hayho Ponds Construction Elements</i>					
1	CLEARING AND GRUBBING	13	AC	\$ 9,000.00	\$ 118,800.00
2	POND EXCAVATION AND GRADING	152100	CY	\$ 8.00	\$ 1,216,800.00
3	DEWATERING	13	AC	\$ 27,000.00	\$ 356,400.00
4	INLET AND OUTLET CONTROLS	2	LS	\$ 100,000.00	\$ 200,000.00
5	MISCELLANEOUS POND ITEMS	2	LS	\$ 5,500.00	\$ 11,000.00
6	SEEDING, FERTILIZING, MULCHING AND PLANTING	13	AC	\$ 30,000.00	\$ 396,000.00
7	TEMPORARY EROSION AND SEDIMENT CONTROL	13	AC	\$ 1,000.00	\$ 13,200.00
8	TRAFFIC CONTROL		1%		\$ 23,122.00
9	CONTINGENCY		15%		\$ 346,830.00
10	MOBILIZATION		8%		\$ 184,976.00
Subtotal Hayho Pond Construction Elements					\$ 2,867,128.00
<i>Hayho Conveyance Construction Elements</i>					
11	SCHEDULE A STORM SEWER PIPE 24 IN. DIAM.	2,850	LF	\$ 65.00	\$ 185,250.00
12	SCHEDULE A STORM SEWER PIPE 30 IN. DIAM.	1,900	LF	\$ 90.00	\$ 171,000.00
13	SCHEDULE A STORM SEWER PIPE 36 IN. DIAM.	4,400	LF	\$ 95.00	\$ 418,000.00
14	SCHEDULE A STORM SEWER PIPE 42 IN. DIAM.	3,510	LF	\$ 135.00	\$ 473,850.00
15	MANHOLE 48 IN. DIAM.	9	EA	\$ 3,900.00	\$ 35,100.00
16	MANHOLE 54 IN. DIAM.	6	EA	\$ 4,700.00	\$ 28,200.00
17	MANHOLE 60 IN. DIAM.	14	EA	\$ 4,850.00	\$ 67,900.00
18	MANHOLE 72 IN. DIAM.	11	EA	\$ 6,000.00	\$ 66,000.00
19	SHORING OR EXTRA EXCAVATION CLASS B	12,660	LF	\$ 0.50	\$ 6,330.00
20	STRUCTURE EXCAVATION CLASS B INCL HAUL	14,100	CY	\$ 10.00	\$ 141,000.00
21	GRAVEL BORROW INCL. HAUL	2,400	CY	\$ 15.00	\$ 36,000.00
22	DEWATERING	1	LS	\$ 200,000.00	\$ 200,000.00
23	TRAFFIC CONTROL		1%		\$ 18,300.00
24	CONTINGENCY		20%		\$ 365,700.00
25	MOBILIZATION		8%		\$ 177,000.00
Subtotal Hayho Conveyance Construction Elements					\$ 2,389,630.00
Subtotal Hayho Pond + Conveyance Construction Elements					\$ 5,256,758.00
<i>Ancillary Items</i>					
26	STATE SALES TAX		8.6%		\$ 452,081.19
27	PROPERTY ACQUISITION (CONVEYANCE)	8	AC	\$ 130,680.00	\$ 1,045,440.00
28	PROPERTY ACQUISITION (PONDS)	1	LS	\$ 2,159,700.00	\$ 2,159,700.00
29	ENGINEERING/LEGAL/ADMIN		15%		\$ 788,513.70
30	CONSTRUCTION MANAGEMENT		10%		\$ 525,675.80
31	PERMITTING	1	LS	\$ 150,000.00	\$ 150,000.00
Total Ancillary Items					\$ 5,121,410.69
Hayho Total Estimated Project Cost					\$ 10,378,168.69
Hayho Total Estimated Project Cost (Rounded)					\$ 10,379,000.00
2009 Dollars	Total Cost per SF Service Area				\$ 1.50
	Cost per CF Detention				\$ 3.24
2009 Dollars	Total Estimated Project Cost (Rounded) Hayho \$ 10,379,000.00				
Notes:					
1. The above cost opinion is in 2009 dollars and does not include future escalation, financing, or O&M costs.					
2. The order-of-magnitude cost opinion has been prepared for guidance in project evaluation from the information available at the time of preparation and for the assumptions stated.					
3. Increase percentage markup if work is in or immediately adjacent to flowing or standing water, steep slope, and/or other erosion-prone conditions.					
4. Increase percentage markup if work is in or immediately adjacent to secondary, arterial, or other high-volume road or temporarily closes a roadway.					
5. Land Acquisition unit costs are based on \$3.00/sf					

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PROJECT SUMMARY SHEET

Project Title: Marysville Drainage Inventory

Problem Description: Need full drainage inventory for the NPDES permit compliance.

Project Description: Update existing GIS drainage inventory for the City of Marysville.

Update will include the data collection and office time needed to input of as-built or survey grade data for 30 structures, and 40 pipe/culvert inlet/outlet locations. The amount of culvert data collected may vary depending on the amount of brushing required to access the pipe. This CIP may need to be performed more than once in order to complete the drainage inventory.

Design Considerations: Otak to provide survey data for Downtown and Sunnyside areas.

Associated Projects: AC-JC-09

Source: City

Estimated Project Cost: \$10,000

Rank: 4



City staff collecting inventory data along 51st Avenue NE

PROJECT COST ESTIMATE

PLANNING LEVEL PROJECT COST OPINION						
PROJECT: Marysville Drainage Inventory						
PROJECT ID: MQ-HH-36		CHECK BY: LR				
BY: MK		DATE: 7/1/2009				
ITEM NO.	ITEM	QUANTITY	UNIT	UNIT PRICE	AMOUNT	
<i>Construction Elements</i>						
1	INVENTORY 30 STRUCTURES	3	DAY	\$ 2,000.00	\$ 6,000	
2	INVENTORY 40 CULVERT INLET/OUTLET	2	DAY	\$ 2,000.00	\$ 4,000	
Subtotal Construction Elements					\$ 10,000	
2009 Dollars		Total Estimated Project Cost (Rounded)				\$ 10,000
Notes:						
<ol style="list-style-type: none"> 1. The above cost opinion is in 2009 dollars and does not include future escalation, financing, or O&M costs. 2. The order-of-magnitude cost opinion has been prepared for guidance in project evaluation from the information available at the time of preparation and for the assumptions stated. The final costs of the project will depend on actual labor and material. 3. Increase percentage markup if work is in or immediately adjacent to flowing or standing water, steep slope, and/or other erosion-prone conditions. 4. Increase percentage markup if work is in or immediately adjacent to secondary, arterial, or other high-volume road or temporarily closes a roadway. 5. Land Acquisition unit costs include Administrative Costs and Condemnation. 						

PROJECT SUMMARY SHEET

Project Title: Breach Hayho Bank at Railroad Culvert

Problem Description: Hayho Creek is not connected to the 48" Steel culvert installed in 2005.

Project Description: Breach the bank of Hayho Creek to allow low flows access to the 48" steel culvert. Place streambed gravel at a 1-ft depth in new channel. Leave currently connected 36" concrete culvert in place for high flows. Plant riparian corridor around newly relocated stream channel.

Design Considerations: Downstream erosion (MQ-HH-38) should be addressed first.

Associated Projects: MQ-HH-09, MQ-HH-38, MQ-QC-09, MQ-QC-12

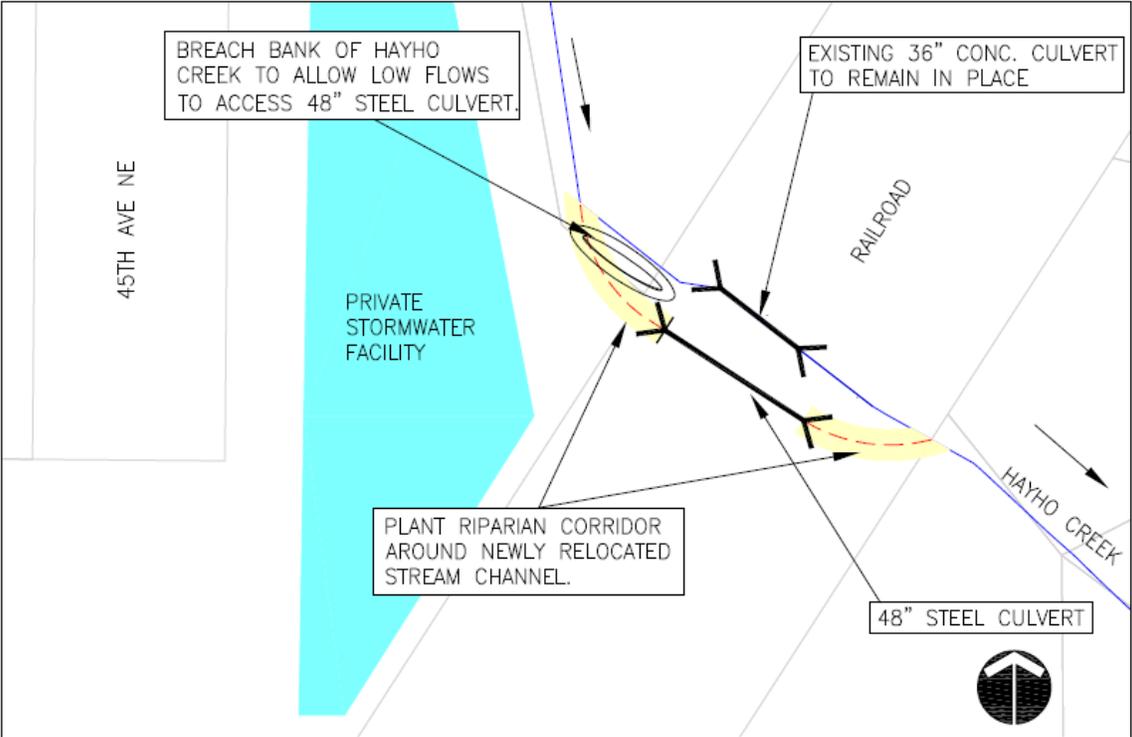
Estimated Project Cost: \$74,000

Rank: 5



Inlet to 36" concrete culvert (left) and 48" steel culvert with rock headwall (right)

PROJECT SKETCH



PROJECT COST ESTIMATE

PLANNING LEVEL PROJECT COST OPINION					
PROJECT: Breach Hayho Bank at Railroad Culvert (Hayho Creek)		CHECK BY: LR			
PROJECT ID: MQ-HH-37		DATE: 7/1/2009			
BY: MK					
ITEM NO.	ITEM	QUANTITY	UNIT	UNIT PRICE	AMOUNT
<i>Construction Elements</i>					
1	CLEARING AND GRUBBING	0.1	AC	\$ 28,750.00	\$ 2,900
2	STREAM EXCAVATION INCL. HAUL	20	CY	\$ 93.00	\$ 1,900
3	STREAMBED GRAVEL	10	TN	\$ 100.00	\$ 1,000
4	CHANNEL BYPASS	1	EA	\$ 20,000.00	\$ 20,000
5	HYDRO SEEDING	340	SF	\$ 1.00	\$ 400
Subtotal Construction Elements					\$ 26,200
<i>Required Ancillary Items</i>					
6	DEWATERING		10%	\$	2,620
7	EROSION & SEDIMENTATION CONTROL		10%	(see note 3) \$	2,620
8	CONTINGENCY		30%	\$	7,860
Subtotal Ancillary					\$ 13,100
Subtotal Construction + Ancillary					\$ 39,300
<i>Mobilization</i>					
9	MOBILIZATION		10%	\$	3,930
Subtotal Construction + Ancillary + Mobilization					\$ 43,230
<i>Tax/Engineering/Management/Permitting</i>					
10	STATE SALES TAX		8.6%	\$	3,800
11	ENGINEERING/LEGAL/ADMIN		35%	\$	15,200
12	CONSTRUCTION MANAGEMENT		10%	\$	4,400
13	PERMITTING		15%	\$	6,500
Subtotal					\$ 29,900
Subtotal Construction + Ancillary + Mobilization + Tax/Engineering/Management/Permitting					\$ 73,130
2009 Dollars		Total Estimated Project Cost (Rounded)			\$ 74,000
Notes:					
1. The above cost opinion is in 2009 dollars and does not include future escalation, financing, or O&M costs.					
2. The order-of-magnitude cost opinion has been prepared for guidance in project evaluation from the information available at the time of preparation and for the assumptions stated. The final costs of the project will depend on actual labor and material.					
3. Increase percentage markup if work is in or immediately adjacent to flowing or standing water, steep slope, and/or other erosion-prone conditions.					
4. Increase percentage markup if work is in or immediately adjacent to secondary, arterial, or other high-volume road or temporarily closes a roadway.					
5. Land Acquisition unit costs include Administrative Costs and Condemnation.					

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PROJECT SUMMARY SHEET

Project Title: Erosion Control Measures - Railroad culverts to 47th Dr. NE (Hayho Creek)

Problem Description: Hayho Creek is incising and banks are eroding through this reach.

Project Description: Establish an agreement with home owners to stabilize 850 LF of stream by re-grading and installing LWD with riparian vegetation along banks.

Design Considerations: The project will require additional analysis and a biological assessment of the stream and riparian corridor.

Associated Projects: MQ-HH-09, MQ-HH-37, MQ-QC-09, MQ-QC-12

Source: Otak

Estimated Project Cost: \$1,545,000

Rank: 5



Hayho Creek looking southeast (downstream). Bank scour has undercut and steepened banks.

PROJECT SKETCH



PROJECT COST ESTIMATE

PLANNING LEVEL PROJECT COST					
PROJECT: Erosion Control Measures - Railroad culverts to 47 th Dr. NE (Hayho Creek)		CHECK BY: LR			
PROJECT ID: MQ-HH-38		DATE: 7/2/2009			
BY: MK					
ITEM NO.	ITEM	QUANTITY	UNIT	UNIT PRICE	AMOUNT
<i>Construction Elements</i>					
1	CLEARING AND GRUBBING	0.4	AC	\$ 25,000.00	\$ 10,000
2	PROPERTY EASEMENT	0.4	AC	\$ 10,000.00	\$ 4,000
3	STREAM SITE EXCAVATION AND HAUL	500	CY	\$30	\$ 15,000
4	STREAMBED GRAVEL	300	TON	\$100	\$ 30,000
5	WILLOW FASCINES	500	LF	\$20	\$ 10,000
6	VEGETATED GEOGRID	870	SF	\$13	\$ 11,400
7	COIR LOG	1,305	LF	\$15	\$ 19,600
8	CRIBWALLS	870	SF	\$350	\$ 304,500
9	PLANTINGS	8,700	SF	\$2.5	\$ 21,800
10	SEEDING AND FERTILIZING	0.4	AC	\$5,000	\$ 2,000
11	CHAINLINK FENCE	1,740	LF	\$24	\$ 42,100
12	LARGE WOODY DEBRIS	180	EA	\$1,250	\$ 225,000
13	STREAM BOULDERS	270	EA	\$200	\$ 54,000
14	PRICE INCREASE FOR HAND LABOR			5%	\$ 36,800
Subtotal Enhancement Elements					\$786,200
<i>Required Ancillary Items</i>					
15	DEWATERING		10%		\$ 78,700
16	FISH REMOVAL	1	LS		\$ 20,000
17	EROSION & SEDIMENTATION CONTROL		10%	(see note 3)	\$ 78,700
18	TRAFFIC CONTROL		2%	(see note 4)	\$ 15,800
19	CONTINGENCY		20%		\$ 157,300
Subtotal Ancillary					\$ 350,500
Subtotal Construction + Ancillary					\$ 1,136,700
<i>Tax/Engineering/Management/Permitting</i>					
20	STATE SALES TAX		8.6%		\$ 97,756
21	ENGINEERING/LEGAL/ADMIN		15%		\$ 170,600
22	CONSTRUCTION MANAGEMENT		10%		\$ 113,700
23	PERMITTING		15%		\$ 25,600
Subtotal					\$ 407,656
Subtotal Construction + Ancillary + Mobilization + Tax/Engineering/Management/Permitting					\$ 1,544,356
2009 Dollars			Total Estimated Project Cost (Rounded)		\$ 1,545,000
Notes:					
1. The above cost opinion is in 2009 dollars and does not include future escalation, financing, or O&M costs.					
2. The order-of-magnitude cost opinion has been prepared for guidance in project evaluation from the information available at the time of preparation and for the assumptions stated. The final costs of the project will depend on actual labor and material.					
3. Increase percentage markup if work is in or immediately adjacent to flowing or standing water, steep slope, and/or other erosion-prone conditions.					
4. Increase percentage markup if work is in or immediately adjacent to secondary, arterial, or other high-volume road or temporarily closes a roadway.					
5. Land Acquisition unit costs include Administrative Costs and Condemnation.					

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PROJECT SUMMARY SHEET

Project Title: Culvert Replacement at 152nd St. NE (Edgecomb Creek)

Problem Description: Culvert undersized and overtops road for existing 25-yr and future 10-yr events.

Project Description: Replace existing 3-ft diam. CMP culvert with one 18-ft span x 5-ft rise, 41-ft long reinforced concrete box culvert. Culvert and streambed design should meet WDFW criteria for fish passage.

Design Considerations: The North Marysville MDP has plans to relocate Edgecomb Creek and the location for the 152nd Edgecomb Creek crossing may change.

Source: Snohomish County DNR CIP # QU-SP-16

Associated Projects: MQ-EC-02, MQ-EC-03, MQ-EC-05, MQ-EC-06, MQ-EC-13,

Estimated Project Cost: \$261,000

Rank: 4



Looking at culvert outlet from south side of 152nd St. NE

PROJECT SKETCH



PROJECT COST ESTIMATE

PLANNING LEVEL PROJECT COST OPINION					
PROJECT: Culvert Replacement at 152nd ST NE (Edgecomb Creek)			CHECK BY: LR		
PROJECT ID: MQ-EC-01			DATE: 7/1/2009		
BY: MK					
ITEM NO.	ITEM	QUANTITY	UNIT	UNIT PRICE	AMOUNT
<i>Construction Elements</i>					
1	REMOVE CONCRETE PAVEMENT	154	SY	\$ 31.00	\$ 4,774
2	CRUSHED BASE COURSE	104	TON	\$ 72.00	\$ 7,488
3	REMOVE PIPE	41	LF	\$ 15.00	\$ 615
4	STREAM GRAVEL	51	TON	\$ 48.00	\$ 2,428
5	PAVEMENT, HMA CL. 1/2-IN PG	36	TON	\$ 250.00	\$ 9,121
6	REINFORCED CONCRETE BOX CULVERT 18-FT X 5-FT	41	LF	\$ 1,000.00	\$ 41,000
7	UTILITY RELOCATIONS	1	LS	\$ 5,000.00	\$ 5,000
8	TEMPORARY BYPASS	1	LS	\$ 20,000.00	\$ 20,000
9	HYDRO SEEDING	2,770	SF	\$ 1.00	\$ 2,770
Subtotal Construction Elements					\$ 93,196
<i>Required Ancillary Items</i>					
10	DEWATERING		10%	\$	9,320
11	EROSION & SEDIMENTATION CONTROL		10%	(see note 3)	\$ 9,320
12	TRAFFIC CONTROL		10%	(see note 4)	\$ 9,320
13	CONTINGENCY		30%	\$	27,959
Subtotal Ancillary					\$ 55,918
Subtotal Construction + Ancillary					\$ 149,114
<i>Mobilization</i>					
14	MOBILIZATION		10%	\$	14,911
Subtotal Construction + Ancillary + Mobilization					\$ 164,025
<i>Tax/Engineering/Management/Permitting</i>					
15	STATE SALES TAX		8.6%	\$	14,106
16	ENGINEERING/LEGAL/ADMIN		25%	\$	41,006
17	CONSTRUCTION MANAGEMENT		10%	\$	16,402
18	PERMITTING		15%	\$	24,604
19	LAND AND RIGHT OF WAY		0%	\$	-
Subtotal					\$ 96,119
Subtotal Construction + Ancillary + Mobilization + Tax/Engineering/Management/Permitting					\$ 260,144
2009 Dollars					Total Estimated Project Cost (Rounded) \$ 261,000
Notes:					
1. The above cost opinion is in 2009 dollars and does not include future escalation, financing, or O&M costs.					
2. The order-of-magnitude cost opinion has been prepared for guidance in project evaluation from the information available at the time of preparation and for the assumptions stated. The final costs of the project will depend on actual labor and material.					
3. Increase percentage markup if work is in or immediately adjacent to flowing or standing water, steep slope, and/or other erosion-prone conditions.					
4. Increase percentage markup if work is in or immediately adjacent to secondary, arterial, or other high-volume road or temporarily closes a roadway.					
5. Land Acquisition unit costs include Administrative Costs and Condemnation.					

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PROJECT SUMMARY SHEET

Project Title: Field Access Culvert Removal and Bridge Installation – Edgecomb Creek

Problem Description: Culvert undersized and overtops road for existing 10yr and future 2yr.

Project Description: Replace existing 2.5-ft diam CMP culvert with a railspan bridge. Two 30-ft spans will be cut from an 89-ft by 8.5-ft railroad flatcar and placed side-by-side, providing a combined width of 17-ft and span of 30-ft.

Design Considerations: Design based upon WDFW 2000 criteria for fish passage; 2-year peak flow velocity for future land use conditions.

Associated Projects: MQ-EC-01, MQ-EC-03, MQ-EC-05, MQ-EC-06, MQ-EC-13

Source: Snohomish DNR CIP # QU-SP-17

Estimated Project Cost: \$167,000

Rank: 3

PROJECT SKETCH



PROJECT COST ESTIMATE

PLANNING LEVEL PROJECT COST OPINION					
PROJECT: Field Access Culvert Removal and Bridge Installation - Edgecomb Creek		CHECK BY: LR			
PROJECT ID: MQ-EC-02		DATE: 7/1/2009			
BY: MK					
ITEM NO.	ITEM	QUANTITY	UNIT	UNIT PRICE	AMOUNT
<i>Edgecomb Construction Elements</i>					
1	CRUSHED SURFACING BASE COURSE	38	TN	\$ 32.00	\$ 1,216
2	COMMON EXCAVATION	26	CY	\$ 38.00	\$ 988
3	REMOVE PIPE	37	LF	\$ 21.00	\$ 777
4	RAILSPAN BRIDGE	1	EA	\$ 22,520.00	\$ 22,520
5	FOOTINGS (STRUCTURAL CONCRETE CLASS 4000)	19	CY	\$ 500.00	\$ 9,500
6	STREAMBED GRAVEL	47	TN	\$ 51.00	\$ 2,397
7	TEMPORARY BYPASS	1	LS	\$ 20,000.00	\$ 20,000
8	HYDROSEEDING	1,010	SF	\$ 1.00	\$ 1,010
Subtotal Construction Elements					\$ 58,500
<i>Required Ancillary Items</i>					
9	DEWATERING		10%	\$	5,850
10	EROSION & SEDIMENTATION CONTROL		10%	(see note 3) \$	5,850
11	TRAFFIC CONTROL		0%	(see note 4) \$	-
12	CONTINGENCY		30%	\$	17,550
Subtotal Ancillary					\$ 30,000
Subtotal Construction + Ancillary					\$ 88,500
<i>Mobilization</i>					
13	MOBILIZATION		10%	\$	9,000
Subtotal Construction + Ancillary + Mobilization					\$ 97,500
<i>Tax/Engineering/Management/Permitting</i>					
14	STATE SALES TAX		8.6%	\$	9,000
15	ENGINEERING/LEGAL/ADMIN		35%	\$	35,000
16	CONSTRUCTION MANAGEMENT		10%	\$	10,000
17	PERMITTING		15%	\$	15,000
Subtotal					\$ 69,000
Subtotal Construction + Ancillary + Mobilization + Tax/Engineering/Management/Permitting					\$ 166,500
2009 Dollars					Total Estimated Project Cost (Rounded) \$ 167,000
Notes:					
1. The above cost opinion is in 2009 dollars and does not include future escalation, financing, or O&M costs.					
2. The order-of-magnitude cost opinion has been prepared for guidance in project evaluation from the information available at the time of preparation and for the assumptions stated. The final costs of the project will depend on actual labor and material.					
3. Increase percentage markup if work is in or immediately adjacent to flowing or standing water, steep slope, and/or other erosion-prone conditions.					
4. Increase percentage markup if work is in or immediately adjacent to secondary, arterial, or other high-volume road or temporarily closes a roadway.					
5. Land Acquisition unit costs include Administrative Costs and Condemnation.					

PROJECT SUMMARY SHEET

Project Title: Field Access Culvert Removal and Bridge Installation - Edgecomb Creek

Problem Description: Culvert undersized and overtops road for existing and future 2yr storm.

Project Description: Replace existing 2.5-ft diam concrete pipe with a railspan bridge. Two 20-ft spans will be cut from an 89-ft by 8.5-ft railroad flatcar and placed side-by-side, providing a combined width of 17-ft and span of 20-ft.

Design Considerations: Design based upon WDFW 2000 criteria for fish passage; 2-year peak flow velocity for future land use conditions.

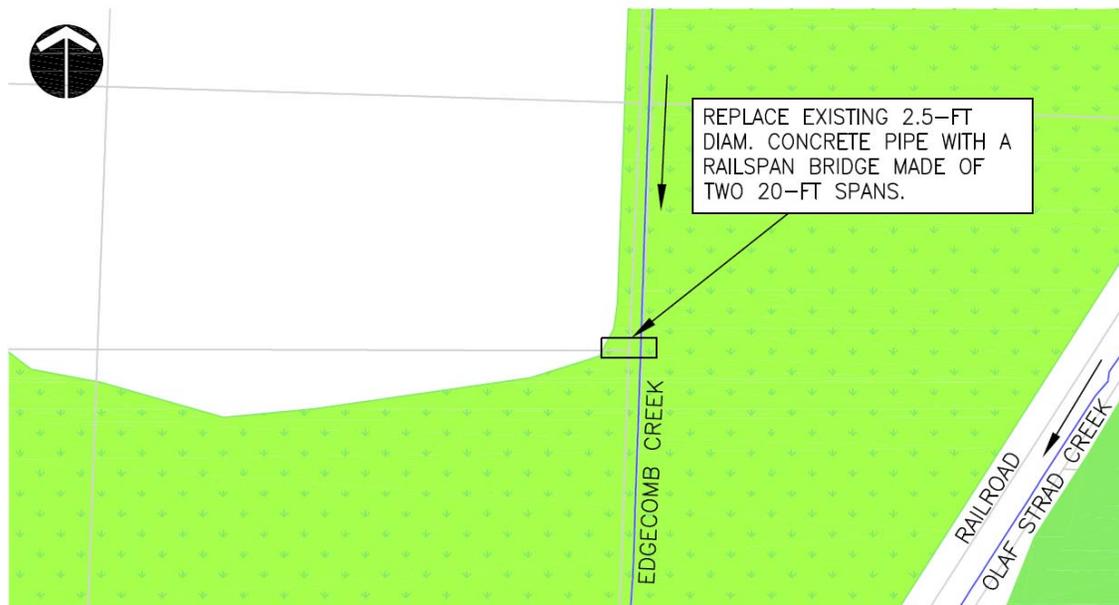
Associated Projects: MQ-EC-01, MQ-EC-02, MQ-EC-05, MQ-EC-06, MQ-EC-13

Source: Snohomish County DNR # QU-SP-01

Estimated Project Cost: \$172,000

Rank: 3

PROJECT SKETCH



PROJECT COST ESTIMATE

PLANNING LEVEL PROJECT COST OPINION					
PROJECT: Field Access Culvert Removal and Bridge Installation - Edgecomb Creek		CHECK BY: LR			
PROJECT ID: MQ-EC-03		DATE: 7/1/2009			
BY: MK					
ITEM NO.	ITEM	QUANTITY	UNIT	UNIT PRICE	AMOUNT
<i>Edgecomb Construction Elements</i>					
1	CRUSHED SURFACING BASE COURSE	30	TN	\$ 32.00	\$ 960
2	COMMON EXCAVATION	10	CY	\$ 38.00	\$ 380
3	REMOVE PIPE	30	LF	\$ 21.00	\$ 630
4	RAILSPAN BRIDGE	1	EA	\$ 22,520.00	\$ 22,520
5	FOOTINGS (STRUCTURAL CONCRETE CLASS 4000)	15	CY	\$ 500.00	\$ 7,500
6	STREAMBED GRAVEL	38.0	TN	\$ 51.00	\$ 1,938
7	TEMPORARY BYPASS	1	LS	\$ 20,000.00	\$ 20,000
8	HYDROSEEDING	810	SF	\$ 1.00	\$ 810
Subtotal Construction Elements					\$54,800
<i>Required Ancillary Items</i>					
9	DEWATERING		10%	\$	5,480
10	EROSION & SEDIMENTATION CONTROL		10%	(see note 3) \$	5,480
11	CONTINGENCY		30%	\$	16,440
Subtotal Ancillary					\$ 28,000
Subtotal Construction + Ancillary					\$ 82,800
<i>Mobilization</i>					
12	MOBILIZATION		10%	\$	9,000
Subtotal Construction + Ancillary + Mobilization					\$ 91,800
<i>Tax/Engineering/Management/Permitting</i>					
13	STATE SALES TAX		8.6%	\$	8,000
14	ENGINEERING/LEGAL/ADMIN		35%	\$	33,000
15	CONSTRUCTION MANAGEMENT		10%	\$	10,000
16	PERMITTING		15%	\$	14,000
17	LAND ACQUISITION	5,000	SF	\$ 3	\$ 15,000
Subtotal					\$ 80,000
Subtotal Construction + Ancillary + Mobilization + Tax/Engineering/Management/Permitting					\$ 171,800
2009 Dollars					Total Estimated Project Cost (Rounded) \$ 172,000
Notes:					
1. The above cost opinion is in 2009 dollars and does not include future escalation, financing, or O&M costs.					
2. The order-of-magnitude cost opinion has been prepared for guidance in project evaluation from the information available at the time of preparation and for the assumptions stated. The final costs of the project will depend on actual labor and material.					
3. Increase percentage markup if work is in or immediately adjacent to flowing or standing water, steep slope, and/or other erosion-prone conditions.					
4. Increase percentage markup if work is in or immediately adjacent to secondary, arterial, or other high-volume road or temporarily closes a roadway.					
5. Land Acquisition unit costs include Administrative Costs and Condemnation.					

PROJECT SUMMARY

Project Title: Field Access Culvert Removal and Bridge Installation – Edgecomb Creek

Problem Description: Culvert undersized and overtops road for existing and future 2yr storm.

Project Description: Replace existing 2.5-ft diam CMP culvert with a Railspan bridge.

Two 40-ft spans will be cut from an 89-ft by 8.5-ft railroad flatcar and placed side-by-side, providing a combined width of 17-ft and span of 40-ft.

Design Considerations: Design based upon WDFW 2000 criteria for fish passage; 2-year peak flow velocity for future land use conditions.

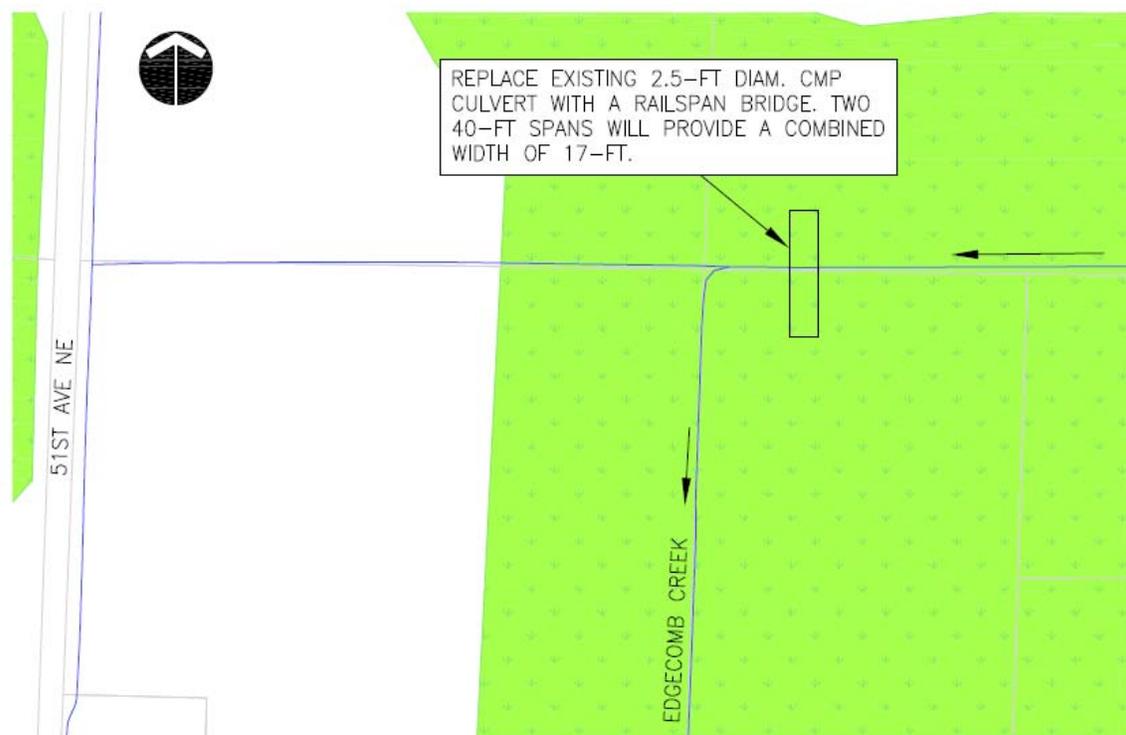
Associated Projects: MQ-EC-01, MQ-EC-02, MQ-EC-03, MQ-EC-06, MQ-EC-13

Source: Snohomish DNR CIP # QU-SP-18

Estimated Project Cost: \$189,000

Rank: 3

PROJECT SKETCH



PROJECT COST ESTIMATE

PLANNING LEVEL PROJECT COST OPINION					
PROJECT: Field Access Culvert Removal and Bridge Installation - Edgecomb Creek		CHECK BY: LR			
PROJECT ID: MQ-EC-05				DATE: 7/1/2009	
BY: MK					
ITEM NO.	ITEM	QUANTITY	UNIT	UNIT PRICE	AMOUNT
<i>Edgecomb Construction Elements</i>					
1	CRUSHED SURFACING BASE COURSE	42	TN	\$ 32.00	\$ 1,344
2	COMMON EXCAVATION	25	CY	\$ 38.00	\$ 950
3	REMOVE PIPE	27	LF	\$ 21.00	\$ 567
4	RAILSPAN BRIDGE	1	EA	\$ 22,520.00	\$ 22,520
5	FOOTINGS (STRUCTURAL CONCRETE CLASS 4000)	21	CY	\$ 500.00	\$ 10,500
6	STREAMBED GRAVEL	34	TN	\$ 51.00	\$ 1,734
7	TEMPORARY BYPASS	1	LS	\$ 20,000.00	\$ 20,000
8	HYDROSEEDING	1120	SF	\$ 1.00	\$ 1,120
Subtotal Construction Elements					\$58,800
<i>Required Ancillary Items</i>					
9	DEWATERING		10%	\$	5,880
10	EROSION & SEDIMENTATION CONTROL		15%	(see note 3) \$	8,820
11	TRAFFIC CONTROL		0%	(see note 4) \$	-
12	CONTINGENCY		30%	\$	17,640
Subtotal Ancillary					\$ 33,000
Subtotal Construction + Ancillary					\$ 91,800
<i>Mobilization</i>					
13	MOBILIZATION		10%	\$	10,000
Subtotal Construction + Ancillary + Mobilization					\$ 101,800
<i>Tax/Engineering/Management/Permitting</i>					
14	STATE SALES TAX		8.6%	\$	9,000
15	ENGINEERING/LEGAL/ADMIN		35%	\$	36,000
16	CONSTRUCTION MANAGEMENT		10%	\$	11,000
17	PERMITTING		15%	\$	16,000
18	LAND ACQUISITION	5,000	SF	\$ 3	\$ 15,000
Subtotal					\$ 87,000
Subtotal Construction + Ancillary + Mobilization + Tax/Engineering/Management/Permitting					\$ 188,800
2009 Dollars					Total Estimated Project Cost (Rounded) \$ 189,000
Notes:					
1. The above cost opinion is in 2009 dollars and does not include future escalation, financing, or O&M costs.					
2. The order-of-magnitude cost opinion has been prepared for guidance in project evaluation from the information available at the time of preparation and for the assumptions stated. The final costs of the project will depend on actual labor and material.					
3. Increase percentage markup if work is in or immediately adjacent to flowing or standing water, steep slope, and/or other erosion-prone conditions.					
4. Increase percentage markup if work is in or immediately adjacent to secondary, arterial, or other high-volume road or temporarily closes a roadway.					
5. Land Acquisition unit costs include Administrative Costs and Condemnation.					

PROJECT SUMMARY SHEET

Project Title: Field Access Culvert Removal and Bridge Installation – Edgecomb Creek

Problem Description: Culvert undersized and overtops road for existing and future 2yr storm.

Project Description: Replace existing 1.5-ft diam concrete pipe with a Railspan bridge.

Two 30-ft spans will be cut from an 89-ft by 8.5-ft railroad flatcar and placed side-by-side, providing a combined width of 17-ft and span of 30-ft.

Design Considerations: Design based upon WDFW 2000 criteria for fish passage; 2-year peak flow velocity for future land use conditions.

Associated Projects: MQ-EC-01, MQ-EC-02, MQ-EC-03, MQ-EC-05, MQ-EC-13

Source: Snohomish DNR CIP # QU-SP-19

Estimated Project Cost: \$190,000

Rank: 3

PROJECT SKETCH



PROJECT COST ESTIMATE

PLANNING LEVEL PROJECT COST OPINION					
PROJECT: Field Access Culvert Removal and Bridge Installation - Edgecomb Creek		CHECK BY: LR			
PROJECT ID: MQ-EC-06		DATE: 7/1/2009			
BY: MK,DT					
ITEM NO.	ITEM	QUANTITY	UNIT	UNIT PRICE	AMOUNT
<i>Edgecomb Construction Elements</i>					
1	CRUSHED SURFACING BASE COURSE	36	TN	\$ 32.00	\$ 1,152
2	COMMON EXCAVATION	16	CY	\$ 38.00	\$ 608
3	REMOVE PIPE	27	LF	\$ 21.00	\$ 567
4	RAILSPAN BRIDGE	1	EA	\$ 22,520.00	\$ 22,520
5	FOOTINGS (STRUCTURAL CONCRETE CLASS 4000)	28	CY	\$ 500.00	\$ 14,000
6	STREAMBED GRAVEL	34	TN	\$ 51.00	\$ 1,734
7	TEMPORARY BYPASS	1	LS	\$ 20,000.00	\$ 20,000
8	HYDROSEEDING	950	SF	\$ 1.00	\$ 950
Subtotal Construction Elements					\$ 61,600
<i>Required Ancillary Items</i>					
9	DEWATERING		10%	\$	6,160
10	EROSION & SEDIMENTATION CONTROL		10%	(see note 3) \$	6,160
11	TRAFFIC CONTROL		0%	(see note 4) \$	-
12	CONTINGENCY		30%	\$	18,480
Subtotal Ancillary					\$ 31,000
Subtotal Construction + Ancillary					\$ 92,600
<i>Mobilization</i>					
13	MOBILIZATION		10%	\$	10,000
Subtotal Construction + Ancillary + Mobilization					\$ 102,600
<i>Tax/Engineering/Management/Permitting</i>					
14	STATE SALES TAX		8.6%	\$	9,000
15	ENGINEERING/LEGAL/ADMIN		35%	\$	36,000
16	CONSTRUCTION MANAGEMENT		10%	\$	11,000
17	PERMITTING		15%	\$	16,000
18	LAND ACQUISITION	5,000	SF	\$ 3	\$ 15,000
Subtotal					\$ 87,000
Subtotal Construction + Ancillary + Mobilization + Tax/Engineering/Management/Permitting					\$ 189,600
2009 Dollars					Total Estimated Project Cost (Rounded) \$ 190,000
Notes:					
1. The above cost opinion is in 2009 dollars and does not include future escalation, financing, or O&M costs.					
2. The order-of-magnitude cost opinion has been prepared for guidance in project evaluation from the information available at the time of preparation and for the assumptions stated. The final costs of the project will depend on actual labor and material.					
3. Increase percentage markup if work is in or immediately adjacent to flowing or standing water, steep slope, and/or other erosion-prone conditions.					
4. Increase percentage markup if work is in or immediately adjacent to secondary, arterial, or other high-volume road or temporarily closes a roadway.					
5. Land Acquisition unit costs include Administrative Costs and Condemnation.					

PROJECT SUMMARY SHEET

Project Title: North Marysville Master Drainage Plan – Edgecomb Creek

Problem Description: Promote economic growth in North Marysville while improving aquatic resource function.

Project Description: Realign approximately 2 miles of Edgecomb Creek with flood storage and forested wetland buffers. Develop a detention and stormwater conveyance system for future development.

Design Considerations: Dependent upon the Office of Regulatory Assistance.

Associated Projects: MQ-EC-01, MQ-EC-03, MQ-EC-05, MQ-EC-06

Source: Otak MDP

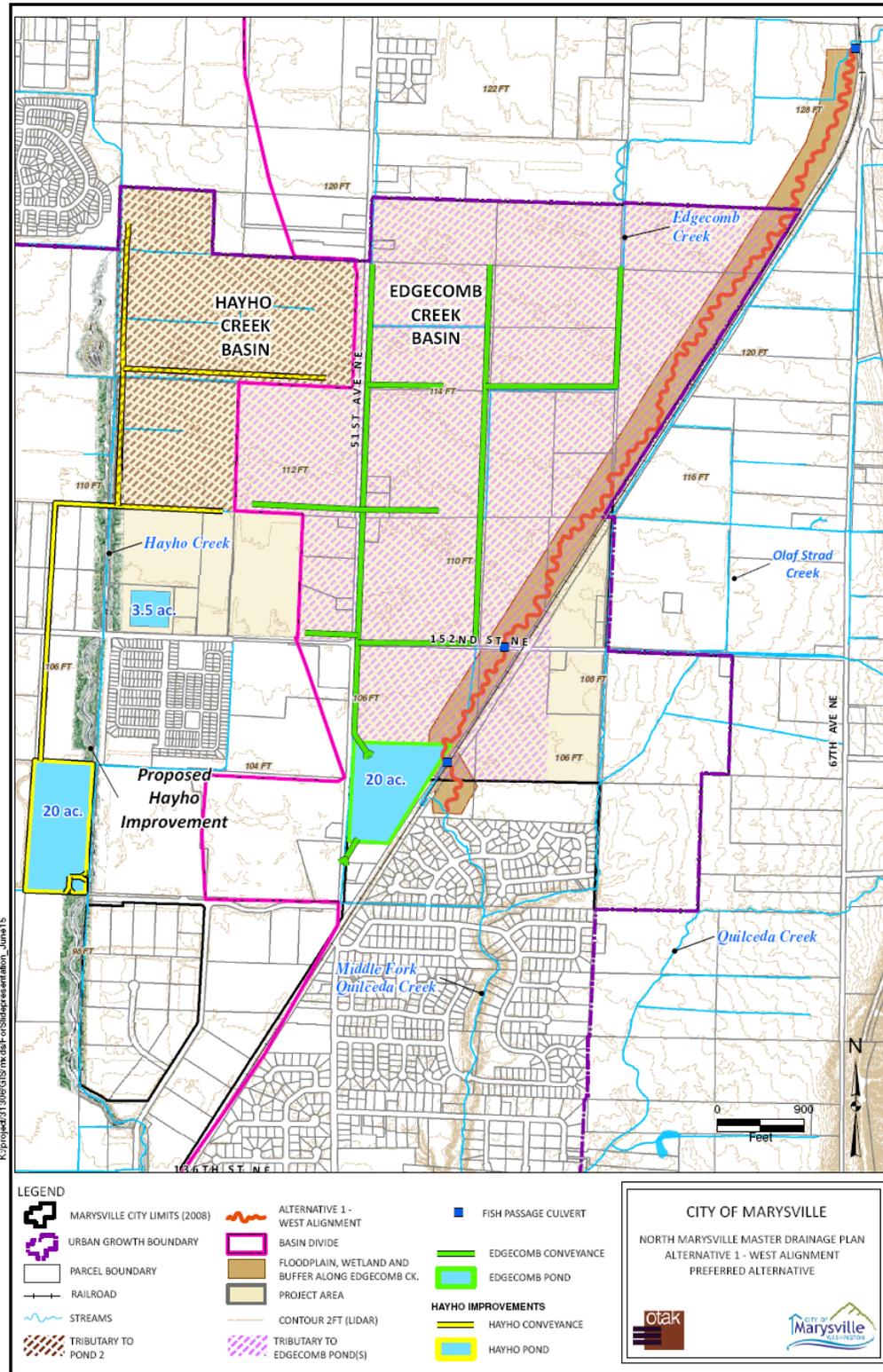
Estimated Project Cost: \$ 24,568,000

Rank: 5



Looking north at Edgecomb Creek

PROJECT SKETCH



PROJECT COST ESTIMATE

PLANNING LEVEL PROJECT COST					
PROJECT: North Marysville Drainage Plan - Edgecomb Creek		CHECK BY: LR		Edgecomb Service Area: 414.9 ac	
PROJECT ID: MQ-EC-13					
BY: MK		DATE: 7/1/2009			
ITEM NO.	ITEM	QUANTITY	UNIT	UNIT PRICE	AMOUNT
<i>Stream Construction Elements</i>					
1	CHANNEL EXCAVATION	39,500	CY	\$ 8.00	\$ 316,000.00
2	SITE EXCAVATION	376,200	CY	\$ 3.00	\$ 1,129,600.00
3	CLEARING AND GRUBBING	68	AC	\$ 3,000.00	\$ 204,000.00
4	SINGLE LOG (12-18" DIAMETER) W/ ROOT WAD	56	EA	\$ 1,500.00	\$ 84,000.00
5	FISH PASSABLE CULVERT	10	EA	\$ 78,000.00	\$ 780,000.00
6	RIPARIAN PLANTINGS	64	AC	\$ 30,000.00	\$ 1,920,000.00
Subtotal Stream Construction Elements					\$ 4,432,600.00
<i>Edgecomb Pond Construction Elements</i>					
7	CLEARING AND GRUBBING	15.4	AC	\$ 9,000.00	\$ 138,600.00
8	POND EXCAVATION AND GRADING	160,800	CY	\$ 8.00	\$ 1,286,400.00
9	DEWATERING	15.4	AC	\$ 27,000.00	\$ 415,800.00
10	INLET AND OUTLET CONTROLS	2	LS	\$ 100,000.00	\$ 200,000.00
11	MISCELLANEOUS POND ITEMS	2	LS	\$ 5,500.00	\$ 11,000.00
12	FENCING	760	LF	\$ 12.00	\$ 9,120.00
13	SEEDING, FERTILIZING, MULCHING AND PLANTING	15.4	AC	\$ 30,000.00	\$ 462,000.00
14	TEMPORARY EROSION AND SEDIMENT CONTROL	15.4	AC	\$ 1,000.00	\$ 15,400.00
15	TRAFFIC CONTROL		1%		\$ 25,400.00
16	CONTINGENCY		15%		\$ 380,700.00
17	MOBILIZATION		8%		\$ 235,600.00
Subtotal					\$ 3,180,020.00
Subtotal Edgecomb Pond + Stream Construction Elements					\$ 7,612,620.00
<i>Edgecomb Conveyance Construction Elements</i>					
18	SCHEDULE A STORM SEWER PIPE 24 IN. DIAM.	2,100	LF	\$ 65.00	\$ 136,500.00
19	SCHEDULE A STORM SEWER PIPE 30 IN. DIAM.	1,300	LF	\$ 90.00	\$ 117,000.00
20	SCHEDULE A STORM SEWER PIPE 36 IN. DIAM.	3,250	LF	\$ 95.00	\$ 308,750.00
21	SCHEDULE A STORM SEWER PIPE 42 IN. DIAM.	1,300	LF	\$ 135.00	\$ 175,500.00
22	SCHEDULE A STORM SEWER PIPE 54 IN. DIAM.	2,600	LF	\$ 150.00	\$ 390,000.00
23	MANHOLE 48 IN. DIAM.	7	EA	\$ 3,900.00	\$ 27,300.00
24	MANHOLE 54 IN. DIAM.	4	EA	\$ 4,700.00	\$ 18,800.00
25	MANHOLE 60 IN. DIAM.	10	EA	\$ 4,850.00	\$ 48,500.00
26	MANHOLE 72 IN. DIAM.	4	EA	\$ 6,000.00	\$ 24,000.00
27	MANHOLE 84 IN. DIAM.	8	EA	\$ 9,100.00	\$ 72,800.00
28	SHORING OR EXTRA EXCAVATION CLASS B	84,400	LF	\$ 0.50	\$ 42,200.00
29	STRUCTURE EXCAVATION CLASS B INCL HAUL	18,800	CY	\$ 10.00	\$ 188,000.00
30	GRAVEL BORROW INCL. HAUL	2,400	CY	\$ 15.00	\$ 36,000.00
31	DITCH EXCAVATION	5,000	CY	\$ 8.00	\$ 40,000.00
32	SEEDING AND FERTILIZING (along the ditch easement)	3	AC	\$ 3,000.00	\$ 9,000.00
33	TEMPORARY EROSION AND SEDIMENT CONTROL	1	LS	\$ 20,000.00	\$ 20,000.00
34	DEWATERING	1	LS	\$ 300,000.00	\$ 300,000.00
35	TRAFFIC CONTROL		1%		\$ 3,700.00
36	CONTINGENCY		20%		\$ 73,800.00
37	MOBILIZATION		8%		\$ 35,700.00
Subtotal					\$ 2,067,550.00
Subtotal Edgecomb Construction Elements					\$ 9,680,170.00
<i>Ancillary Items</i>					
38	STATE SALES TAX		8.6%		\$ 832,494.62
39	PROPERTY ACQUISITION (STREAM)	68.0	AC	\$ 130,680.00	\$ 8,886,240.00
40	PROPERTY ACQUISITION (PONDS)	16.5	AC	\$ 130,680.00	\$ 2,156,220.00
41	PROPERTY ACQUISITION (CONVEYANCE)	3	AC	\$ 130,680.00	\$ 392,040.00
42	ENGINEERING/LEGAL/ADMIN		15%		\$ 1,452,025.50
43	CONSTRUCTION MANAGEMENT		10%		\$ 968,017.00
44	PERMITTING	1	LS	\$ 200,000.00	\$ 200,000.00
Subtotal Items					\$14,887,037.12
Edgecomb Total Estimated Project Cost					\$24,567,207.12
Edgecomb Total Estimated Project Cost (Rounded)					\$ 24,568,000
2009 Dollars					
Total Cost per SF Service Area					\$ 1.36
Cost per CF Detention					\$ 6.27
Undevelopable Land Made Developable by Project (due to environmental regulations)					51 ac
2009 Dollars					
Total Estimated Project Cost (Rounded) Hayho and Edgecomb					\$ 24,568,000
Notes:					
1. The above cost opinion is in 2009 dollars and does not include future escalation, financing, or O&M costs.					
2. The order-of-magnitude cost opinion has been prepared for guidance in project evaluation from the information available at the time of preparation and for the assumptions stated. The final costs of the project will depend on actual labor and material.					
3. Increase percentage markup if work is in or immediately adjacent to flowing or standing water, steep slope, and/or other erosion-prone conditions.					
4. Increase percentage markup if work is in or immediately adjacent to secondary, arterial, or other high-volume road or temporarily closes a roadway.					
5. Land Acquisition unit costs are based on \$3.00/sf					

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PROJECT SUMMARY SHEET

Project Title: Field Access Culvert Removal/Bridge Installation and Stream Restoration (Quilceda Creek)

Problem Description: Culvert is a partial barrier to fish passage. Area also lacks adequate LWD and riparian vegetation.

Project Description: Replace existing 3-ft dia. CMP culvert with a railspan bridge. Two 12.8 ft spans will be cut from an 89-ft by 8.5-ft railroad flatcar and placed side-by-side. Culvert and streambed design must meet WDFW criteria for fish passage. Restore approximately 1,750 LF of stream channel installing 10 pieces of LWD, 15 root wads and supplemental woody riparian vegetation along a 300-ft wide riparian corridor.

Design Considerations: This project will require a biological assessment of the stream and riparian corridor.

Associated Projects: MQ-EC-13, MQ-MQ-07, MQ-QC-09, MQ-QC-12

Source: Snohomish County DNR CIP # QU-MQ-17 and QU-MQ-23

Estimated Project Cost: \$293,000

Rank: 3



Looking upstream from culvert on the upper Middle Fork Quilceda

PROJECT SKETCH



PROJECT COST ESTIMATE

PLANNING LEVEL PROJECT COST OPINION					
PROJECT: Field Access Culvert Removal/Bridge Installation and Stream Restoration (Quilceda Creek)		CHECK BY:			
PROJECT ID: MQ-MQ-04		DATE: 7/1/2009			
BY: MK					
ITEM NO.	ITEM	QUANTITY	UNIT	UNIT PRICE	AMOUNT
<i>Construction Elements</i>					
1	COMMON BORROW INCL. HAUL	320	SY	\$ 27.00	\$ 8,640
2	COMMON EXCAVATION	20	CY	\$ 40.00	\$ 800
3	CRUSHED BASE COURSE	260	TON	\$ 34.00	\$ 8,840
4	REMOVE PIPE	90	LF	\$ 23.00	\$ 2,070
5	HMA CL. 1/2-IN PG	80	TON	\$ 250.00	\$ 20,000
6	STREAM GRAVEL	90	TON	\$ 37.00	\$ 3,330
7	RAILSPAN BRIDGE	2	EA	\$ 6,500.00	\$ 13,000
8	FOOTINGS (STRUCTURAL CONCRETE CLASS 4000)	20	CY	\$ 500.00	\$ 10,000
9	HYDROSEEDING	6,710	SF	\$ 0.20	\$ 1,359
10	TEMPORARY BYPASS	1	LS	\$ 20,000.00	\$ 20,000
11	LARGE WOODY DEBRIS	25	EA	\$ 1,000.00	\$ 25,000
12	RIPARIAN VEGETATION	2,000	SY	\$ 4.00	\$ 8,000
					Subtotal \$ 121,039
					Subtotal Construction +Stream Restoration \$ 121,039
<i>Required Ancillary Items</i>					
13	DEWATERING		10%		\$ 12,104
14	EROSION & SEDIMENTATION CONTROL		10%		\$ 12,104
15	TRAFFIC CONTROL		3%	(see note 4)	\$ 3,631
16	CONTINGENCY		30%		\$ 36,312
					Subtotal Ancillary \$ 64,151
					Subtotal Construction + Ancillary \$ 185,200
<i>Mobilization</i>					
17	MOBILIZATION		10%		\$ 18,600
					Subtotal Construction + Ancillary + Mobilization \$ 203,800
<i>Tax/Engineering/Management/Permitting</i>					
18	STATE SALES TAX		8.6%		\$ 17,600
19	ENGINEERING/LEGAL/ADMIN		35.0%		\$ 10,000
20	CONSTRUCTION MANAGEMENT		20%		\$ 40,800
21	PERMITTING		10%		\$ 20,400
					Subtotal \$ 88,800
					Subtotal Construction + Ancillary + Mobilization + Tax/Engineering/Management/Permitting \$ 292,600
2009 Dollars		Total Estimated Project Cost (Rounded) \$ 293,000			
Notes:					
1. The above cost opinion is in 2009 dollars and does not include future escalation, financing, or O&M costs.					
2. The order-of-magnitude cost opinion has been prepared for guidance in project evaluation from the information available at the time of preparation and for the assumptions stated. The final costs of the project will depend on actual labor and material.					
3. Increase percentage markup if work is in or immediately adjacent to flowing or standing water, steep slope, and/or other erosion-prone conditions.					
4. Increase percentage markup if work is in or immediately adjacent to secondary, arterial, or other high-volume road or temporarily closes a roadway.					
5. Land Acquisition unit costs include Administrative Costs and Condemnation.					

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PROJECT SUMMARY SHEET

Project Title: Culvert Replacement at 152nd St. NE (Olaf Strad Creek)

Problem Description: Undersized culvert, potential fish barrier, and property flooding.

Project Description: Replace existing 3-ft dia. concrete culvert with 18-ft span x 5-ft rise, 50-ft long reinforced concrete box culvert. Culvert and streambed design must meet WDFW criteria for fish passage.

Design Considerations: The North Marysville MDP has plans to relocate Edgecomb Creek and the location Olaf Strad Creek may change. There are beaver dams in the area that have created a backwater condition. Two branches of the stream combine on the north side of 152nd.

Associated Projects: MQ-EC-13, MQ-MQ-04, MQ-QC-09, MQ-QC-12

Source: Otak

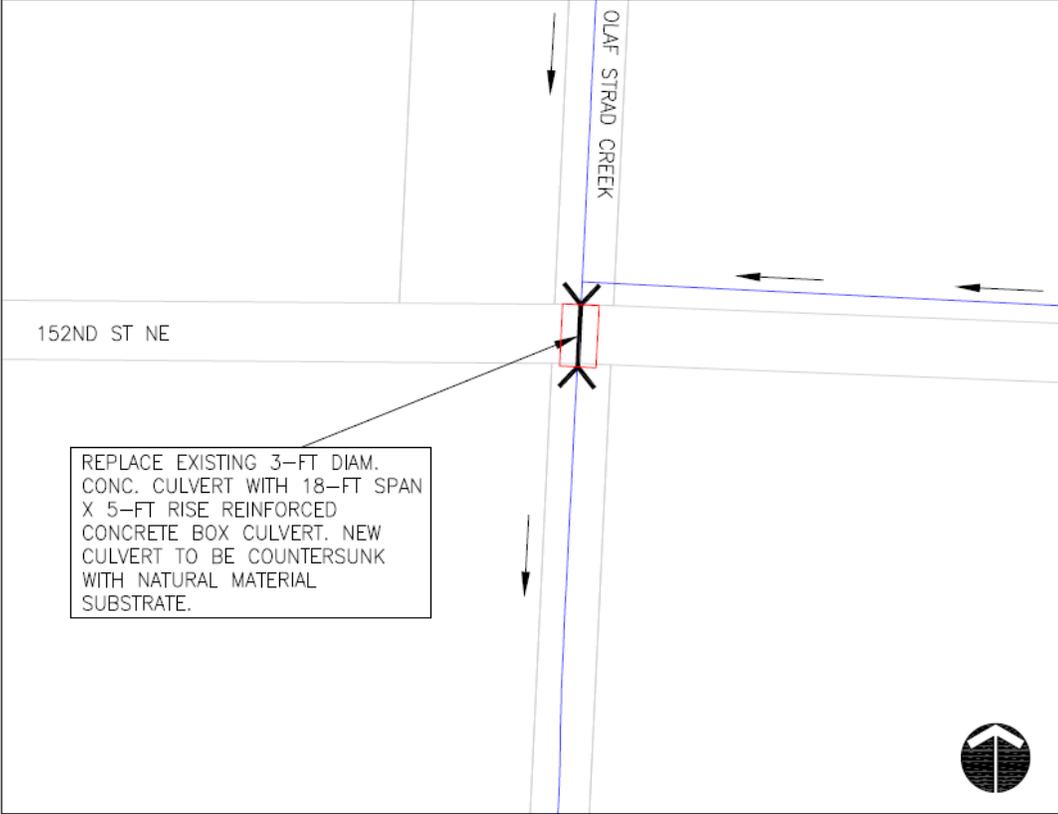
Estimated Project Cost: \$277,000

Rank: 4



Culvert inlet looking upstream (northeast)

PROJECT SKETCH



PROJECT COST ESTIMATE

PLANNING LEVEL PROJECT COST OPINION					
PROJECT: Culvert Replacement at 152nd ST NE (Olaf Strad Creek)			CHECK BY: LR		
PROJECT ID: MQ-MQ-07			DATE: 7/2/2009		
BY: MK					
ITEM NO.	ITEM	QUANTITY	UNIT	UNIT PRICE	AMOUNT
<i>Construction Elements</i>					
1	REMOVE PAVEMENT	120	SY	\$ 31.00	\$ 3,720
2	CRUSHED SURFACING BASE COURSE	81	TN	\$ 46.00	\$ 3,726
3	REMOVE PIPE	40	LF	\$ 22.00	\$ 880
4	HMA CL. 1/2-IN PG	27	TN	\$ 250.00	\$ 6,750
5	REINFORCED CONCRETE BOX CULVERT 18-FT SPAN x 5-FT RISE	50	LF	\$ 1,000.00	\$ 50,000
6	STREAMBED GRAVEL	18	TON	\$ 100.00	\$ 1,800
7	UTILITY RELOCATIONS	1	LS	\$ 10,000.00	\$ 10,000
8	TEMPORARY BYPASS	1	LS	\$ 20,000.00	\$ 20,000
9	HYDRO. SEEDING	2,160	SF	\$ 1.00	\$ 2,160
Subtotal Construction Elements					\$ 99,036
<i>Required Ancillary Items</i>					
10	DEWATERING		10%		\$ 9,904
11	EROSION & SEDIMENTATION CONTROL		10%	(see note 3)	\$ 9,904
12	TRAFFIC CONTROL		10%	(see note 4)	\$ 9,904
13	CONTINGENCY		30%		\$ 29,711
Subtotal Ancillary					\$ 59,422
Subtotal Construction + Ancillary					\$ 158,500
<i>Mobilization</i>					
14	MOBILIZATION		10%		\$ 15,850
Subtotal Construction + Ancillary + Mobilization					\$ 174,350
<i>Tax/Engineering/Management/Permitting</i>					
15	STATE SALES TAX		8.6%		\$ 15,000
16	ENGINEERING/LEGAL/ADMIN		25%		\$ 43,590
17	CONSTRUCTION MANAGEMENT		10%		\$ 17,440
18	PERMITTING		15%		\$ 26,160
Subtotal					\$ 102,190
Subtotal Construction + Ancillary + Mobilization + Tax/Engineering/Management/Permitting					\$ 276,540
2009 Dollars			Total Estimated Project Cost (Rounded) \$ 277,000		
Notes:					
1. The above cost opinion is in 2009 dollars and does not include future escalation, financing, or O&M costs.					
2. The order-of-magnitude cost opinion has been prepared for guidance in project evaluation from the information available at the time of preparation and for the assumptions stated. The final costs of the project will depend on actual labor and material.					
3. Increase percentage markup if work is in or immediately adjacent to flowing or standing water, steep slope, and/or other erosion-prone conditions.					
4. Increase percentage markup if work is in or immediately adjacent to secondary, arterial, or other high-volume road or temporarily closes a roadway.					
5. Land Acquisition unit costs include Administrative Costs and Condemnation.					

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PROJECT SUMMARY SHEET

Project Title: Culvert Replacement at State Ave. (Quilceda Creek)

Problem Description: Culvert is undersized and a partial barrier to fish based upon velocity criteria.

Project Description: Replace existing 6-ft span x 6-ft rise concrete box culvert with a 175-ft single span bridge. Install rip rap along abutments and restore recently day-lighted stream.

Design Considerations: This project is included within the 2009-2014 Six Year Transportation Plan. Downstream has an 18" CMP on left bank. Water pipe and protection just downstream of outlet affects hydraulic capacity.

Source: Snohomish County DNR CIP # QU-LQ-03

Estimated Project Cost: \$3,964,000

Associated Projects: Item No. 6 State Avenue: 100th Street NE to 116th Street NE, MQ-EC-13, MQ-MQ-04, MQ-MQ-07, MQ-QC-12

Rank: 3



Outlet of culvert looking east, protected existing water pipe (foreground)

PROJECT COST ESTIMATE

PLANNING LEVEL PROJECT COST OPINION					
PROJECT: Culvert Replacement at State Ave (Quilceda Creek)		CHECK BY: LR			
PROJECT ID: MQ-QC-09		DATE: 7/1/2009			
BY: MK					
ITEM NO.	ITEM	QUANTITY	UNIT	UNIT PRICE	AMOUNT
<i>Construction Elements</i>					
1	REMOVE CONCRETE PAVEMENT	670	SY	\$ 7.0	\$ 4,648
2	CRUSHED SURFACING BASE COURSE	450	TN	\$ 46.00	\$ 20,608
3	COMMON EXCAVATION	31,350	CY	\$ 8.00	\$ 250,784
4	REMOVE PIPE	180	LF	\$ 22.00	\$ 3,850
5	175-FT SINGLE SPAN BRIDGE	7,430	SF	\$ 175.00	\$ 1,300,005
6	FOOTINGS (STRUCTURAL CONCRETE CLASS 4000)	180	CY	\$ 500.00	\$ 90,000
7	STREAMBED GRAVEL	380	TN	\$ 100.00	\$ 37,300
8	LIGHT LOOSE RIPRAP	80	TN	\$ 44.00	\$ 3,520
9	TEMPORARY BYPASS	1	LS	\$ 35,000.00	\$ 35,000
10	UTILITY RELOCATIONS	1	LS	\$ 20,000.00	\$ 20,000
11	HYDROSEEDING	11,950	SF	\$ 1.00	\$ 11,950
12	LARGE WOODY DEBRIS	20	EA	\$ 1,000.00	\$ 20,000
Subtotal Construction Elements					\$ 1,797,665
<i>Required Ancillary Items</i>					
13	DEWATERING		10%		\$ 179,800
14	EROSION & SEDIMENTATION CONTROL		5%	(see note 3)	\$ 89,900
15	TRAFFIC CONTROL		5%	(see note 4)	\$ 89,900
16	CONTINGENCY		30%		\$ 539,300
Subtotal Ancillary					\$ 898,900
Subtotal Construction + Ancillary					\$ 2,696,565
<i>Mobilization</i>					
17	MOBILIZATION		10%		\$ 269,700
Subtotal Construction + Ancillary + Mobilization					\$ 2,966,265
<i>Tax/Engineering/Management/Permitting</i>					
18	STATE SALES TAX		8.6%		\$ 255,100
19	ENGINEERING/LEGAL/ADMIN		15%		\$ 445,000
20	CONSTRUCTION MANAGEMENT		5%		\$ 148,400
21	PERMITTING		5%		\$ 148,400
Subtotal					\$ 996,900
Subtotal Construction + Ancillary + Mobilization + Tax/Engineering/Management/Permitting					\$ 3,963,165
2009 Dollars		Total Estimated Project Cost (Rounded) \$ 3,964,000			
Notes:					
1. The above cost opinion is in 2009 dollars and does not include future escalation, financing, or O&M costs.					
2. The order-of-magnitude cost opinion has been prepared for guidance in project evaluation from the information available at the time of preparation and for the assumptions stated. The final costs of the project will depend on actual labor and material.					
3. Increase percentage markup if work is in or immediately adjacent to flowing or standing water, steep slope, and/or other erosion-prone conditions.					
4. Increase percentage markup if work is in or immediately adjacent to secondary, arterial, or other high-volume road or temporarily closes a roadway.					
5. Land Acquisition unit costs include Administrative Costs and Condemnation.					

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PROJECT SUMMARY SHEET

Project Title: Culvert Replacement at Railroad (Quilceda Creek)

Problem Description: Culvert is a partial barrier to fish based upon velocity criteria.

Project Description: Replace existing 8-ft span x 6-ft rise CMP arch culvert with a 140-ft long 12-ft dia. culvert. Project will require installation of an access road for pipe jacking construction. Culvert and streambed design must meet WDFW criteria for fish passage.

Design Considerations: The maximum diameter for pipe-jacking of 12-ft may not meet WDFW stream simulation criteria for fish passage, but could meet the hydraulic design option.

Source: Snohomish County DNR CIP # QU-LQ-02

Associated Projects: MQ-EC-13, MQ-MQ-04, MQ-MQ-07, MQ-QC-09

Estimated Project Cost: \$ 982,000

Rank: 3



Railroad culvert outlet looking east

PROJECT SKETCH



PROJECT COST ESTIMATE

PLANNING LEVEL PROJECT COST OPINION					
PROJECT: Culvert Replacement at Railroad (Quilceda Creek)		CHECK BY: LR			
PROJECT ID: MQ-QC-12		DATE: 7/1/2009			
BY: MK					
ITEM NO.	ITEM	QUANTITY	UNIT	UNIT PRICE	AMOUNT
<i>Construction Elements</i>					
1	REMOVE PIPE	140	LF	\$ 22.00	\$ 3,100
2	JACK AND BORE PIT	1	LS	\$ 30,000.00	\$ 30,000
3	JACK AND BORE 12-FT DIAMETER PIPE	140	LF	\$ 2,000.00	\$ 280,000
4	STREAM GRAVEL	173	TN	\$ 50.00	\$ 8,633
5	TEMPORARY BYPASS	1	LS	\$ 35,000.00	\$ 35,000
6	UTILITY RELOCATIONS	1	LS	\$ 5,000.00	\$ 5,000
7	HYDROSEEDING	11,800	SF	\$ 1.00	\$ 11,800
8	ACCESS ROAD (15' WIDE, 6" GRAVEL)	400	LF	\$ 15.00	\$ 6,000
Subtotal Construction Elements					\$ 379,533
<i>Required Ancillary Items</i>					
9	DEWATERING		10%	\$	\$ 38,000
10	EROSION & SEDIMENTATION CONTROL		10%	(see note 3)	\$ 38,000
11	TRAFFIC CONTROL		3%	(see note 4)	\$ 11,400
12	CONTINGENCY		30%		\$ 113,900
Subtotal Ancillary					\$ 201,300
Subtotal Construction + Ancillary					\$ 580,833
<i>Mobilization</i>					
13	MOBILIZATION		10%		\$ 58,100
Subtotal Construction + Ancillary + Mobilization					\$ 638,933
<i>Tax/Engineering/Management/Permitting</i>					
14	STATE SALES TAX		8.6%		\$ 55,000
15	ENGINEERING/LEGAL/ADMIN		25%		\$ 159,800
16	CONSTRUCTION MANAGEMENT		10%		\$ 63,900
17	PERMITTING		10%		\$ 63,900
Subtotal					\$ 342,600
Subtotal Construction + Ancillary + Mobilization + Tax/Engineering/Management/Permitting					\$ 981,533
2009 Dollars				Total Estimated Project Cost (Rounded) \$ 982,000	
Notes:					
1. The above cost opinion is in 2009 dollars and does not include future escalation, financing, or O&M costs.					
2. The order-of-magnitude cost opinion has been prepared for guidance in project evaluation from the information available at the time of preparation and for the assumptions stated. The final costs of the project will depend on actual labor and material.					
3. Increase percentage markup if work is in or immediately adjacent to flowing or standing water, steep slope, and/or other erosion-prone conditions.					
4. Increase percentage markup if work is in or immediately adjacent to secondary, arterial, or other high-volume road or temporarily closes a roadway.					
5. Land Acquisition unit costs include Administrative Costs and Condemnation.					

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PROJECT SUMMARY SHEET

Project Title: Culvert Modifications at 104th St. NE (West Quilceda Tributary)

Problem Description: Culvert has insufficient capacity and overtops road. Culvert is silted in. Water boils up to surface blocking fish passage.

Project Description: Project should be completed in two phases. Phase I: Remove beaver dam that is located along the previously breached dike. Phase II: Cleanout 104th Street culvert. Verify the condition of the existing 4-ft span box culvert and replace if the conditions dictate.

Design Considerations: Phase I of this project should be completed in conjunction with Phase I of WQ-WQ-09. There have been reports of chum salmon using system in 2002. Creek overtopping the road does not cause flooding of homes.

Associated Projects: WQ-WQ-09

Source: City

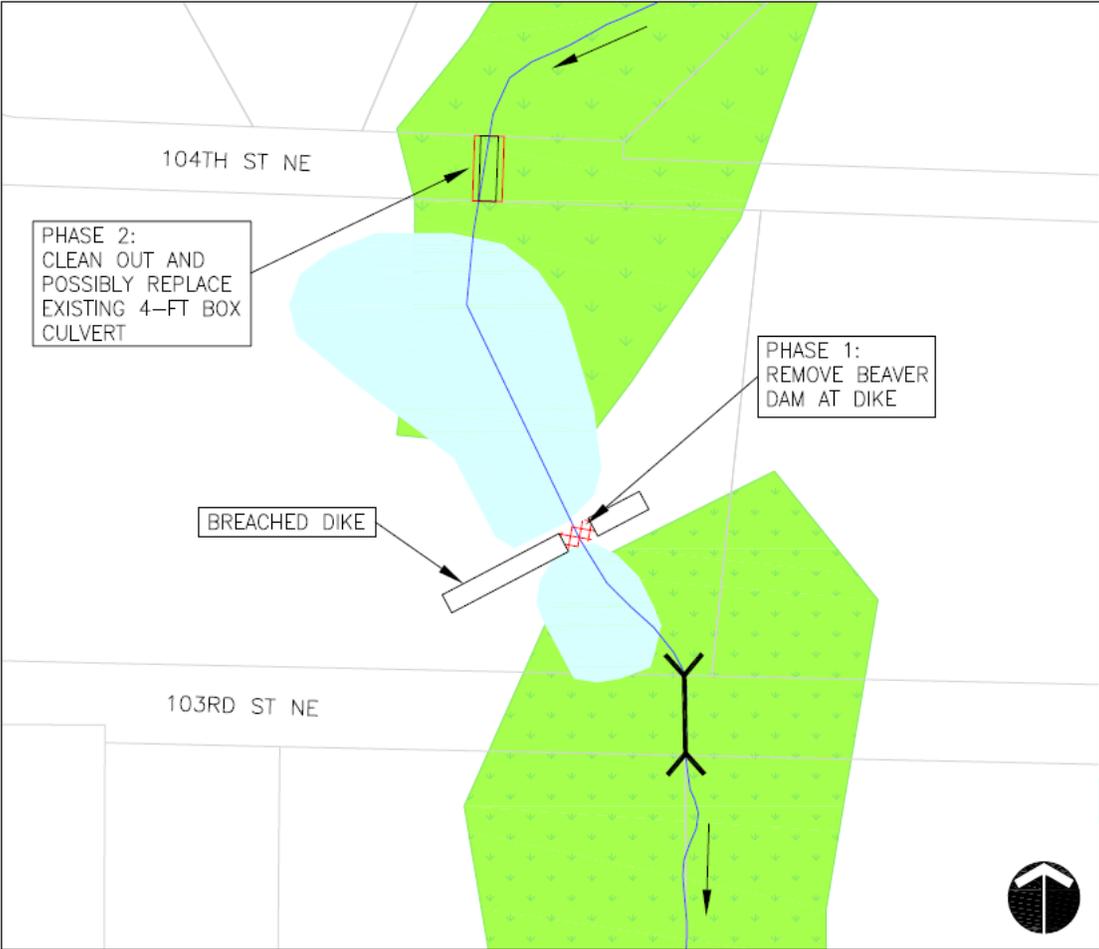
Estimated Project Cost: \$75,000

Rank: 4



Looking south downstream from culvert outlet at 104th St NE

PROJECT SKETCH



PROJECT COST ESTIMATE

PLANNING LEVEL PROJECT COST OPINION					
PROJECT: Culvert Modifications at 104TH ST NE (West Quilceda Tributary)		CHECK BY: LR			
PROJECT ID: WQ-WQ-08		DATE: 7/1/2009			
BY: MK					
ITEM NO.	ITEM	QUANTITY	UNIT	UNIT PRICE	AMOUNT
<i>PHASE 1: Maintenance Items</i>					
1	REMOVE BEAVER DAM	1	LS	\$ 10,000.00	\$ 10,000.00
<i>PHASE 2:</i>					
2	CLEANOUT CULVERT	1	LS	\$ 10,000.00	\$ 10,000.00
Subtotal Phase Elements					\$ 20,000
<i>Required Ancillary Items</i>					
3	DEWATERING		20%	\$	4,000
4	EROSION & SEDIMENTATION CONTROL		10%	(see note 3) \$	2,000
5	TRAFFIC CONTROL		10%	(see note 4) \$	2,000
6	CONTINGENCY		30%	\$	6,000
Subtotal Ancillary					\$ 14,000
Subtotal Construction + Ancillary					\$ 34,000
<i>Mobilization</i>					
7	MOBILIZATION		10%	\$	3,400
Subtotal Construction + Ancillary + Mobilization					\$ 37,400
<i>Tax/Engineering/Management/Permitting</i>					
8	STATE SALES TAX		8.6%	\$	3,300
9	ENGINEERING/LEGAL/ADMIN		50%	\$	18,700
10	CONSTRUCTION MANAGEMENT		20%	\$	7,500
11	PERMITTING		15%	\$	5,700
12	LAND AND RIGHT OF WAY		5%	\$	1,900
Subtotal					\$ 37,100
Subtotal Construction + Ancillary + Mobilization + Tax/Engineering/Management/Permitting					\$ 74,500
2009 Dollars				Total Estimated Project Cost (Rounded) \$ 75,000	
<i>Notes:</i>					
1. The above cost opinion is in 2009 dollars and does not include future escalation, financing, or O&M costs.					
2. The order-of-magnitude cost opinion has been prepared for guidance in project evaluation from the information available at the time of preparation and for the assumptions stated. The final costs of the project will depend on actual labor and material.					
3. Increase percentage markup if work is in or immediately adjacent to flowing or standing water, steep slope, and/or other erosion-prone conditions.					
4. Increase percentage markup if work is in or immediately adjacent to secondary, arterial, or other high-volume road or temporarily closes a roadway.					
5. Land Acquisition unit costs include Administrative Costs and Condemnation.					

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PROJECT SUMMARY SHEET

Project Title: Culvert Replacement at 103rd St. (West Quilceda Tributary)

Problem Description: Culvert has insufficient capacity and overtops road. Culvert has a beaver dam immediately upstream of inlet blocking fish passage.

Project Description: Project should be completed in two phases. Phase I: Remove beaver dam upstream of the 103rd Street culvert and clean out the 103rd Street culvert. Phase II: Replace the existing 2-ft dia. CMP culvert with a 5-ft span reinforced concrete box culvert to meet with WDFW criteria for fish passage.

Design Considerations: Phase I of this project should be completed in conjunction with Phase I of WQ-WQ-08. There have been reports of chum salmon using system in 2002. Creek overtopping the road does not cause flooding of homes.

Associated Projects: WQ-WQ-08

Source: City

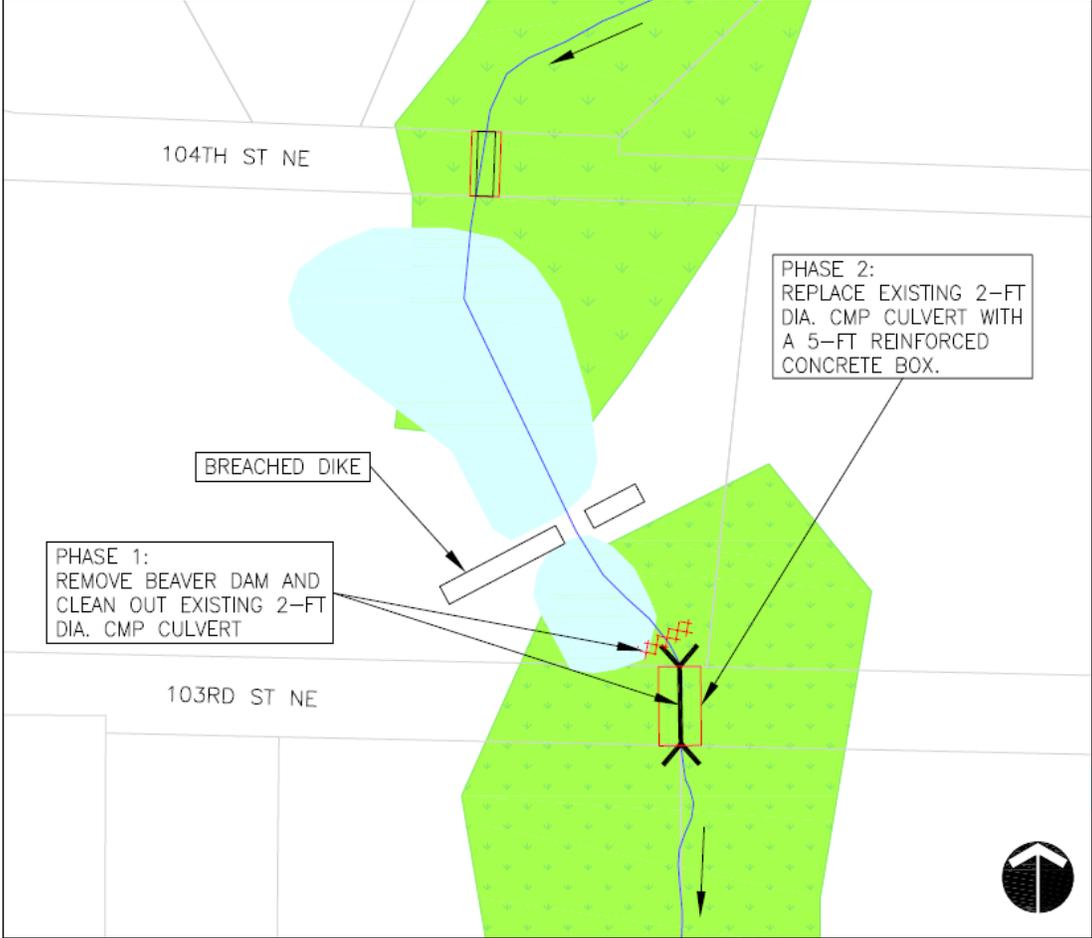
Estimated Project Cost: \$355,000

Rank: 4



Looking north upstream from culvert inlet at 103rd St NE

PROJECT SKETCH



PROJECT COST ESTIMATE

PLANNING LEVEL PROJECT COST OPINION					
PROJECT: Culvert Replacement at 103RD ST (West Quilceda Creek)		CHECK BY: LR			
PROJECT ID: WQ-WQ-09		DATE: 7/1/2009			
BY: MK					
ITEM NO.	ITEM	QUANTITY	UNIT	UNIT PRICE	AMOUNT
<i>PHASE 1: Maintenance Elements</i>					
1	REMOVE BEAVER DAM AT DIKE	1	LS	\$ 10,000.00	\$ 10,000
2	CLEAN OUT CULVERT	1	LS	\$ 10,000.00	\$ 10,000
<i>PHASE 2: Culvert Replacement</i>					
3	5-FT SPAN REINFORCED CONCRETE BOX CULVERT	50	LF	\$ 1,000.00	\$ 50,000
4	REMOVE CONCRETE PAVEMENT	60	SY	\$ 7.00	\$ 420
5	CRUSHED SURFACING BASE COURSE	10	TON	\$ 46.00	\$ 460
6	COMMON EXCAVATION	130	CY	\$ 48.00	\$ 6,223
7	REMOVE PIPE	50	LF	\$ 22.00	\$ 1,100
8	HMA, CL 1/2-IN PG	20	TON	\$ 250.00	\$ 5,000
9	STREAMBED GRAVEL	12	TON	\$ 100.00	\$ 1,200
10	TEMPORARY BYPASS	1	LS	\$ 25,000.00	\$ 25,000
Subtotal Phase 1 and Phase 2					\$ 109,410
<i>Required Ancillary Items</i>					
11	DEWATERING		10%	\$	11,000
12	EROSION & SEDIMENTATION CONTROL		10%	(see note 3) \$	11,000
13	TRAFFIC CONTROL		10%	(see note 4) \$	11,000
14	CONTINGENCY		30%	\$	32,900
Subtotal Ancillary					\$ 65,900
Subtotal Phase 1+ Phase 2+ Ancillary					\$ 175,310
<i>Mobilization</i>					
15	MOBILIZATION		10%	\$	17,600
Subtotal Phases + Ancillary + Mobilization					\$ 192,910
<i>Tax/Engineering/Management/Permitting</i>					
16	STATE SALES TAX		8.6%	\$	16,600
17	ENGINEERING/LEGAL/ADMIN		35%	\$	67,600
18	CONSTRUCTION MANAGEMENT		20%	\$	38,600
19	PERMITTING		15%	\$	29,000
20	LAND AND RIGHT OF WAY		5%	\$	9,700
Subtotal					\$ 161,500
Subtotal Construction + Ancillary + Mobilization + Tax/Engineering/Management/Permitting					\$ 354,410
2009 Dollars					Total Estimated Project Cost (Rounded) \$ 355,000
Notes:					
1. The above cost opinion is in 2009 dollars and does not include future escalation, financing, or O&M costs.					
2. The order-of-magnitude cost opinion has been prepared for guidance in project evaluation from the information available at the time of preparation and for the assumptions stated. The final costs of the project will depend on actual labor and material.					
3. Increase percentage markup if work is in or immediately adjacent to flowing or standing water, steep slope, and/or other erosion-prone conditions.					
4. Increase percentage markup if work is in or immediately adjacent to secondary, arterial, or other high-volume road or temporarily closes a roadway.					
5. Land Acquisition unit costs include Administrative Costs and Condemnation.					

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Appendix 2.3.A
Sunnyside Neighborhood –
Hydrologic and Hydraulic Analysis

Memorandum



10230 NE Points Drive
Suite 400
Kirkland, WA 98033
Phone (425) 822-4446
Fax (425) 827-9577

To: File
From: David Thurman
Copies:
Date: 2/16/09
Subject: Sunnyside Neighborhood - Hydraulic Model Development
Project No.: 31099B

Purpose

Within the Sunnyside Neighborhood, specifically 60th Place NE and the 61st Street NE cul-de-sac, annual flooding is observed (Figure 1). This neighborhood is at the confluence of the two main tributaries of Jones Creek. Jones Creek overtopping its banks contributes to flooding within the subdivision. To evaluate and solve the flooding, XP-SWMM was selected to model the stormwater conveyance and portions of Jones Creek.

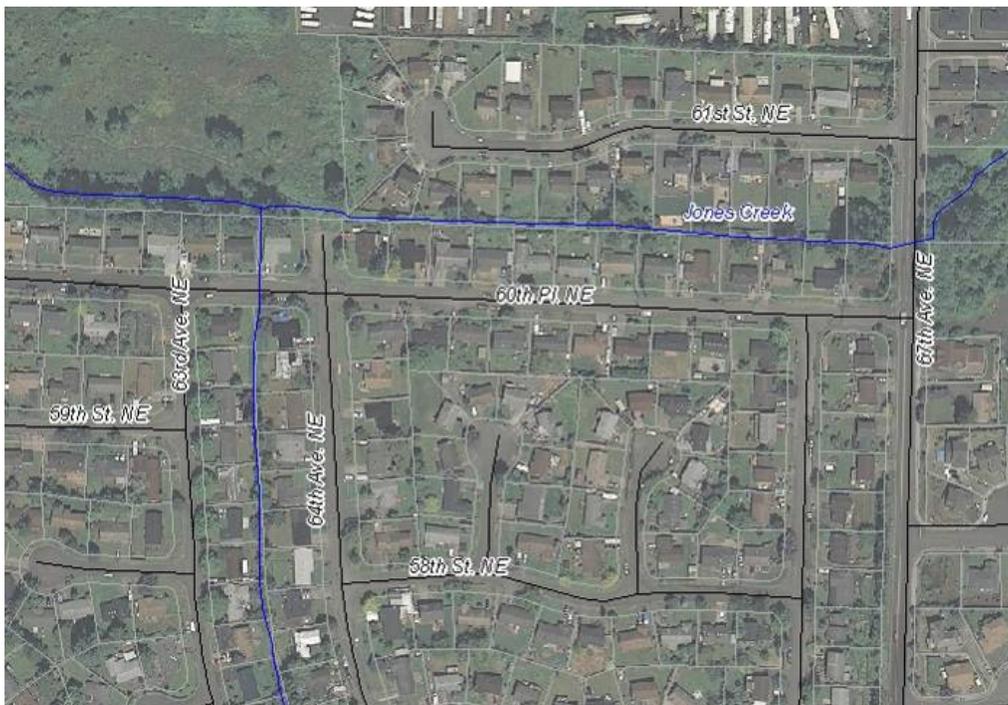


Figure 1: Sunnyside Neighborhood

Data Collection

Storm drainage data was primarily collected using surveyed drainage inventories; however, as-built information, additional reconnaissance/survey and field investigations supported the original survey. The survey consisted of locating drainage structures, identifying connecting pipe types and invert elevations. Several cross-sections along both forks of Jones Creek were surveyed as well. The sole 1969 as-built for the project area identified a conveyance line that traveled under Jones Creek downstream 300 LF from the confluence to an outfall within the creek. The outfall for this pipe could not be located and additional reconnaissance/survey by the City of Marysville concluded that a plug had been placed within the pipe's inlet. Reconnaissance by the City of Marysville also identified a 400 LF, 36" high x 48" wide detention pipe parallel to the north fork creek. Finally, site reconnaissance field verified data and modeling efforts.

XP-SWMM Development

The XP-SWMM model was created to quantify the severity of flooding for targeted drainage systems. The modeling analyzed the 2-, 10- and 25-year events for the existing conditions. Hydrology was determined using a Hydrologic Simulation Program Fortran (HSPF) model developed originally for the Snohomish County Allen Creek Drainage Needs Report (DNR), December 2002, and then updated by Snohomish County in 2004 to include detention ponds for new developments, infiltration information and updated land use based on 2003 aerial photography.

Design event hydrographs for subbasins were provided from this HSPF model and divided among select input nodes. The boundary condition for the model was set at the furthest downstream node of Jones Creek using a fixed backwater elevation from base flows before the storm peaks. Stream roughness coefficients were set assuming fairly well maintained channels without major obstructions or constrictions, where coefficient values (Manning n) varied from 0.035 to 0.05 for in and out of the channel.

The study area included the conveyance along 58th Street NE, 59th Street NE, 60th Place NE, 61st Street NE, and 63rd Avenue NE. This stormwater system was connected to the main stem, north and south forks of Jones Creek (shown in blue) also within the modeled (Figure 2).

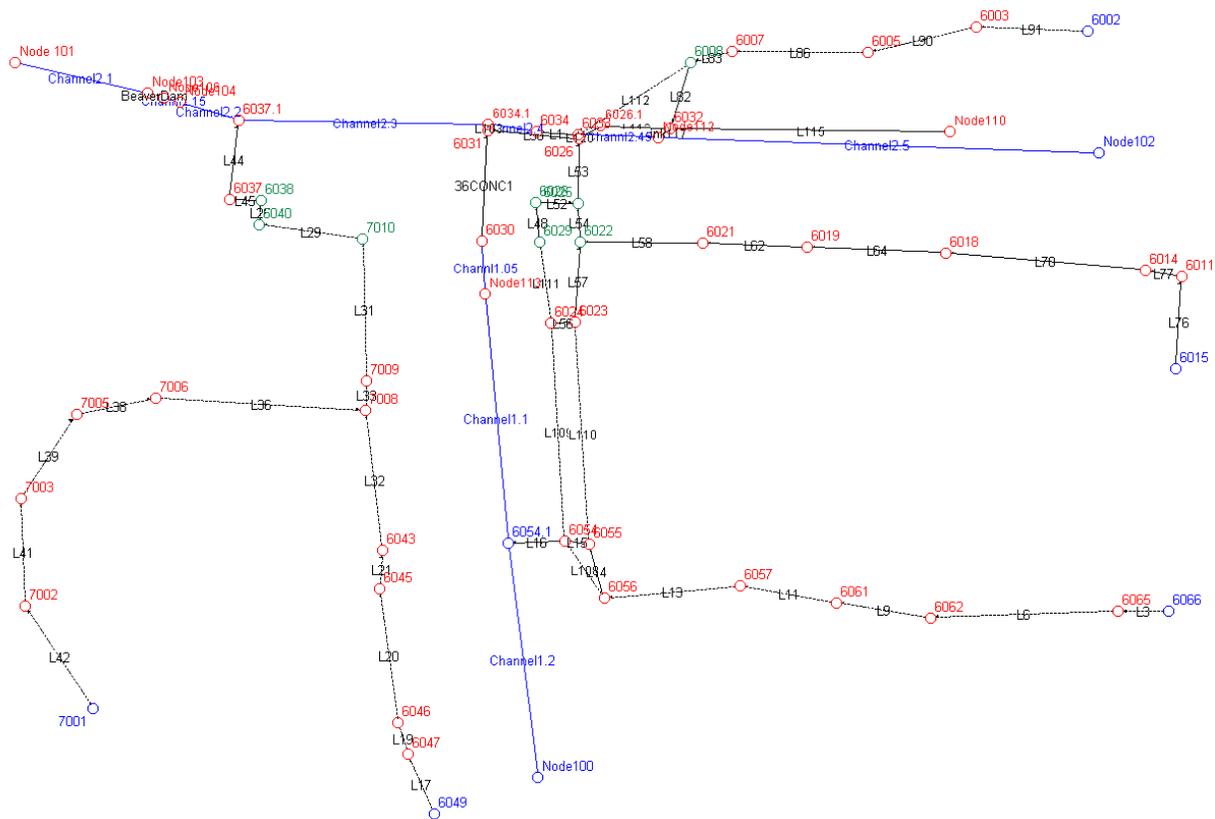


Figure 2: Sunnyside Neighborhood XP-SWMM Existing Model Schematic

Existing Model Results

The model results for the existing conditions showed several areas of significant flooding. Flooding occurs down the length of the 61st Street NE cul-de-sac, down 59th Street NE to 63rd Avenue NE and then to its outfall, down 58th Street NE to its outfall and on 60th Place NE near the Jones Creek confluence (Figure 1). The flooding is due to under-capacity storm drain systems and the flood flows are conveyed downstream (via flowing in the street) without significant flood storage. Flood flows were allowed to pond at nodes lower down in the conveyance system where expected. Table 1 shows project flooding locations and the return frequency of the flooding. Flooding of Jones Creek was not the emphasis of the SWMM modeling and was therefore conveyed downstream and not quantified. A more detailed HEC-RAS model with additional cross-sections would be required to accurately model Jones Creek conveyance capacity.

Critical Channels	Depth where Flooding Occurs	6 Month Depth ¹	2 Year Depth ¹	10 Year Depth ¹	25 Year Depth ¹	Flood Frequency	Description/Related DRI
Chann1.05	3.0	1.8	2.3	2.8	3.2	25-yr	SF Jones Creek
Channel1.1	1.9	1.5	1.9	2.0	2.2	10-yr	SF Jones Creek
Channel2.2	5.7	4.6	4.9	5.2	5.3	>25-yr	Mainstem Jones Creek
Critical Overflow Links	Flow where Flooding Occurs	6 Month Flow ²	2 Year Flow ²	10 Year Flow ²	25 Year Flow ²	Flood Frequency	Description/Related DRI
L25.1	0.0	2.2	2.8	3.1	3.1	6-mo	60th PL NE
L29OF	0.0	0.0	0.4	2.2	2.8	2-yr	60th PL NE
Sewer Easement	0.0	0.0	0.0	0.8	1.2	10-yr	61st cul de sac to NF Jones Creek
L83OF	0.0	0.3	1.8	3.1	3.1	6-mo	61st St cul de sac
L86OF	0.0	0.0	0.0	1.5	3.0	10-yr	61st St cul de sac
L90OF	0.0	0.0	0.0	0.9	2.8	10-yr	61st St cul de sac
L91OF	0.0	0.0	0.0	0.0	2.0	25-yr	61st St cul de sac
L42OF	0.0	0.0	0.0	0.0	0.0	25-yr	59th St / 61st Dr
L41OF	0.0	0.0	0.0	0.5	0.0	10-yr	59th St / 61st Dr
L39OF	0.0	0.0	0.0	1.2	0.4	10-yr	59th St / 61st Dr
L38OF	0.0	0.0	0.0	1.2	0.3	10-yr	59th St / 61st Dr
L36OF	0.0	0.0	0.0	0.7	0.1	10-yr	59th St / 61st Dr
L31OF	0.0	0.0	0.0	0.0	0.0	25-yr	63rd Ave NE
L17OF	0.0	0.0	0.0	0.0	0.0	25-yr	63rd Ave NE
L33OF	0.0	0.0	0.0	0.0	0.7	25-yr	63rd Ave NE
L32OF	0.0	0.0	0.0	0.0	0.4	25-yr	63rd Ave NE
L21OF	0.0	0.0	0.0	0.0	1.0	25-yr	63rd Ave NE
L20OF	0.0	0.0	0.0	0.0	0.0	25-yr	63rd Ave NE
L19OF	0.0	0.0	0.0	0.0	0.0	25-yr	63rd Ave NE
L108OF	0.0	0.0	0.0	0.6	1.1	10-yr	58th St NE
L6OF	0.0	0.0	0.0	0.0	0.0	25-yr	58th St NE
L9OF	0.0	0.0	0.0	0.0	0.6	25-yr	58th St NE
L11OF	0.0	0.0	0.0	0.0	0.1	25-yr	58th St NE
L13OF	0.0	0.0	0.0	0.0	0.1	25-yr	58th St NE
L110OF	0.0	0.0	0.0	0.0	0.6	10-yr	64th Ave NE
L109OF	0.0	0.0	0.0	0.0	0.0	25-yr	64th Ave NE
L111OF	0.0	0.0	0.0	0.0	0.0	25-yr	64th Ave NE
Critical Nodes	Flooding Elevation	6 Month WS Elevation	2 Year WS Elevation	10 Year WS Elevation	25 Year WS Elevation (2)	Flood Frequency	Description/Related DRI
6038	53.3	52.3	52.9	53.7	53.9	10-yr	60th St and 63rd Ave Intersection
6040	53.62	52.6	53.4	53.7	53.9	10-yr	60th St and 63rd Ave Intersection
7010	54.24	53.3	54.3	54.3	54.3	2-yr	60th St and 63rd Ave Intersection
6022	57.01	56.1	56.4	57.0	57.1	25-yr	60th St and 64th Ave Intersection
6025	57.35	56.0	56.3	56.7	56.9	>25-yr	60th St and 64th Ave Intersection
6028	56.26	56.0	56.3	56.7	56.9	2-yr	60th St and 64th Ave Intersection
6029	56.34	56.0	56.3	56.7	56.9	10-yr	60th St and 64th Ave Intersection
Critical Flow Link		6 Month Flow ²	2 Year Flow ²	10 Year Flow ²	25 Year Flow ²		Description/Related DRI
Channel2.1		39.1	54.3	78.8	93.4		Upstream of Outfall

¹ Depth is the difference between the water surface elevation and the invert elevation for either the upstream or downstream node, whichever is greater.

² Maximum Flow from xp output Table E15

CIP Solutions

Conveyance improvements were found to be best divided into three separate solutions. These projects were divided based upon severity, constructability, and location. The preliminary solutions were designed to convey the 25-year event.

CIP 1 (AC-JC-09)

Jones Creek Flood Damage Repairs – Sunnyside Neighborhood

The following CIP (modeled in February 2009) has since been designed and constructed. The construction solution was based on the solution proposed below, but modified to better meet the design constraints and to provide an improved solution.

This project was identified as having the highest priority and focused on reducing Jones Creek flooding. Preliminary proposed improvements to the project include removing the existing 4-foot diameter detention pipe and backfill, dredging the stream channel for stability and placing streambed gravel within channel. Additionally the beaver dam on the main stem Jones Creek within channel will be removed. Corridor improvements will consist of vegetative riparian plantings placed along the project length.

Storm water conveyance improvements propose to increase existing 12-inch diameter corrugated metal pipe (CMP) pipes with 232 LF of 15-inch and 134 LF of 18-inch Schedule A pipe. These conveyance improvements will require replacing four structures.

CIP 2 (AC-JC-11)

Storm drain replacement at 60th Place NE – Sunnyside Neighborhood

Flooding occurs along 60th Place NE and other conveyance lines to the south. This project proposes to replace approximately 1,230 LF of existing storm drain pipe. Existing pipe is primarily CMP and will be replaced with 45 LF of 18-inch diameter and 780 LF of 15-inch diameter Schedule A. These conveyance improvements will require replacing 12 structures.

CIP 3 (AC-JC-12)

Storm drain replacement at 61st Street NE cul de sac – Sunnyside Neighborhood

Flooding occurs along 61st Street NE cul-de-sac. This project proposes to replace approximately 580 LF of existing storm drain pipe. Existing pipe is primarily CMP and will be replaced with 420 LF of 15-inch diameter and 160 LF of 12-inch diameter Schedule A pipe. These conveyance improvements will require replacing four structures.

Modeling Results

The existing XP-SWMM model was updated for the analysis of all three drainage solutions. The modeling goal was to eliminate flooding while minimizing impacts to Jones Creek downstream. Table 2 shows the proposed solution at the 25-year storm event. The results show that the flooding was eliminated for the 25-year event except for two links within South Fork Jones Creek. The

channel will require improvements as part of CIP implementation. Setting a point of compliance on the furthest downstream node for Jones Creek shows a fraction of a percent decrease in stream flows. The decrease in flows can be contributed to the conveyance system routing the localized neighborhood flows more efficiently. The existing model had shown both the watershed scale hydrograph peak and the localized neighborhood routed flows peak simultaneously.

Table 2 - Selected XP SWMM Results - Proposed Solution					
Critical Channels	Depth where Flooding Occurs	Sunnyside_E _{x_25yr.xp} ¹	Sunnyside_Fu _{_25yr_2.xp} ¹	Flooding	Description/Related DRI
Channl1.05	3.0	3.2	3.4	yes	SF Jones Creek
Channel1.1	1.9	2.2	2.4	yes	SF Jones Creek
Channel2.2	5.7	5.3	2.6	no	Mainstem Jones Creek
Critical Overflow Links	Flow where Flooding Occurs	25 Year Flow ²	25 Year Flow ²	Flooding	Description/Related DRI
6038 Weir	0.0	3.7	0.0	no	60th PL NE
L29OF	0.0	2.8	0.0	no	60th PL NE
L83OF	0.0	3.7	0.0	no	61st St cul de sac
L86OF	0.0	2.7	0.0	no	61st St cul de sac
L91OF	0.0	2.0	0.0	no	61st St cul de sac
L90OF	0.0	2.9	0.0	no	61st St cul de sac
L42OF	0.0	0.0	0.0	no	59th St / 61st Dr
L41OF	0.0	0.0	0.0	no	59th St / 61st Dr
L39OF	0.0	0.4	0.0	no	59th St / 61st Dr
L38OF	0.0	0.4	0.0	no	59th St / 61st Dr
L36OF	0.0	0.1	0.0	no	59th St / 61st Dr
L31OF	0.0	0.0	0.0	no	63rd Ave NE
L17OF	0.0	0.0	0.0	no	63rd Ave NE
L33OF	0.0	0.7	0.0	no	63rd Ave NE
L32OF	0.0	0.4	0.0	no	63rd Ave NE
L21OF	0.0	1.0	0.0	no	63rd Ave NE
L20OF	0.0	0.0	0.0	no	63rd Ave NE
L19OF	0.0	0.0	0.0	no	63rd Ave NE
L108OF	0.0	1.1	0.0	no	58th St NE
L6OF	0.0	0.0	0.0	no	58th St NE
L9OF	0.0	0.6	0.0	no	58th St NE
L11OF	0.0	0.1	0.0	no	58th St NE
L13OF	0.0	0.1	0.0	no	58th St NE
L110OF	0.0	0.6	0.0	no	64th Ave NE
L109OF	0.0	0.0	0.0	no	64th Ave NE
L111OF	0.0	0.0	0.0	no	64th Ave NE
Critical Nodes	Flooding Elevation	25 Year WS Elevation	25 Year WS Elevation	Flooding	Description/Related DRI
6038	53.3	53.9	52.2	no	60th St and 63rd Ave Intersection
6040	53.62	53.9	52.3	no	60th St and 63rd Ave Intersection
7010	54.24	54.3	53.3	no	60th St and 63rd Ave Intersection
6022	57.01	57.1	54.8	no	60th St and 64th Ave Intersection
6025	57.35	57.0	54.5	no	60th St and 64th Ave Intersection
6028	56.26	57.0	54.5	no	60th St and 64th Ave Intersection
6029	56.34	57.0	54.5	no	60th St and 64th Ave Intersection
Critical Flow Link		25 Year Flow ²	25 Year Flow ²	% Flow Increase	Description/Related DRI
Channel2.1		92.8	92.6	-0.2%	Upstream of Outfall

¹ Depth is the difference between the water surface elevation and the invert elevation for either the upstream or downstream node, which ever is greater.

² Maximum Flow from xp output Table E15

Conclusions

CIP 1 (AC-JC-09) was constructed in the summer of 2009. The constructed solution was based on the solutions proposed above, but modified to better meet the design constraints and to provide an improved solution. Because of this, CIPs 2 and 3 (AC-JC-11 and AC-JC-12) should be considered preliminary solutions. The XP-SWMM analysis described above should be updated to include the constructed CIP 1 improvements.

In addition to modifying the stormdrain system, the constructed CIP 1 improvements modified Jones Creek in the project vicinity. The Jones Creek portion of the Allen Creek DNR HEC-RAS model should be updated to include these improvements and new tailwater conditions should be calculated for use in future analysis of CIPs 2 and 3 (AC-JC-11 and AC-JC-12).

Appendix 2.3.B
Allen Basin - CIP Project Summary Sheets,
Cost Estimates and Schematics

Appendix 2.3.B Allen Basin CIPs

ID #	Project	Page
AC-AC-01	Stream Restoration & Land Acquisition west of 60th Dr. NE (Allen Creek)	3
AC-AC-03	Culvert Replacement and Erosion Control Measures at 88th St. NE	7
AC-AC-10	Storm Drain Replacement at 95th St. NE and 67th Ave. NE	11
AC-AC-13	Culvert Replacement at 55th Ave. NE (Allen Creek)	15
AC-AC-14	Culvert Replacement at 80th St. NE (Allen Creek)	19
AC-AC-15	Brashler's Industrial Park Flooding	23
AC-JC-09	Jones Creek Flood Damage Repairs - Sunnyside Neighborhood	27
AC-JC-11	Storm Drain Replacement at 60th PL NE- Sunnyside Neighborhood	31
AC-JC-12	Storm Drain Replacement at 61st St Cul-de-Sac- Sunnyside Neighborhood	35

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PROJECT SUMMARY SHEET

Project Title: Stream Restoration and Land Acquisition West of 60th Dr. NE (Allen Creek)

Problem Description: Location has poor fish habitat, lacking woody and riparian vegetation.

Project Description: Acquire 400-ft long by 100-ft wide riparian corridor for restoration.

Install 20 pieces of LWD and plant native woody riparian vegetation along the stream corridor to create pools and complex habitat.

Design Considerations: Alternatives in lieu of purchasing properties should be considered.

This project will require a biological assessment of the stream and riparian corridor.

Channelized meandering creek can jump banks, but does not immediately flood private property. Project is directly upstream of culvert replacement AC-AC-02.

Source: Snohomish County DNR CIP # AL-AL-04 and AL-AL-05

Estimated Project Cost: \$230,000

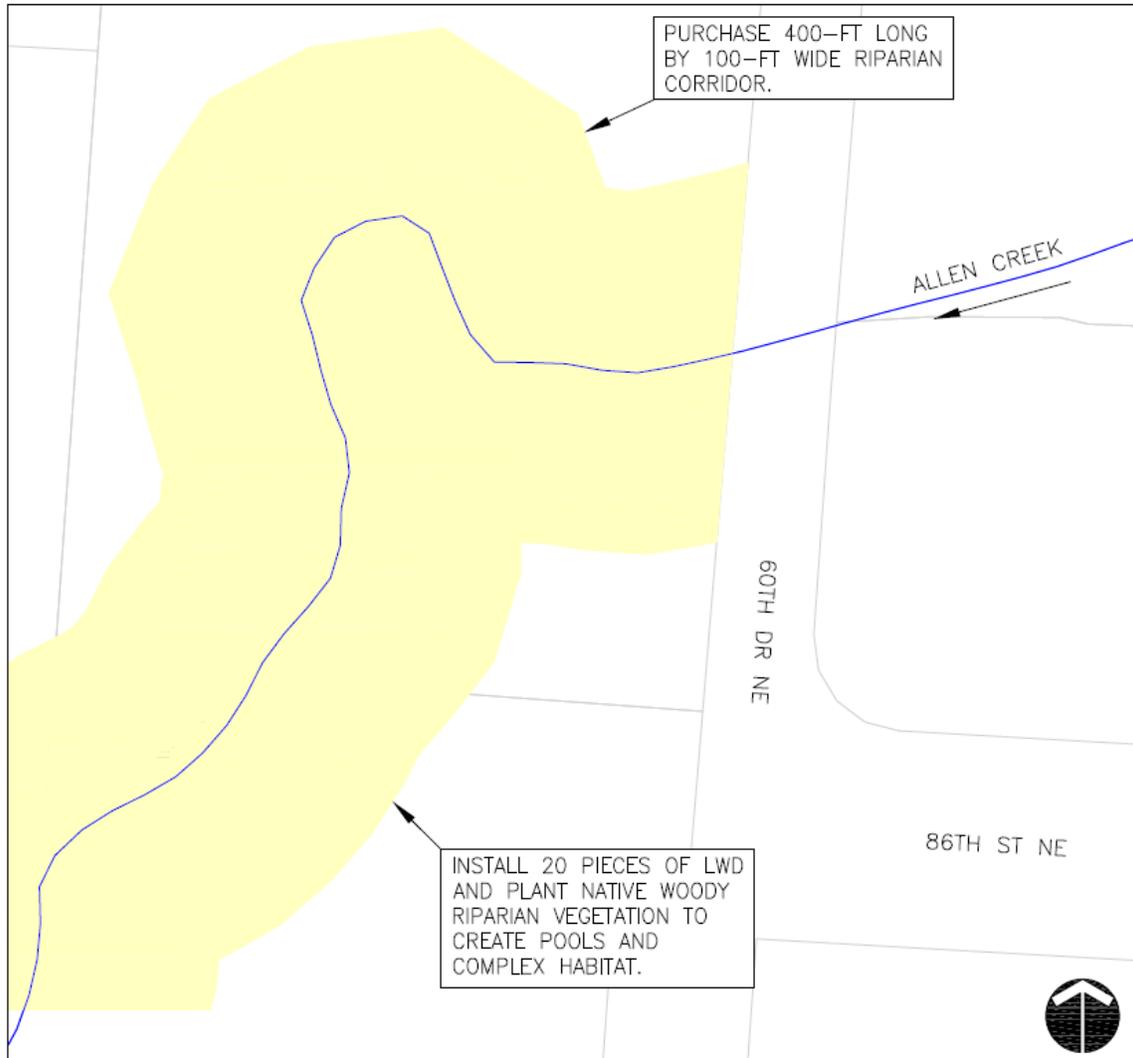
Associated Projects: AC-AC-03, AC-AC-13, AC-AC-14, AC-AC-15

Rank: 3



Allen Creek restoration site looking south (flow from left to right)

PROJECT SKETCH



PROJECT COST ESTIMATE

PLANNING LEVEL PROJECT COST OPINION					
PROJECT: Stream Restoration and Land Acquisition West of 60th Dr. NE (Allen Creek)		CHECK BY: LR			
PROJECT ID: AC-AC-01		DATE: 7/1/2009			
BY: MK					
ITEM NO.	ITEM	QUANTITY	UNIT	UNIT PRICE	AMOUNT
<i>Stream Restoration and Land Acquisition</i>					
1	RE-VEGETATION	0.92	AC	\$ 44,324.00	\$ 40,779
2	LARGE WOODY DEBRIS	20	EA	\$ 1,000.00	\$ 20,000
3	ACCESS ROAD	400	LF	\$ 15.00	\$ 6,000
Subtotal Stream Restoration + Land Acquisition					\$ 66,779
<i>Ancillary</i>					
4	DEWATERING		10%	\$	6,678
5	EROSION & SEDIMENTATION CONTROL		10%	(see note 3) \$	6,678
6	CONTINGENCY		30%	\$	20,034
Subtotal Ancillary					\$ 33,390
Subtotal Construction + Erosion Control + Ancillary					\$ 100,169
<i>Mobilization</i>					
7	MOBILIZATION		10%	\$	10,017
Subtotal Construction + Ancillary + Mobilization					\$ 110,185
<i>Tax/Engineering/Management/Permitting</i>					
8	CONSTRUCTION MANAGEMENT		20%	\$	22,037
9	PERMITTING		15%	\$	16,528
10	CONTINGENCY		30%	\$	33,056
11	STATE SALES TAX		8.6%	\$	9,476
12	ENGINEERING/LEGAL/ADMIN		35%	\$	38,565
Subtotal					\$ 119,662
Subtotal Stream Restoration + Land Acquisition + Tax/Engineering/Management/Permitting					\$ 229,847
2009 Dollars					Total Estimated Project Cost (Rounded) \$ 230,000
Notes:					
1. The above cost opinion is in 2009 dollars and does not include future escalation, financing, or O&M costs.					
2. The order-of-magnitude cost opinion has been prepared for guidance in project evaluation from the information available at the time of preparation and for the assumptions stated. The final costs of the project will depend on actual labor and material.					
3. Increase percentage markup if work is in or immediately adjacent to flowing or standing water, steep slope, and/or other erosion-prone conditions.					
4. Increase percentage markup if work is in or immediately adjacent to secondary, arterial, or other high-volume road or temporarily closes a roadway.					
5. Land Acquisition unit costs include Administrative Costs and Condemnation.					

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PROJECT SUMMARY SHEET

Project Title: Culvert Replacement and Erosion Control Measures at 88th St. NE

Problem Description: Culvert is velocity barrier to fish passage as predicted by hydraulic analysis. Flooding over roadway predicted if culvert is not maintained. Downstream 50-LF of existing riprap bank armoring has failed.

Project Description: Replace existing 7.5-ft span x 5 ft rise concrete box culvert with 11-ft span x 5.5-ft rise, 100-ft long CMP arch culvert with headwall. Culvert and streambed design should meet WDFW criteria for fish passage. Remove loose rip rap from channel. Stabilize eroded south bank with 50-LF of bio-engineered bank stabilization measures.

Design Considerations: Design based upon WDFW 2000 criteria for fish passage; 2-year peak flow velocity for future land use conditions. Detailed analysis of seasonal velocity (i.e. 90% exceedance) and/or downstream refuge may negate need for replacement. This project will require a biological assessment of the stream and riparian corridor. Upstream accessibility is limited because of heavy vegetation.

Source: Snohomish County DNR CIP # AL-AL-07 and AL-AL-44; HEC-RAS model Allenbasin.prj

Estimated Project Cost: \$324,000

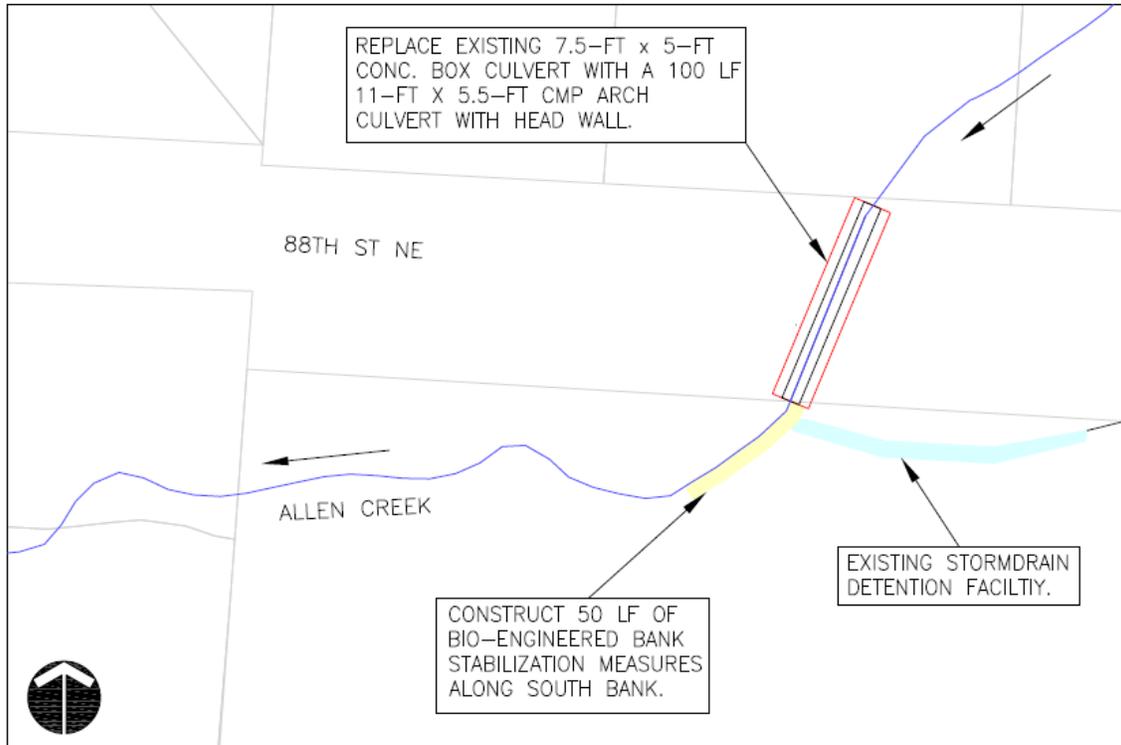
Associated Projects: AC-AC-01, AC-AC-13, AC-AC-14, AC-AC-15

Rank: 3



Outlet of box culvert looking northeast toward 88th St. NE

PROJECT SKETCH



Looking downstream from culvert, scour on left bank

PROJECT COST ESTIMATE

PLANNING LEVEL PROJECT COST OPINION						
PROJECT: Culvert Replacement and Erosion Control Measures at 88th ST NE (Allen Creek)		CHECK BY: LR				
PROJECT ID: AC-AC-03		DATE: 7/1/2009				
BY: MK						
ITEM NO.	ITEM	QUANTITY	UNIT	UNIT PRICE	AMOUNT	
<i>Construction Elements</i>						
1	REMOVE PAVEMENT	222	SY	\$ 22.00	\$	4,889
2	COMMON EXCAVATION	963	CY	\$ 19.00	\$	18,296
3	SHORING OR EXTRA EXCAVATION CLASS B	1,300	SF	\$ 2.00	\$	2,600
4	SAWCUTTING	200	LF	\$ 4.00	\$	800
5	REMOVE PIPE	100	LF	\$ 15.00	\$	1,500
6	CORRUGATED METAL PIPE ARCH CULVERT 11' SPAN X 5.5' RISE	100	LF	\$ 325.00	\$	32,500
7	CRUSHED SURFACING BASE COURSE	38	TON	\$ 45.00	\$	1,696
8	ASPHALT TREATED BASE	56	TON	\$ 250.00	\$	13,920
9	HMA, CL 1/2-IN PG	29	TON	\$ 250.00	\$	7,150
10	TEMPORARY BYPASS	1	LS	\$ 27,000.00	\$	27,000
Subtotal Construction Elements					\$	110,351
<i>Erosion Control Measures</i>						
11	BIO-ENGINEERED BANK STABILIZATION	50	LF	\$ 135.00	\$	6,750
12	ACCESS ROAD (15' WIDE, 6" GRAVEL DEPTH)	50	LF	\$ 16.00	\$	800
Subtotal					\$	7,550
Subtotal Construction + Erosion Control Elements					\$	117,901
<i>Ancillary</i>						
13	DEWATERING		10%		\$	11,791
14	EROSION & SEDIMENTATION CONTROL		10%	(see note 3)	\$	11,791
15	TRAFFIC CONTROL		7%	(see note 4)	\$	8,254
16	CONTINGENCY		30%		\$	35,371
Subtotal Ancillary					\$	67,207
Subtotal Construction + Erosion Control + Ancillary					\$	185,108
<i>Mobilization</i>						
17	MOBILIZATION		10%		\$	18,600
Subtotal Construction + Erosion Control + Ancillary + Mobilization					\$	203,708
<i>Tax/Engineering/Management/Permitting</i>						
18	STATE SALES TAX		8.6%		\$	17,519
19	ENGINEERING/LEGAL/ADMIN		25%		\$	50,927
20	CONSTRUCTION MANAGEMENT		10%		\$	20,371
21	PERMITTING		15%		\$	30,557
Subtotal					\$	119,374
Subtotal Construction + Erosion Control + Ancillary + Mobilization + Tax/Engineering/Management/Permitting					\$	323,082
2009 Dollars				Total Estimated Project Cost (Rounded)		\$ 324,000
Notes:						
1. The above cost opinion is in 2009 dollars and does not include future escalation, financing, or O&M costs.						
2. The order-of-magnitude cost opinion has been prepared for guidance in project evaluation from the information available at the time of preparation and for the assumptions stated. The final costs of the project will depend on actual labor and material.						
3. Increase percentage markup if work is in or immediately adjacent to flowing or standing water, steep slope, and/or other erosion-prone conditions.						
4. Increase percentage markup if work is in or immediately adjacent to secondary, arterial, or other high-volume road or temporarily closes a roadway.						
5. Land Acquisition unit costs include Administrative Costs and Condemnation.						

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PROJECT SUMMARY SHEET

Project Title: Storm Drain Replacement at 95th St. NE and 67th Ave. NE
Problem Description: Insufficient conveyance capacity for 10 year existing and future events.
Project Description: Replace 227 ft of existing 12-in dia. storm drain pipe with 18-in. dia. HDPE pipe.
Design Considerations: Conveyance for storms up to the 25-year design event and prevention of roadway inundation up to the 100-year event.
Source: Snohomish County DNR CIP # AL-AL-31
Estimated Project Cost: \$176,000
Associated Projects: None
Rank: 3



66th Dr NE and 95th St NE (low point)

PROJECT SKETCH



PROJECT COST ESTIMATE

PLANNING LEVEL PROJECT COST OPINION					
PROJECT: Storm Drain Replacement at 95 th St. NE and 67 th Ave. NE		CHECK BY: LR			
PROJECT ID: AC-AC-10		DATE: 7/1/2009			
BY: MK					
ITEM NO.	ITEM	QUANTITY	UNIT	UNIT PRICE	AMOUNT
<i>Construction Elements</i>					
1	REMOVE PAVEMENT	145	SY	\$ 23.00	\$ 3,400
2	COMMON EXCAVATION	193	CY	\$ 23.00	\$ 4,500
3	REMOVE PIPE	227	LF	\$ 22.00	\$ 5,000
4	SHORING OR EXTRA EXCAVATION CLASS B	908	SF	\$ 17.00	\$ 15,500
5	SAWCUTTING	454	LF	\$ 4.00	\$ 1,900
6	18" DIA. SMOOTH INTERIOIR WALL CORRUGATED POLYETHYLENE	227	LF	\$ 22.00	\$ 5,000
7	CATCH BASIN TYPE 2 48-IN. DIAM.	1	EA	\$ 2,600.00	\$ 2,600
8	CONNECT TO DRAINAGE STRUCTURE	2	EA	\$ 739.00	\$ 1,500
9	CRUSHED SURFACING BASE COURSE	25	TON	\$ 45.00	\$ 1,200
10	ASPHALT TREATED BASE	36	TON	\$ 250.00	\$ 9,100
11	HMA, CL. 1/2-IN PG	19	TON	\$ 250.00	\$ 4,700
12	UTILITY RELOCATIONS	1	LS	\$ 5,000.00	\$ 5,000
Subtotal Construction Elements					\$ 59,400
<i>Required Ancillary Items</i>					
13	DEWATERING		5%	\$	3,000
14	EROSION & SEDIMENTATION CONTROL		5%	(see note 3) \$	3,000
15	TRAFFIC CONTROL		10%	(see note 4) \$	6,000
16	CONTINGENCY		30%	\$	17,900
Subtotal Ancillary					\$ 29,900
Subtotal Construction + Ancillary					\$ 89,300
<i>Mobilization</i>					
17	MOBILIZATION		10%	\$	8,930
Subtotal Construction + Ancillary + Mobilization					\$ 98,230
<i>Tax/Engineering/Management/Permitting</i>					
18	STATE SALES TAX		8.6%	\$	8,500
19	ENGINEERING/LEGAL/ADMIN		50%	\$	49,200
20	CONSTRUCTION MANAGEMENT		10%	\$	9,900
21	PERMITTING		10%	\$	9,900
Subtotal					\$ 77,500
Subtotal Construction + Ancillary + Mobilization + Tax/Engineering/Management/Permitting					\$ 175,730
2009 Dollars		Total Estimated Project Cost (Rounded)			\$ 176,000
<i>Notes:</i>					
1. The above cost opinion is in 2009 dollars and does not include future escalation, financing, or O&M costs.					
2. The order-of-magnitude cost opinion has been prepared for guidance in project evaluation from the information available at the time of preparation and for the assumptions stated. The final costs of the project will depend on actual labor and material.					
3. Increase percentage markup if work is in or immediately adjacent to flowing or standing water, steep slope, and/or other erosion-prone conditions.					
4. Increase percentage markup if work is in or immediately adjacent to secondary, arterial, or other high-volume road or temporarily closes a roadway.					
5. Land Acquisition unit costs include Administrative Costs and Condemnation.					

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PROJECT SUMMARY SHEET

Project Title: Culvert Replacement at 55th Ave. NE (Allen Creek)

Problem Description: Culvert is a velocity barrier to fish passage as predicted by the hydraulic analysis.

Project Description: Replace existing 6-ft dia. CMP culvert with a 13-ft span x 5.5-ft rise, 80-ft long CMP arch culvert with headwall. Culvert and streambed design should meet WDFW criteria for fish passage.

Design Considerations: Design based upon WDFW 2000 criteria for fish passage; 2-year peak flow velocity for future land use conditions. Detailed analysis of seasonal velocity (i.e. 90% exceedance) and/or downstream refuge may negate need for replacement. Project is immediately upstream of Jennings Park flooding (AC-AC-17).

Source: Snohomish County DNR CIP # AL-AL-01; HEC-RAS model Allenbasin.prj

Estimated Project Cost: \$337,000

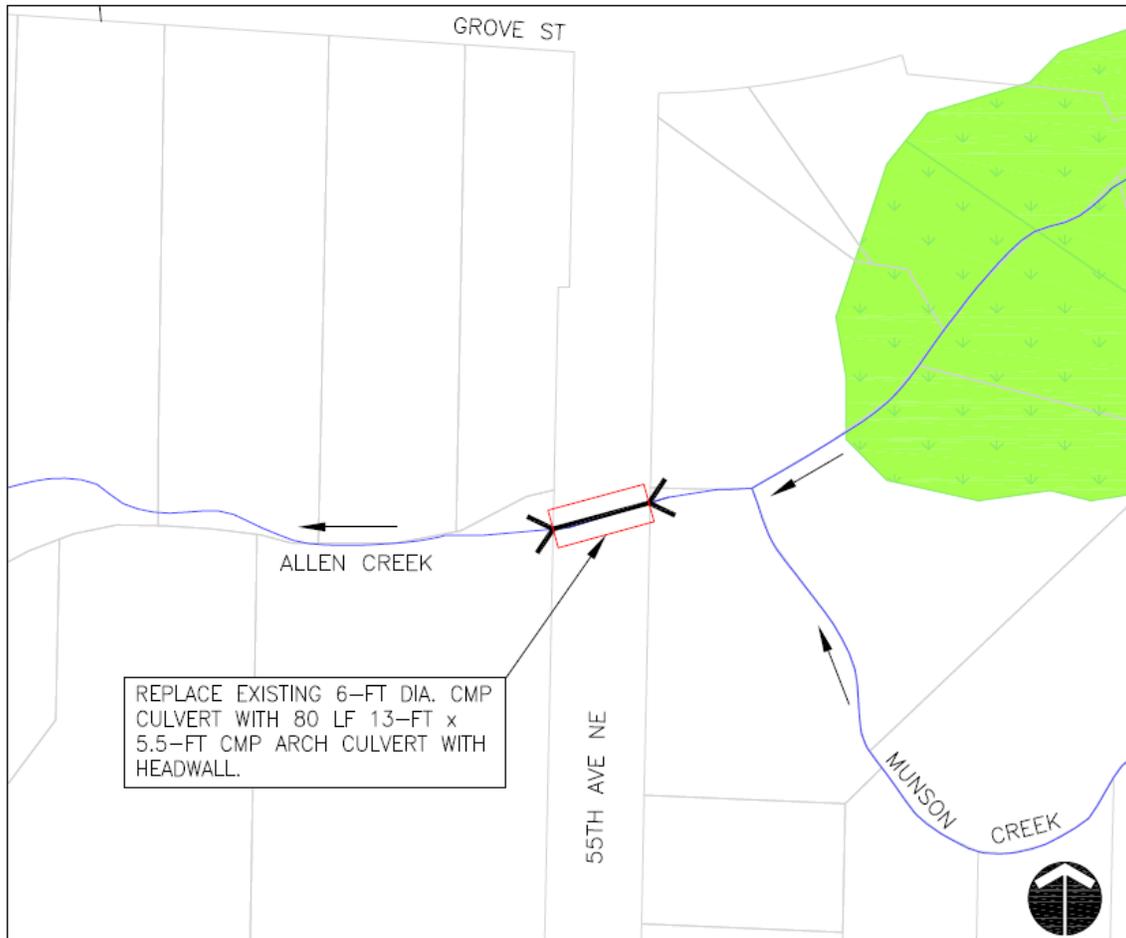
Associated Projects: AC-AC-01, AC-AC-03, AC-AC-14, AC-AC-15

Rank: 3



Looking upstream of culvert to the East

PROJECT SKETCH



PROJECT COST ESTIMATE

PLANNING LEVEL PROJECT COST OPINION					
PROJECT: Culvert Replacement at 55th Ave. NE (Allen Creek)		CHECK BY: LR			
PROJECT ID: AC-AC-13		DATE: 7/1/2009			
BY: MK					
ITEM NO.	ITEM	QUANTITY	UNIT	UNIT PRICE	AMOUNT
<i>Construction Elements</i>					
1	REMOVE PAVEMENT	204	SY	\$ 23.00	\$ 4,703
2	COMMON EXCAVATION	1,022	CY	\$ 23.00	\$ 23,512
3	SHORING OR EXTRA EXCAVATION CLASS B	1,200	SF	\$ 2.00	\$ 2,400
4	SAWCUTTING	160	LF	\$ 4.00	\$ 640
5	REMOVE PIPE	80	LF	\$ 22.00	\$ 1,760
6	CORRUGATED METAL PIPE ARCH CULVERT 13' SPAN X 5.5' RISE	80	LF	\$ 375.00	\$ 30,000
7	CRUSHED SURFACING BASE COURSE	35	TON	\$ 45.00	\$ 1,561
8	ASPHALT TREATED BASE	51	TON	\$ 250.00	\$ 12,807
9	HMA, CL 1/2-IN PG	26	TON	\$ 250.00	\$ 6,600
10	STREAMBED GRAVEL	126	TON	\$ 100.00	\$ 12,608
11	UTILITY RELOCATIONS	1	LS	\$ 5,000.00	\$ 5,000
12	TEMPORARY BYPASS	1	LS	\$ 15,000.00	\$ 15,000
Subtotal Construction Elements					\$ 116,591
<i>Required Ancillary Items</i>					
13	DEWATERING	10%		\$	\$ 11,700
14	EROSION & SEDIMENTATION CONTROL	15%	(see note 3)	\$	\$ 17,500
15	TRAFFIC CONTROL	10%	(see note 4)	\$	\$ 11,700
16	CONTINGENCY	30%		\$	\$ 35,000
Subtotal Ancillary					\$ 75,900
Subtotal Construction + Ancillary					\$ 192,491
<i>Mobilization</i>					
17	MOBILIZATION	10%		\$	\$ 19,249
Subtotal Construction + Ancillary + Mobilization					\$ 211,740
<i>Tax/Engineering/Management/Permitting</i>					
18	STATE SALES TAX	8.6%		\$	\$ 18,300
19	ENGINEERING/LEGAL/ADMIN	25%		\$	\$ 53,000
20	CONSTRUCTION MANAGEMENT	10%		\$	\$ 21,200
21	PERMITTING	15%		\$	\$ 31,800
Subtotal					\$ 124,300
Subtotal Construction + Ancillary + Mobilization + Tax/Engineering/Management/Permitting					\$ 336,040
2009 Dollars					Total Estimated Project Cost (Rounded) \$ 337,000
<i>Notes:</i>					
1. The above cost opinion is in 2009 dollars and does not include future escalation, financing, or O&M costs.					
2. The order-of-magnitude cost opinion has been prepared for guidance in project evaluation from the information available at the time of preparation and for the assumptions stated. The final costs of the project will depend on actual labor and material.					
3. Increase percentage markup if work is in or immediately adjacent to flowing or standing water, steep slope, and/or other erosion-prone conditions.					
4. Increase percentage markup if work is in or immediately adjacent to secondary, arterial, or other high-volume road or temporarily closes a roadway.					
5. Land Acquisition unit costs include Administrative Costs and Condemnation.					

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PROJECT SUMMARY SHEET

Project Title: Culvert Replacement at 80th St. NE (Allen Creek)

Problem Description: Culvert a velocity barrier to fish passage as predicted by the hydraulic analysis.

Project Description: Replace existing 6.4' span x 4.2' rise CMP arch culvert with dual 6' span x 5.5' rise, 50' long CMP arch culverts with headwall. Culvert and streambed design should meet WDFW criteria for fish passage.

Design Considerations: Design based upon WDFW 2000 criteria for fish passage; 2-year peak flow velocity for future land use conditions. Detailed analysis of seasonal velocity (i.e. 90% exceedance) and/or downstream refuge may negate need for replacement. A reinforced concrete box culvert or comparable should be considered in lieu of the dual arch culverts.

Source: Snohomish County DNR CIP # AL-AL-03; HEC-RAS model Allenbasin.prj
Snohomish County Culvert Inventory:

<http://www.co.snohomish.wa.us/pwapp/swm/rowhabitat/310336.pdf>

Estimated Project Cost: \$230,000

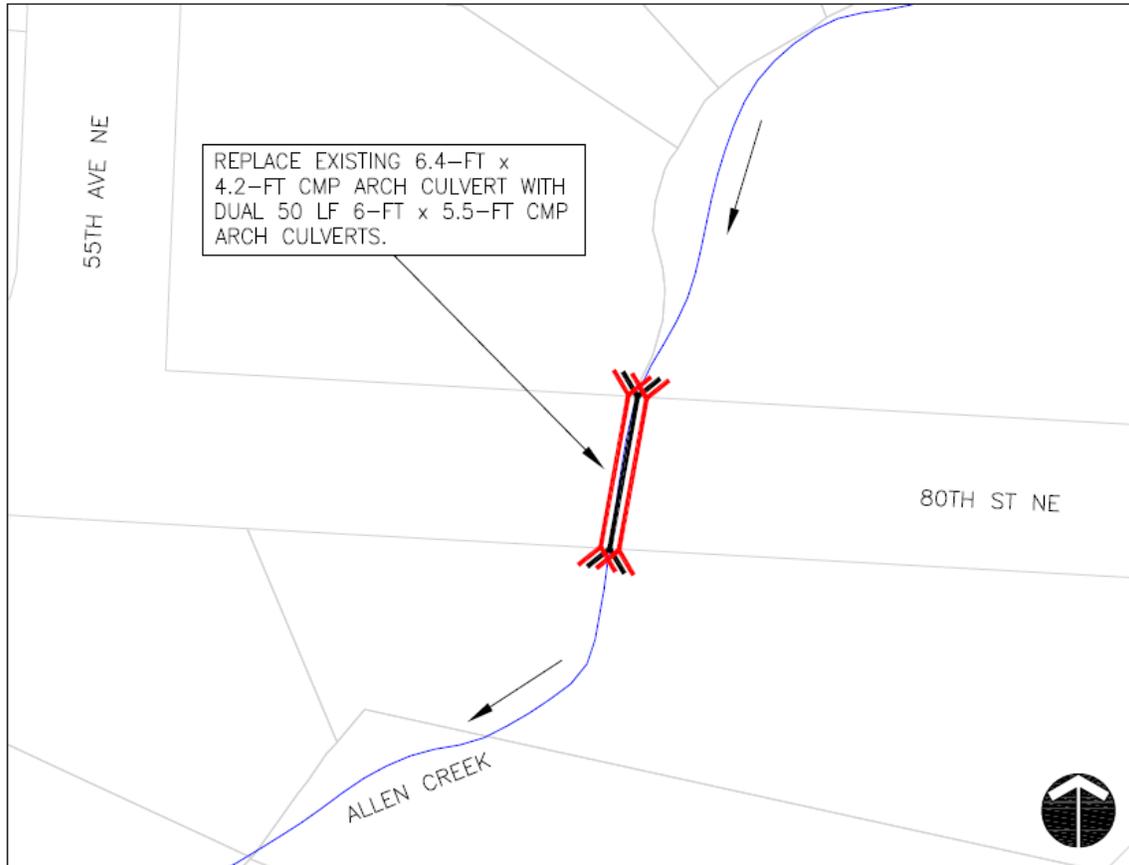
Associated Projects: AC-AC-01, AC-AC-03, AC-AC-13, AC-AC-15

Rank: 3



Inlet to 80th St. culvert looking south

PROJECT SKETCH



PROJECT COST ESTIMATE

PLANNING LEVEL PROJECT COST OPINION					
PROJECT: Cuvert Replacement at 80th ST NE (Allen Creek)		CHECK BY: LR			
PROJECT ID: AC-AC-14		DATE: 7/1/2009			
BY: MK					
ITEM NO.	ITEM	QUANTITY	UNIT	UNIT PRICE	AMOUNT
<i>Construction Elements</i>					
1	REMOVE PAVEMENT	69	SY	\$ 23.00	\$ 1,598
2	COMMON EXCAVATION	231	CY	\$ 23.00	\$ 5,325
3	SHORING OR EXTRA EXCAVATION CLASS B	500	SF	\$ 2.00	\$ 1,000
4	SAWCUTTING	100	LF	\$ 4.00	\$ 400
5	REMOVE PIPE	50	LF	\$ 22.00	\$ 1,100
6	CORRUGATED METAL PIPE ARCH CULVERT 6' SPAN X 5.5' RISE	100	LF	\$ 350.00	\$ 35,000
7	CRUSHED SURFACING BASE COURSE	12	TON	\$ 45.00	\$ 530
8	ASPHALT TREATED BASE	17	TON	\$ 250.00	\$ 4,350
9	HMA, CL 1/2-IN PG	9	TON	\$ 250.00	\$ 2,200
10	STREAMBED GRAVEL	43	TON	\$ 74.00	\$ 3,169
11	UTILITY RELOCATIONS	1	LS	\$ 5,000.00	\$ 5,000
12	TEMPORARY BYPASS	1	LS	\$ 20,000.00	\$ 20,000
Subtotal Construction Elements					\$ 79,672
<i>Required Ancillary Items</i>					
13	DEWATERING		10%	\$	8,000
14	EROSION & SEDIMENTATION CONTROL		10%	(see note 3) \$	8,000
15	TRAFFIC CONTROL		5%	(see note 4) \$	4,000
16	CONTINGENCY		30%	\$	24,000
Subtotal Ancillary					\$ 44,000
Subtotal Construction + Ancillary					\$ 123,672
<i>Mobilization</i>					
17	MOBILIZATION		10%	\$	12,400
Subtotal Construction + Ancillary + Mobilization					\$ 136,072
<i>Tax/Engineering/Management/Permitting</i>					
18	STATE SALES TAX		8.6%	\$	11,800
19	ENGINEERING/LEGAL/ADMIN		35%	\$	47,700
20	CONSTRUCTION MANAGEMENT		10%	\$	13,700
21	PERMITTING		15%	\$	20,500
Subtotal					\$ 93,700
Subtotal Construction + Ancillary + Mobilization + Tax/Engineering/Management/Permitting					\$ 229,772
2009 Dollars					Total Estimated Project Cost (Rounded) \$ 230,000
Notes:					
1. The above cost opinion is in 2009 dollars and does not include future escalation, financing, or O&M costs.					
2. The order-of-magnitude cost opinion has been prepared for guidance in project evaluation from the information available at the time of preparation and for the assumptions stated. The final costs of the project will depend on actual labor and material.					
3. Increase percentage markup if work is in or immediately adjacent to flowing or standing water, steep slope, and/or other erosion-prone conditions.					
4. Increase percentage markup if work is in or immediately adjacent to secondary, arterial, or other high-volume road or temporarily closes a roadway.					
5. Land Acquisition unit costs include Administrative Costs and Condemnation.					

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PROJECT SUMMARY SHEET

Project Title: Brashler Industrial Park Flooding

Problem Description: Industrial Park floods/ponds because Allen Creek backwaters the conveyance system. Existing conveyance has undersized/adverse grade pipes. Street settling contributes to ponding.

Project Description: Replace 1,725 ft of existing 12-in dia. CMP with 15-in dia. Schedule A pipe. Remove 18 existing catch basins and replace with 14 new 48" dia. catch basins. Install tide gates at outfalls. Replace pavement on 56th Pl NE and on 47th Ave NE south of 56th.

Design Considerations: Project should be delayed until completion of the Qwuloolt Project. This project will require surveying the existing stormwater conveyance and streets. Hydraulic modeling of the existing and future conveyance is required to verify the problem and solution. A possible solution may include relocating outfalls to the west.

Source: City

Estimated Project Cost: \$1,756,000

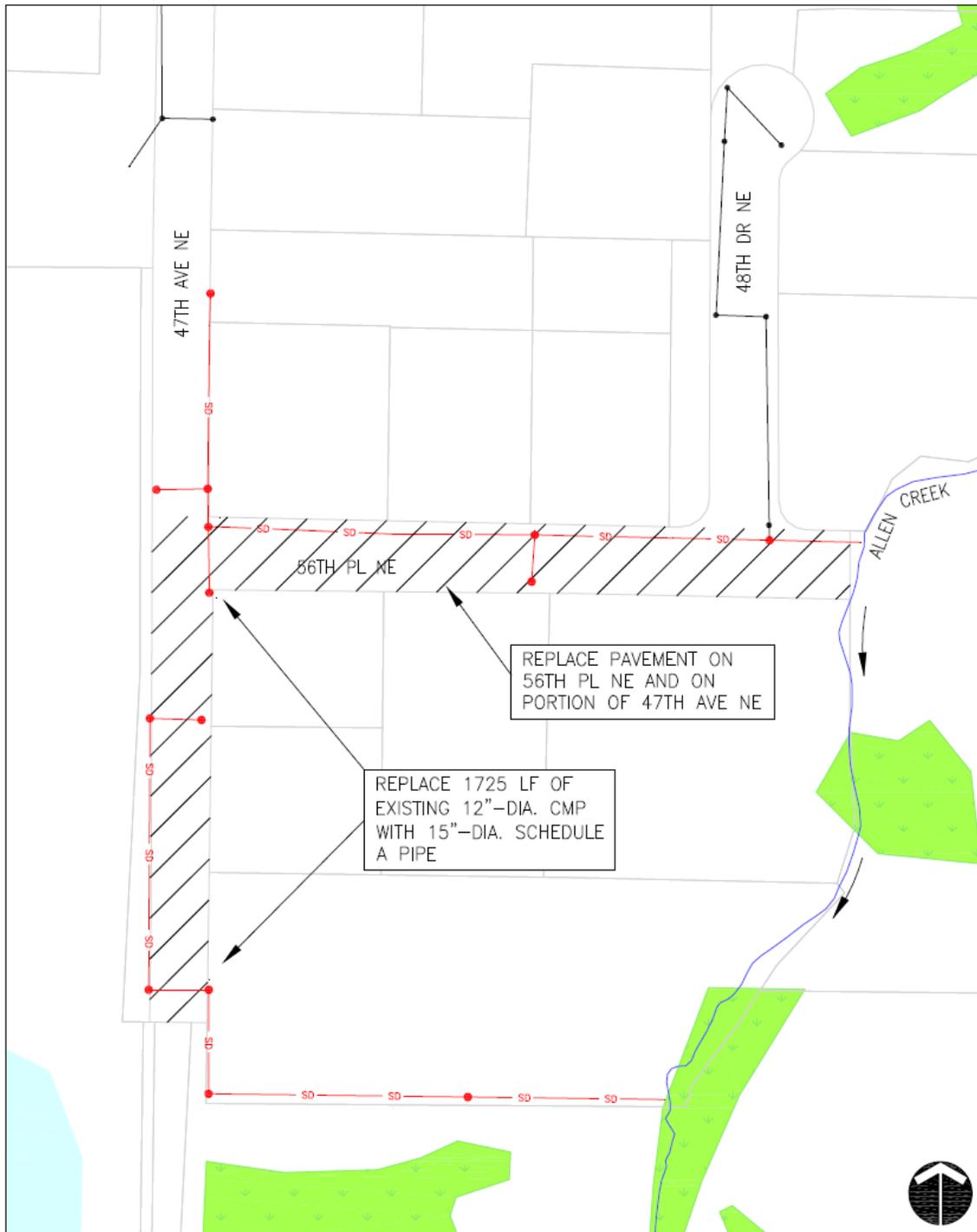
Associated Projects: Qwuloolt Project, AC-AC-01, AC-AC-03, AC-AC-13, AC-AC-14,

Rank: 4



Brashler's Industrial Park at 47th Ave NE and 56th Pl NE looking north

PROJECT SKETCH



PROJECT COST ESTIMATE

PLANNING LEVEL PROJECT COST OPINION					
PROJECT: Brashler Industrial Park Flooding (Allen Creek)		CHECK BY: LR			
PROJECT ID: AC-AC-15		DATE: 7/1/2009			
BY: MK					
ITEM NO.	ITEM	QUANTITY	UNIT	UNIT PRICE	AMOUNT
<i>Construction Elements</i>					
1	REMOVE PAVEMENT	5,890	SY	\$ 7.00	\$ 41,230
2	COMMON EXCAVATION	1,018	CY	\$ 23.00	\$ 23,417
3	SAWCUTTING	5,250	LF	\$ 4.00	\$ 21,000
4	REMOVE PIPE	1,725	LF	\$ 22.00	\$ 37,950
5	SCHEDULE A, 15"-DIAM. PIPE	1,725	LF	\$ 25.00	\$ 43,125
6	CRUSHED SURFACING BASE COURSE	380	TON	\$ 45.00	\$ 17,100
7	ASPHALT TREATED BASE COURSE	1,340	TON	\$ 250.00	\$ 335,000
8	HMA, CL 1/2-IN PG	740	TON	\$ 250.00	\$ 185,000
9	FLAP GATES	2	EA	\$ 10,000.00	\$ 20,000
10	UTILITY RELOCATIONS	1	LS	\$ 5,000.00	\$ 5,000
11	TEMPORARY BYPASS	1	LS	\$ 10,000.00	\$ 10,000
12	CATCH BASIN TYPE 2 48-IN. DIAM.	14	EA	\$ 2,000.00	\$ 28,000
Subtotal Construction Elements					\$ 766,822
<i>Required Ancillary Items</i>					
13	DEWATERING		5%	\$	\$ 38,400
14	EROSION & SEDIMENTATION CONTROL		5%	(see note 3)	\$ 38,400
15	TRAFFIC CONTROL		5%	(see note 4)	\$ 38,400
16	CONTINGENCY		25%		\$ 191,800
Subtotal Ancillary					\$ 307,000
Subtotal Construction + Ancillary					\$ 1,073,822
<i>Mobilization</i>					
17	MOBILIZATION		10%		\$ 107,400
Subtotal Construction + Ancillary + Mobilization					\$ 1,181,222
<i>Tax/Engineering/Management/Permitting</i>					
18	STATE SALES TAX		8.6%		\$ 101,600
19	ENGINEERING/LEGAL/ADMIN		20%		\$ 236,244
20	CONSTRUCTION MANAGEMENT		10%		\$ 118,200
21	PERMITTING		10%		\$ 118,200
Subtotal					\$ 574,244
Subtotal Construction + Ancillary + Mobilization + Tax/Engineering/Management/Permitting					\$ 1,755,500
2009 Dollars		Total Estimated Project Cost (Rounded)			\$ 1,756,000
Notes:					
1. The above cost opinion is in 2009 dollars and does not include future escalation, financing, or O&M costs.					
2. The order-of-magnitude cost opinion has been prepared for guidance in project evaluation from the information available at the time of preparation and for the assumptions stated. The final costs of the project will depend on actual labor and material.					
3. Increase percentage markup if work is in or immediately adjacent to flowing or standing water, steep slope, and/or other erosion-prone conditions.					
4. Increase percentage markup if work is in or immediately adjacent to secondary, arterial, or other high-volume road or temporarily closes a roadway.					
5. Land Acquisition unit costs include Administrative Costs and Condemnation.					

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PROJECT SUMMARY SHEET

Project Title: Jones Creek Flood Damage Repairs – Sunnyside Neighborhood

Problem Description: Sinkholes have formed next to Jones Creek. They are a result of water seeping into a detention tank parallel to Jones Creek. Water may also be traveling through the detention tank backfill.

Project Description: Fill the existing 4-ft dia. detention pipe with controlled density fill (CDF). Regrade the stream channel for improved flood storage, placing streambed gravel within channel. The outfall and structure from 61st Street Cul de Sac will be allowed to directly discharge to Jones Creek. Remaining conveyance lines found within the stream corridor will be removed or filled in with CDF. Vegetative riparian plantings will be placed along the project length, approximately 825 LF.

Design Considerations: This project will require a biological assessment of the stream and riparian corridor. Project has minimal room to work within the 20-ft stormdrain easement. Additional room for construction may be available if temporary easements are obtained from property owners.

Source: City

Estimated Project Cost: \$619,000

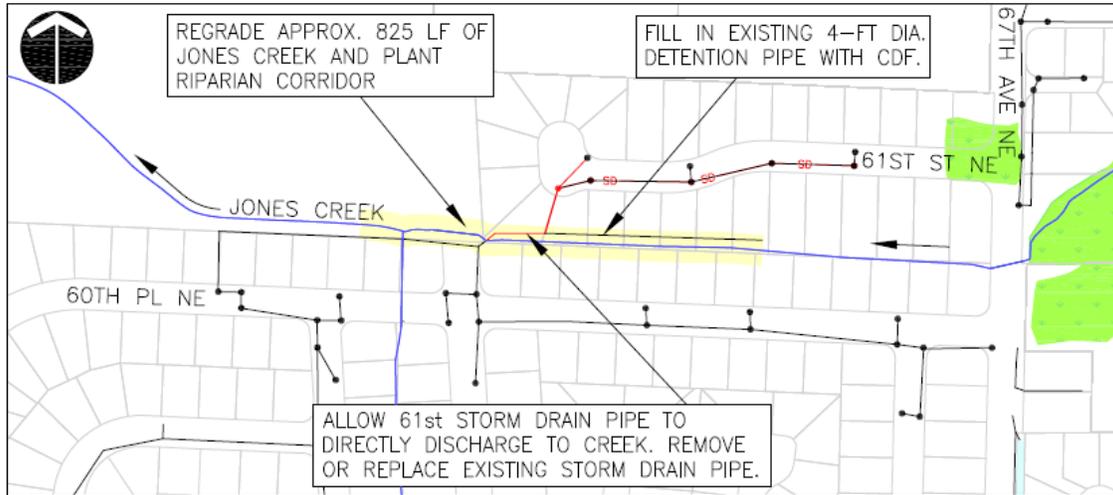
Associated Projects: AC-JC-11, AC-JC-12

Rank: 5



Sunnyside Hills neighborhood and Jones Creek (Looking northeast at the 61st St. Cul de Sac)

PROJECT SKETCH



PROJECT COST ESTIMATE

PLANNING LEVEL PROJECT COST					
PROJECT: Jones Creek Flood Damage Repairs - Sunnyside Hills Neighborhood		CHECK BY: LR			
PROJECT ID: AC-JC-09		DATE: 7/1/2009			
BY: MK					
ITEM NO.	ITEM	QUANTITY	UNIT	UNIT PRICE	AMOUNT
<i>Construction Elements</i>					
Section 1: Preparation					
1	MOBILIZATION	1	LS	\$ 19,800.00	\$ 19,800
2	CLEARING AND GRUBBING	1	LS	\$ 5,000.00	\$ 5,000
3	REMOVAL OF STRUCTURE AND OBSTRUCTION	1	LS	\$ 3,000.00	\$ 3,000
Section 2: Grading					
4	STREAM AND SITE EXCAVATION INCL. HAUL	1310	CY	\$ 42.00	\$ 55,020
5	SINKHOLE FILL INCL. HAUL	35	CY	\$ 25.00	\$ 875
6	TILL FILL MATERIAL INCL. HAUL	360	CY	\$ 25.00	\$ 9,000
Section 4: Drainage					
7	EXISTING STRUCTURE MODIFICATION	1	LS	\$ 5,000.00	\$ 5,000
8	STREAMBED GRAVEL	370	TON	\$ 100.00	\$ 37,000
9	QUARRY SPALLS	2	TON	\$ 100.00	\$ 200
Section 5: Storm Sewer					
4	CORRUGATED POLYETHYLENE STORM SEWER PIPE 12	100	LF	\$ 65.00	\$ 6,500
Section 17: Erosion Control and Planting					
11	ORGANIC EROSION CONTROL BLANKET	870	SY	\$ 3.00	\$ 2,610
12	DEWATERING	1	LS	\$ 15,000.00	\$ 15,000
13	EROSION/WATER POLLUTION CONTROL	2,000	FA	\$ 1.00	\$ 2,000
14	FILTER BAG	2	EA	\$ 250.00	\$ 500
15	HIGH VISIBILITY FENCE	2,000	LF	\$ 2.50	\$ 5,000
16	PSIPE 1-GAL.	537	EA	\$ 9.00	\$ 4,833
17	PSIPE 2-GAL.	185	EA	\$ 15.00	\$ 2,775
18	PSIPE PLANT PLUG	1,186	EA	\$ 5.00	\$ 5,930
19	SEEDING AND BFM	1	LS	\$ 8,000.00	\$ 8,000
20	SEDIMENT MAT	18	SY	\$ 370.00	\$ 6,660
21	SILT FENCE	25	LF	\$ 8.00	\$ 200
22	STABILIZED CONSTRUCTION ENTRANCE	100	SY	\$ 17.00	\$ 1,700
23	TEMPORARY STREAM BYPASS SYSTEM	1	LS	\$ 8,000.00	\$ 8,000
24	TREE/SHRUB PROTECTION	1	LS	\$ 3,000.00	\$ 3,000
25	COIR WEEDMAT	555	EA	\$ 3.00	\$ 1,665
Section 18: Traffic					
26	PROJECT TEMPORARY TRAFFIC CONTROL	1	LS	\$ 2,000.00	\$ 2,000
Section 19: Other Items					
27	TANK ABANDONMENT	140	CY	\$ 120.00	\$ 16,800
28	LOG TYPE A WITHOUT ROOT WAD	3	EA	\$ 1,500.00	\$ 4,500
29	LOG TYPE A WITH ROOT WAD	4	EA	\$ 1,500.00	\$ 6,000
30	ROCK FOR ROCK WALL	70	TON	\$ 150.00	\$ 10,500
31	PLUGGING EXISTING PIPE	1	EA	\$ 500.00	\$ 500
32	PROPERTY RESTORATION	5,000	FA	\$ 1.00	\$ 5,000
33	SPCC PLAN	1	LS	\$ 1,000.00	\$ 1,000
34	STREAMBED BOULDERS	96	TON	\$ 50.00	\$ 4,800
35	MINOR CHANGE	5000	FA	\$ 1.00	\$ 5,000
36	POOL EXCAVATION	1	LS	\$ 2,000.00	\$ 2,000
Subtotal Construction					\$ 267,368
<i>Required Ancillary Items</i>					
35	DEWATERING	10%		\$	26,737
36	EROSION & SEDIMENTATION CONTROL	10%	(see note 3)	\$	26,737
37	TRAFFIC CONTROL	5%	(see note 4)	\$	13,368
38	CONTINGENCY	30%		\$	80,210
Subtotal Ancillary					\$ 147,052
Subtotal Construction + Ancillary					\$ 414,420
<i>Mobilization</i>					
39	MOBILIZATION		10%	\$	41,500
Subtotal Construction + Ancillary + Mobilization					\$ 455,920
<i>Tax/Engineering/Management/Permitting</i>					
40	STATE SALES TAX		8.6%	\$	39,300
41	ENGINEERING/PERMITTING			\$	100,000
42	CONSTRUCTION MANAGEMENT		5%	\$	22,800
Subtotal					\$ 162,100
Subtotal Construction + Ancillary + Mobilization + Tax/Engineering/Management/Permitting					\$ 618,020
2009 Dollars					Total Estimated Project Cost (Rounded) \$ 619,000
Notes:					
1. The above cost opinion is in 2009 dollars and does not include future escalation, financing, or O&M costs.					
2. The order-of-magnitude cost opinion has been prepared for guidance in project evaluation from the information available at the time of preparation and for the assumptions stated. The final costs of the project will depend on actual labor and material.					
3. Increase percentage markup if work is in or immediately adjacent to flowing or standing water, steep slope, and/or other erosion-prone conditions.					
4. Increase percentage markup if work is in or immediately adjacent to secondary, arterial, or other high-volume road or temporarily closes a roadway.					
5. Land Acquisition unit costs include Administrative Costs and Condemnation.					

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PROJECT SUMMARY SHEET

Project Title: Storm Drain Replacement at 60th Pl NE – Sunnyside Neighborhood

Problem Description: Insufficient conveyance capacity for existing 10 year event.

Localized flooding also occurs for the 6-month event on 60th PL NE west of 63 Ave NE.

Project Description: Replace approximately 1230 LF of existing storm drain pipe with 450 LF of 18” dia. and 780 LF of 15” dia. Schedule A pipe. Replace 13 catch basins with 48” catch basins.

Design Considerations: Project will require additional hydraulic analysis and coordination with AC-JC-09.

Source: City

Estimated Project Cost: \$457,000

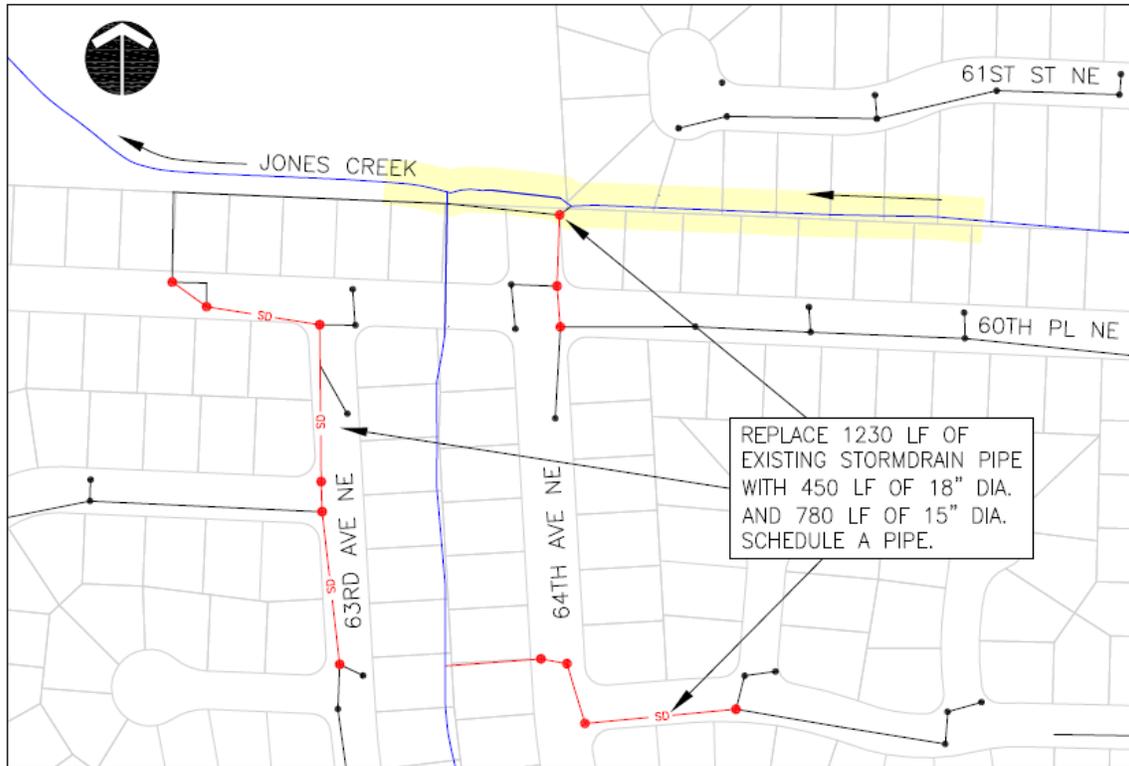
Associated Projects: AC-JC-09, AC-JC-12

Rank: 4



Sunnyside Hills neighborhood (Looking southwest at the 60st Pl. NE)

PROJECT SKETCH



PROJECT COST ESTIMATE

PLANNING LEVEL PROJECT COST					
PROJECT: Storm Drain Replacement at 60 th PI NE - Sunnyside Neighborhood (Jones Creek)		CHECK BY: LR			
PROJECT ID: AC-JC-11		DATE: 7/1/2009			
BY: MK					
ITEM NO.	ITEM	QUANTITY	UNIT	UNIT PRICE	AMOUNT
<i>Construction Elements</i>					
1	REMOVE PAVEMENT	85	SY	\$ 7	\$ 598
2	COMMON EXCAVATION	580	CY	\$ 48.00	\$ 27,840
3	CRUSHED SURFACING BASE COURSE	350	TON	\$ 46.00	\$ 16,100
4	HMA, CL 1/2-IN PG	100	TON	\$ 250	\$ 25,000
5	REMOVE 18" CMP PIPE	1230	LF	\$ 22.00	\$ 27,060
6	18" DIAMETER SCHEDULE A PIPE	450	LF	\$ 45.00	\$ 20,250
7	15" DIAMETER SCHEDULE A PIPE	780	LF	\$ 34.00	\$ 26,520
8	SHORING OR EXTRA EXCAVATION CLASS B	5100	SF	\$ 2.00	\$ 10,200
9	SAWCUTTING	2470	LF	\$ 4.00	\$ 9,880
10	CATCH BASIN TYPE 1 48-IN. DIAM.	13	EA	\$ 1,000.00	\$ 13,000
11	UTILITY COORDINATION	1	LS	\$ 10,000.00	\$ 10,000
Subtotal Construction Elements					\$ 186,448
<i>Required Ancillary Items</i>					
12	DEWATERING		5%	\$	9,322
13	EROSION & SEDIMENTATION CONTROL		5%	(see note 3) \$	9,322
14	TRAFFIC CONTROL		5%	(see note 4) \$	9,322
15	CONTINGENCY		30%	\$	55,934
Subtotal Ancillary					\$ 83,902
Subtotal Construction + Ancillary					\$ 270,350
<i>Mobilization</i>					
16	MOBILIZATION		10%	\$	27,035
Subtotal Construction + Ancillary + Mobilization					\$ 297,385
<i>Tax/Engineering/Management/Permitting</i>					
17	STATE SALES TAX		8.6%	\$	25,600
18	ENGINEERING/LEGAL/ADMIN		25%	\$	74,400
19	CONSTRUCTION MANAGEMENT		10%	\$	29,800
20	PERMITTING		10%	\$	29,800
Subtotal					\$ 159,600
Subtotal Construction + Ancillary + Mobilization + Tax/Engineering/Management/Permitting					\$ 456,985
2009 Dollars					Total Estimated Project Cost (Rounded) \$ 457,000
Notes:					
1. The above cost opinion is in 2009 dollars and does not include future escalation, financing, or O&M costs.					
2. The order-of-magnitude cost opinion has been prepared for guidance in project evaluation from the information available at the time of preparation and for the assumptions stated. The final costs of the project will depend on actual labor and material.					
3. Increase percentage markup if work is in or immediately adjacent to flowing or standing water, steep slope, and/or other erosion-prone conditions.					
4. Increase percentage markup if work is in or immediately adjacent to secondary, arterial, or other high-volume road or temporarily closes a roadway.					
5. Land Acquisition unit costs include Administrative Costs and Condemnation.					

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PROJECT SUMMARY SHEET

Project Title: Storm Drain Replacement at 61st St NE Cul de Sac – Sunnyside Neighborhood

Problem Description: Insufficient conveyance capacity for existing 10 year event.

Project Description: Replace approximately 680 LF of existing storm drain pipe with 520 LF of 15” dia. and 160 LF of 12” dia. Schedule A pipe. Replace 5 catch basins with 48” catch basins.

Design Considerations: Project will require additional hydraulic analysis and coordination with AC-JC-09.

Source: City

Estimated Project Cost: \$221,000

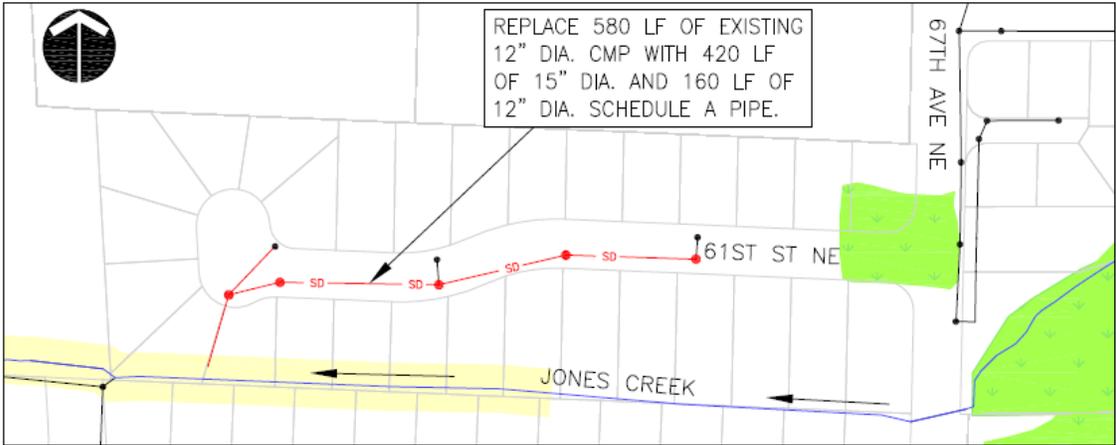
Associated Projects: AC-JC-09, AC-JC-11

Rank: 3



61st St. Cul de Sac - Sunnyside Hills neighborhood (Looking south)

PROJECT SKETCH



PROJECT COST ESTIMATE

PLANNING LEVEL PROJECT COST					
PROJECT:	Storm Drain Replacement at 61 st St NE Cul de Sac - Sunnyside Neighborhood	CHECK BY:	LR		
PROJECT ID:	AC-JC-12	DATE:	7/1/2009		
BY:	MK				
ITEM NO.	ITEM	QUANTITY	UNIT	UNIT PRICE	AMOUNT
<i>Construction Elements</i>					
1	REMOVE PAVEMENT	40	SY	\$ 7.00	\$ 280
2	COMMON EXCAVATION	331	CY	\$ 48.00	\$ 15,888
3	CRUSHED SURFACING BASE COURSE	329	TON	\$ 45.00	\$ 14,801
4	HMA, CL 1/2-IN PG	45	TON	\$ 250	\$ 11,275
5	REMOVE 18" CMP PIPE	580	LF	\$ 22.00	\$ 12,760
6	12" DIAMETER SCHEDULE A PIPE	160	LF	\$ 34.00	\$ 5,440
7	15" DIAMETER SCHEDULE A PIPE	418	LF	\$ 25.00	\$ 10,450
8	SHORING OR EXTRA EXCAVATION CLASS B	2970	SF	\$ 1.00	\$ 2,970
9	SAWCUTTING	1160	LF	\$ 4.00	\$ 4,640
10	CATCH BASIN TYPE 1 48-IN. DIAM.	5	EA	\$ 1,135.00	\$ 5,675
Subtotal Construction Elements					\$ 84,179
<i>Required Ancillary Items</i>					
11	DEWATERING		5%	\$	4,209
12	EROSION & SEDIMENTATION CONTROL		5%	(see note 3) \$	4,209
13	TRAFFIC CONTROL		5%	(see note 4) \$	4,209
14	CONTINGENCY		30%	\$	25,254
Subtotal Ancillary					\$ 37,881
Subtotal Construction + Ancillary					\$ 122,100
<i>Mobilization</i>					
15	MOBILIZATION		10%	\$	12,210
Subtotal Construction + Ancillary + Mobilization					\$ 134,310
<i>Tax/Engineering/Management/Permitting</i>					
16	STATE SALES TAX		8.6%	\$	11,600
17	ENGINEERING/LEGAL/ADMIN		35%	\$	47,100
18	CONSTRUCTION MANAGEMENT		10%	\$	13,500
19	PERMITTING		10%	\$	13,500
Subtotal					\$ 85,700
Subtotal Construction + Ancillary + Mobilization + Tax/Engineering/Management/Permitting					\$ 220,010
2009 Dollars				Total Estimated Project Cost (Rounded) \$ 221,000	
Notes:					
1. The above cost opinion is in 2009 dollars and does not include future escalation, financing, or O&M costs.					
2. The order-of-magnitude cost opinion has been prepared for guidance in project evaluation from the information available at the time of preparation and for the assumptions stated. The final costs of the project will depend on actual labor and material.					
3. Increase percentage markup if work is in or immediately adjacent to flowing or standing water, steep slope, and/or other erosion-prone conditions.					
4. Increase percentage markup if work is in or immediately adjacent to secondary, arterial, or other high-volume road or temporarily closes a roadway.					
5. Land Acquisition unit costs include Administrative Costs and Condemnation.					

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Appendix 2.4.A
Sunnyside Basin - CIP Project Summary Sheet,
Cost Estimate and Schematic

Appendix 2.4.A Sunnyside Basin CIPs

ID #	Project	Page
SR-SS-01	Sunnyside Wetland Acquisition	3

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PROJECT SUMMARY SHEET

Project Title: Sunnyside Wetland Acquisition

Problem Description: Development has impacted a high percentage of local wetlands in the Sunnyside study area.

Project Description: Acquire 28 acres of forested emergent wetlands for preservation near the headwaters of Sunnyside Creek.

Design Considerations: Not at this time.

Source: Snohomish County DNR CIP # MS-SU-03

Estimated Project Cost: \$2,440,000

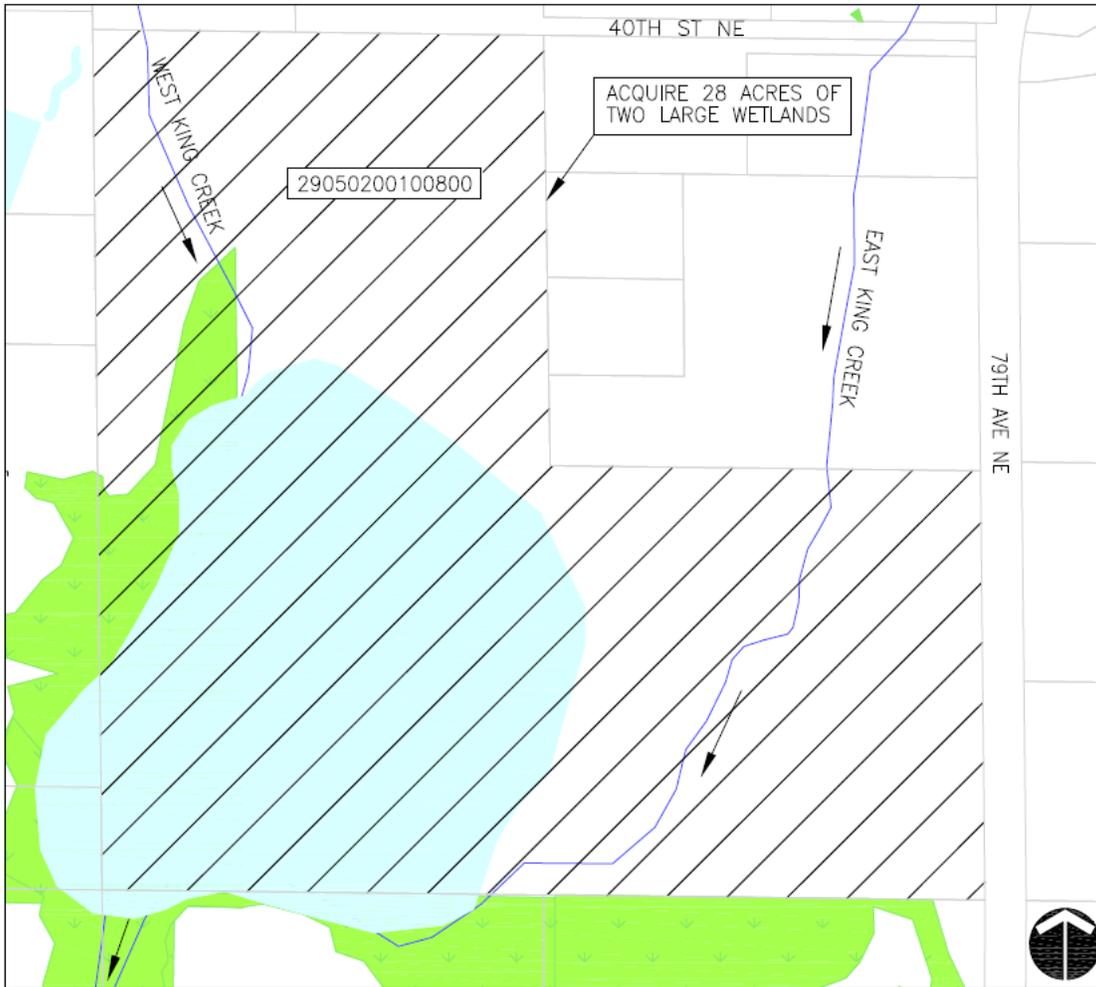
Associated Projects: None

Rank: 3



Wetland looking west from 79th Ave

PROJECT SKETCH



PROJECT COST ESTIMATE

PLANNING LEVEL PROJECT COST					
PROJECT: Sunnyside Wetland Acquisition			CHECK BY:		
PROJECT ID: SR-SS-01			DATE: 6/24/2009		
BY: MK					
ITEM NO.	ITEM	QUANTITY	UNIT	UNIT PRICE	AMOUNT
<i>Construction Elements</i>					
1	LAND ACQUISITION	28	AC	\$ 87,120	\$ 2,439,400
Subtotal Construction Elements					\$ 2,439,400
2009 Dollars					Total Estimated Project Cost (Rounded) \$ 2,440,000
Notes:					
<ol style="list-style-type: none"> 1. The above cost opinion is in 2009 dollars and does not include future escalation, financing, or O&M costs. 2. The order-of-magnitude cost opinion has been prepared for guidance in project evaluation from the information available at the time of preparation and for the assumptions stated. The final costs of the project will depend on actual labor and material. 3. Increase percentage markup if work is in or immediately adjacent to flowing or standing water, steep slope, and/or other erosion-prone conditions. 4. Increase percentage markup if work is in or immediately adjacent to secondary, arterial, or other high-volume road or temporarily closes a roadway. 5. Land Acquisition unit costs include Administrative Costs and Condemnation. 					

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Appendix 2.5.A
Downtown – Hydrologic and Hydraulic Analysis

Memorandum



10230 NE Points Drive
Suite 400
Kirkland, WA 98033
Phone (425) 822-4446
Fax (425) 827-9577

To: File
From: David Thurman
Copies: Russ Gaston, Laura Ruppert
Date: 1/12/09
Subject: Marysville Downtown Hydrology
Project No.: 31099B

Purpose

The City of Marysville is concerned that some of their existing drywells may be silted in over time and thereby reducing the effectiveness of the drywells and increasing their maintenance needs. This analysis will determine whether the existing downtown conveyance system would have excess capacity allowing for nearby areas currently draining to drywells to connect to the downtown conveyance in the event of a drywell failure. The hydrologic and hydraulic analysis performed to determine the feasibility of hydraulically connecting these drywell areas to the downtown conveyance system is documented in this memorandum.

Procedure

XP-SWMM Modeling

The existing conveyance system was modeled using XP-SWMM. The storm drain lines were modeled from as-builts provided by the City of Marysville. Survey data was also used for areas that were not accurately covered by as-builts. As part of the modeling effort the City's stormwater database was also updated in ArcGIS for the areas modeled.

Existing Land Use

Downtown Marysville land use was determined using parcel information and 2003 aerial photography. The land use types were categorized as commercial, medium density single family residential (SFR), roads, railroad, multifamily residential, grass, and forest. Following Hydrologic Modeling Protocols from the Snohomish County the effective impervious area (EIA) for land use was selected as EIA#2. The EIA defines the percentage an area is impervious for a specific land use.

Future Land Use

The Downtown study area is assumed to be built out so a future land use scenario was not generated.

Western Washington Hydrology Model (WWHM)

The Western Washington Hydrology Model (WWHM) was used to generate hydrographs for subbasins within downtown Marysville. WWHM requires the user to input the location of the basin to be modeled, then, WWHM associates the location with a precipitation gage. WWHM associated downtown with the Everett, WA gage. Additional input required for WWHM includes soil type, slope and percent imperviousness. Soil within the downtown basin is comprised of Ragnar fine sandy loam and Lynnwood loamy sand, both of which are highly permeable group A soils. Slopes within the basin are below 5 percent.

HSPF models generated by Snohomish County cover the portions of the City that are tributary to creeks. The downtown area, however, is not tributary to a waterbody that flows through the County and is therefore not included in an existing HSPF model.

Storm Selection

Within WWHM a storm peak flow frequency analysis is performed for range of data, 1949-1997, within the model. The analysis provides the peak flows for the 2-, 5-, 10-, 25-, and 100-year events. Comparison between these peak discharges and actual data was made for the 10- and 25-year storms. A representative storm was then chosen with a similar peak for the 10-year (February 1963) and for the 25-year (September 1972). The peak of the representative storms did not exactly match the statistical peak and were therefore also scaled accordingly. Final scaled hydrographs were then distributed among several inflow locations in the XP-SWMM hydraulic model according to the tributary area of each subcatchment.

Results

XP-SWMM

The conveyance modeling for the downtown basin found that the conveyance system is undersized and had extensive flooding during a 10-year and 25-year storm. The model often showed that streets with curb and gutter conveyed more water down the streets than within the conveyance system. Reports and conversations with the City of Marysville did not indicate that there was flooding of this magnitude. The hydrology was hence reevaluated to verify that the City has seen a 10- or 25-year storm event within the last 20 years (as described in the following sections).

NOAA Hydrology Comparison

The National Oceanic and Atmospheric Administration (NOAA) has rain gages located in downtown Everett (452675) and Arlington, WA. (450257). The top ten peak total daily rainfall events for the Everett and Arlington Gages show a general trend for larger storms to have occurred more recently in Everett than in Arlington (Table 1). Similar to the Arlington gage, WWHM's top ranking storm events occur generally earlier in time, even though the Everett gage is much closer in

proximity. Both the Everett and Arlington gages list the 1990 event within their top ten; however, WWHM does not include this as a low ranking event (ranks 1990 No. 50 out of 53 years of data). To directly compare the NOAA data with the HSPF model data one must understand that the NOAA data is a cumulative precipitation for a day and not the peak event and does not account for soil saturation from previous rainfall.

Rank	Everett, WA	Arlington, WA	WWHM	HSPF
1	1990	1977	1967	1967
2	2007	1984/1945	1961	1961
3	1916		1972	1999
4	1926	1984	1958	1958
5	1986	1965	1969	1972
6	2003/1931	1923	1963	1963
7		1982	1979	1969
8	1944/1937	1990	1950	1987
9		1964	1954	1998
10	1948	1989	1985	1974

HSPF

A Hydrological Simulation Program Fortran (HSPF) created for the Snohomish County DNR Quilceda Creek (1947-2001) and later calibrated by Otak, Inc. was used for comparison to the WWHM hydrology. Since the HSPF model does not include the downtown study area, the landuse of a subbasin located near the study area was modified to match that of the downtown study area. Runoff from this basin was generated for comparison to runoff generated with WWHM. The results showed that storms, independently chosen from the HSPF model, were from the same years as the WWHM and were nearly equal in magnitude. The magnitudes of the 10- and 25-year storms were only 5-8 percent lower than those found using WWHM. Comparing the top ten storm events show a nearly identical record of peak events to the WWHM (Table 1). However, the Quilceda HSPF model includes four additional years of record than the WWHM and two of these years (1998 and 1999) are within the top ten.

Conclusions

The downtown conveyance system does not have capacity to allow additional area to connect in the event of a drywell failure.

Comparisons between the various hydrologic data would indicate Marysville has seen a 25-year event or larger within the last ten years. Though the WWHM model does not draw this conclusion, the remaining hydrologic data indicates larger events have occurred relatively recently.

As described previously, the XP-SWMM analysis shows substantial flooding for both the 10-year and 25-year events. Since City staff can not confirm such flooding occurs, we had doubts in the accuracy of our hydrology data generated with WWHM. However, the Quilceda HSPF model generates similar hydrology to that of the WWHM model and therefore helps validate the hydrology.

The combination of a large amount of flooding and validated hydrologic peaks caused us to question whether infiltration within the basin is being accurately modeled. The downtown basin's group A soil might be intercepting more groundwater than is currently accounted for in the model. More infiltration means less runoff is collected by the conveyance system and that the peak flows we generated may be too high. If the peak flows are lower, then the downtown conveyance system might have capacity. This assumption helps validate the City of Marysville not observing flooding downtown where they are currently connected to a conveyance system (although has not been confirmed with modeling). Additional analysis, including an improved representation of the existing infiltration capabilities of the basin, is recommended if the City would like to further explore the opportunity to connect additional area to their downtown conveyance system.

Appendix 3.1.A
Stormwater Management Program Regulatory
Requirements and Milestone Dates

CITY OF MARYSVILLE
STORMWATER MANAGEMENT PROGRAM REGULATORY REQUIREMENTS AND MILESTONE DATES

Stormwater Program Element	Permit Reference /Rule or Law	Activities/BMPs Needed for Regulatory Compliance	Required Implementation by end of:	Notes/Comments/Overlaps	
Element #1 - Special Conditions S5.A and S5.B, Program Implementation, Program Implementation					
1.1	SWMP Implementation	S5.A.1	Develop and implement a SWMP that covers the geographic area subject to the permit.	Permit End	Compliance is achieved by conducting the activities outlined in Elements 2 through 6.
1.2	SWMP Documentation	S5.A.2	Prepare written documentation of the SWMP and maintain annual updates in accordance with Element 10.	March 31 Annually Starting 2008	Compliance is achieved through timely submittals of annual reports (Element 10.1).
1.3	Program Tracking	S5.A.3	Track the cost of development and implementation of the SWMP (beginning no later than January 1, 2009), including the number of inspections, enforcement actions, and public education activities. Use this information to evaluate SWMP development, implementation and permit compliance and to set priorities. Include this information in the Annual Report.	March 31 Annually Starting 2008	Compliance is achieved through timely submittals of annual reports (Element 10.1) and ongoing tracking (Element 10.2).
1.4	Coordination Among Permittees	S5.A.5	Include in the SWMP stormwater management activity coordination mechanisms as needed among: -other municipal stormwater NPDES permittees within adjoining or shared areas to clarify roles and responsibilities for pollutant control and to avoid conflicting plans, policies and regulations. -departments within each jurisdiction to eliminate barriers to compliance.	Permit End	
1.5	MEP and AKART	S5.B	Design the SWMP to reduce discharge of pollutants from the MS4 to the Maximum Extent Practicable (MEP), meet State AKART requirements, and protect water quality. Continue to implement existing SWMP activities, even if they are ahead of the schedule of this permit.	N/A	Compliance is achieved through implementation of existing SWMP activities and the activities outlined in Elements 2 through 6.
Element #2 - Special Condition S5.C.1, Public Education and Outreach					
2.1	Outreach to Target Audiences and Subject Areas	S5.C.1.a	Provide an education and outreach program for the MS4 service area designed to achieve measurable improvements in the target audience's understanding of the problem and what they can do to solve it. Prioritized target audiences and subject areas: i. General public - impacts of stormwater on surface water, impacts of impervious surfaces, and source control BMPs and environmental stewardship actions and opportunities. ii. General public, businesses, including home-based/mobile businesses - BMPs for use and storage of automotive chemicals, hazardous cleaning supplies, carwash soaps and other hazardous materials, and impacts of illicit discharges and how to report them. iii. Homeowners, Landscapers, property managers - yard care techniques protective of water quality, BMPs for use/storage of pesticides/fertilizers, carpet cleaning, auto repair/maintenance, LID techniques, and stormwater pond maintenance. iv. Engineers, contractors, developers, review staff, land use planners - technical standards for stormwater site and erosion control plans, LID techniques, and storm-water treatment and flow control BMPs.	Year 2	
2.2	Measure Results of the Educational Activities	S5.C.1.b	Participate in an effort to measure understanding and adoption of the targeted behaviors among the target audiences.	Year 2	
2.3	Maintain Records	S5.C.1.c	Track and maintain records of public education and outreach activities.	With Annual Report	To be included as an ongoing tracking activity of Element 10.2.
Element #3 - Special Condition S5.C.2, Public Involvement and Participation					
3.1	Input into SWMP	S5.C.2.a	Create opportunities for public to participate in the decision making processes involved in the development, implementation and update of the SWMP.	Year 1	
3.2	Availability of Program Documents	S5.C.2.b	Post the SWMP, the Annual Report, and all other required permit submittals on the Permittee's Website.	March 31 Annually Starting 2008	

CITY OF MARYSVILLE
STORMWATER MANAGEMENT PROGRAM REGULATORY REQUIREMENTS AND MILESTONE DATES

Stormwater Program Element	Permit Reference /Rule or Law	Activities/BMPs Needed for Regulatory Compliance	Required Implementation by end of:	Notes/Comments/Overlaps
Element #4 - Special Condition S5.C.3, Illicit Discharge Detection and Elimination				
4.1 Storm Sewer System Map	S5.C.3.a	Develop a municipal storm sewer system map of all storm sewer outfalls, receiving waters, and structural stormwater facilities. For all outfalls with a 24-inch nominal diameter include: - Tributary conveyances (type, material, size) - Associated drainage areas - Land Use Also map - Authorized connection points - Geographic areas served that do not discharge to surface waters Map should be in electronic format, with fully described mapping standards.	Year 4	The City has mapped the majority of its storm system in ArcMap. The City has not mapped ditches or roadside culverts and the majority of stream culverts.
4.2 Illicit Discharge Ordinance	S5.C.3.b	Develop and implement an ordinance prohibiting non-stormwater discharge to the Municipal Separate Storm Sewer System (MS4). The ordinance should cover: -Potable water flushing; -Lawn and landscape irrigation runoff; -Swimming pool discharges; -Street and sidewalk wash water; -Other non-stormwater discharges. The ordinance must include escalating enforcement procedures and actions and an enforcement strategy.	Year 2.5	
4.3 Detection and Elimination Program	S5.C.3.c	Develop and implement an ongoing program to detect and address non-stormwater discharges, spills, illicit connections and illegal dumping. -Include procedures for locating priority areas based on land use, previous complaints, and storage practices Year 4.5); -Prioritize receiving waters for visual inspection (Year 3); -Field assessment of 3 priority receiving waters in the first four years (Year 4); -Field assessment of at least 1 priority receiving water each year annually (after Year 4). Screening must follow Center for Watershed Protection guidance manual. Include procedures (Permit End) for: -Characterizing nature and potential threat of illicit discharges; -Tracing the source of illicit discharge; -Notifying authorities and property owners; -Removing the source and conducting follow-up inspections Once identified, investigate and characterize problems (7 days), initiate investigation needed to remove source (21 days), and terminate illicit discharge (180 days).	Variable	
4.4 Public Education and Spill Reporting	S5.C.3.d	Inform public employees, businesses, and general public of hazards associated with illegal discharges and improper waste disposal. Distribute information to target audiences identified in Element 2.1 Publicly list and publicize a hotline for public reporting of spills and illicit discharges; keep records of calls and follow-up actions taken.	Permit End Year 2	Activities could be covered by Element 2.1
4.5 Program Evaluation and Tracking	S5.C.3.e	Adopt and implement procedures for program evaluation and assessment, including tracking number and type of spills identified, inspections made, and feedback from public education efforts.	With Annual Report	To be included as an ongoing tracking activity of Element 10.2.

CITY OF MARYSVILLE
STORMWATER MANAGEMENT PROGRAM REGULATORY REQUIREMENTS AND MILESTONE DATES

Stormwater Program Element	Permit Reference /Rule or Law	Activities/BMPs Needed for Regulatory Compliance	Required Implementation by end of:	Notes/Comments/Overlaps
4.6 Staff Training	S5.C.3.f	Train responsible staff on illicit discharge identification, investigation, termination, clean-up, and reporting with follow up training as needed to address changes;	Year 2.5	
		Ongoing training for all municipal field staff on identification and reporting with follow up training as needed to address changes; document and maintain records of trainings.	Year 3	
Element #5 - Special Condition S5.C.4, Controlling Runoff from New Development, Redevelopment, and Construction Sites				
5.1 Stormwater Runoff Control Ordinance	S5.C.4.a	Adopt an ordinance to address runoff from new development, redevelopment, and construction site projects disturbing 1 or more acre. The ordinance should include: -Minimum requirements and thresholds equivalent to the 2005 Ecology Manual; -BMP selection and design criteria equivalent to the 2005 Ecology Manual; -Legal authority for inspection of private facilities discharging to the MS4; -Provisions to allow LID techniques to reduce impervious surfaces; -Guidelines for applying Ecology's "erosivity waiver" (if applicable).	Year 2.5	
5.2 Site Plan Review and Permitting	S5.C.4.b	Develop a permitting process with plan review, inspection, and enforcement to ensure that the ordinance guidelines (Element 5.1) are applied to all sites disturbing 1 acre of land or greater. Inspection should apply to high risk sites prior to construction and all sites during and after construction.	Year 2.5	Compliance for inspection requirements is defined as presence and records of an established inspection program designed to inspect all sites and achieving at least 95% of scheduled inspections.
5.3 Long Term Operation and Maintenance	S5.C.4.c	Adopt an ordinance identifying parties responsible for maintenance and inspection of facilities permitted under Element 5.2, requiring inspection and establishing enforcement procedures; Establish maintenance standards for facilities permitted under Element 5.2 consistent with the 2005 Ecology Manual; Inspect established facilities (water quality and flow control) annually; Inspect new water quality and flow control facilities, including catch basins, every 6 months during building construction.	Year 2.5	
5.4 Maintenance Inspection Records	S5.C.4.d	Develop procedure for keeping records. Keep records of all inspections, enforcement actions, maintenance activities, and construction sites.	Year 2.5	To be included as an ongoing tracking activity of Element 10.2.
5.5 NOI for Construction Activity	S5.C.4.e		February 16, 2007	
5.6 Staff Training	S5.C.4.f	Conduct training for staff in permitting, plan review, construction site inspection, and enforcement concerning the Stormwater Runoff Control program (Element 5.1); Maintain records of training.	Year 2.5	Frequency and content of training is not specified in the permit.
Element #6 - Special Condition S5.C.5, Pollution Prevention and Operation and Maintenance for Municipal Operations				
6.1 Establish Maintenance Standards	S5.C.5.a	Establish maintenance standards consistent with the 2005 Ecology Manual; When an inspection identifies an exceedance of the maintenance standard, maintenance shall be performed: -Within 1 year for wet pool facilities and retention/detention ponds. -Within 6 months for typical maintenance. -Within 9 months for maintenance that requires capital construction. -Within 2 years for maintenance that requires capital construction of less than \$25k.	Year 3	
6.2 Annual Inspections of Water Quality and Flow Control Facilities	S5.C.5.b	Conduct annual inspections of stormwater treatment and flow control facilities, other than catch basins; Perform necessary maintenance actions in accordance with established maintenance standards.	Years 3, 4 and 5	Compliance of inspection requirements is defined as the presence of an established inspection program designed to inspect all sites and achieving inspection of 95% of all sites.

CITY OF MARYSVILLE
STORMWATER MANAGEMENT PROGRAM REGULATORY REQUIREMENTS AND MILESTONE DATES

Stormwater Program Element	Permit Reference /Rule or Law	Activities/BMPs Needed for Regulatory Compliance	Required Implementation by end of:	Notes/Comments/Overlaps
6.3 Spot Checks after Storm Events	S5.C.5.c	Spot check stormwater treatment and flow control facilities after major storm events (>10-year recurrence interval); Conduct repairs as necessary.	Year 3	Compliance of inspection requirements is the presence of an established inspection program designed to inspect all sites and achieving inspection of 95% of all sites.
6.4 Catch Basin Inspection	S5.C.5.d	Inspect all catch basins and inlets at least once during the permit term; Clean catch basins as necessary; Dispose of decant water appropriately.	Permit End Recommend inspecting 25% per year	Recommend inspecting at least 25% of the catch basins each year, starting in Year 1, so that there is some cushion in the schedule. Compliance of inspection requirements is defined as the presence of an established inspection program designed to inspect all sites and achieving inspection of 95% of all sites.
6.5 Road Maintenance	S5.C.5.f	Implement practices to reduce stormwater impacts from street, parking lot, and highway runoff. Address the following activities: -Pipe and culvert cleaning; -Ditch and roadside areas including vegetation management; -Street cleaning; -Street repair and resurfacing, including pavement grinding; -Pavement striping maintenance; -Snow and ice control; -Utility installation; -Dust control.	Year 3	Per the road O/M standards adopted under Section 6.1.
6.6 Non-Roadway Property Maintenance	S5.C.5.g	Implement practices to reduce stormwater impacts from non-roadway property runoff (parks, open space, right-of-way, and maintenance yards). Address the following: -Application of fertilizer, pesticides, and herbicides, including the development of nutrient management and integrated pest management plans; -Sediment and Erosion control; -Landscape maintenance and vegetation disposal; -Trash management; -Building exterior cleaning and maintenance.	Year 3	
6.7 Staff Training	S5.C.5.h	Implement ongoing training activities for construction, maintenance, and operations personnel. Include training on: -Permit requirements; -O&M standards; -Inspection procedures; -Selecting appropriate BMPs; -Reducing water quality impact in daily activities; -Reporting of water quality concerns and illicit discharges. Maintain records of training.	Year 3	The frequency and content of training activities are not specified in the permit. Training sessions could cover multiple topics to meet multiple requirements (Elements 2.1, 4.6, and 5.6). All Construction Inspectors have participated in the Certified Erosion and Sediment Control Lead training.
6.8 SWPPP for Maintenance Yards	S5.C.5.i	Develop and implement Stormwater Pollution Prevention Plans for all equipment maintenance and storage yards not covered under the Industrial Stormwater General Permit. Include an implementation schedule for structural BMPs and conduct occasional visual inspection of discharge from the site.	Year 3	
6.9 Record Keeping	S5.C.5.j	Maintain records of inspection and/or repair activities.	Ongoing	Recordkeeping for stormwater facilities noted separately in Element 5.4 and ties into Element 10.2.

CITY OF MARYSVILLE
STORMWATER MANAGEMENT PROGRAM REGULATORY REQUIREMENTS AND MILESTONE DATES

Stormwater Program Element	Permit Reference /Rule or Law	Activities/BMPs Needed for Regulatory Compliance	Required Implementation by end of:	Notes/Comments/Overlaps
Element #7 - Special Condition 7, Total Maximum Daily Load Allocations				
7.1 Applicable TMDLs in Appendix 2	S7.A	Comply with requirements of Appendix 2 of the Phase II permit. When monitoring is required, submit a Quality Assurance Project Plan (QAPP) to Ecology.	Variable	Appendix 2 identifies the Lower Snohomish River Tributaries TMDL for fecal coliform and lists Marysville as a municipal permit holder with implementation responsibilities. The City submitted a QAPP in June of 2007 that addressed fecal coliform monitoring in the Allen/Quilceda watersheds. Additional monitoring will be conducted in the Jones, Munson, and Hayho Creeks as time and funding allows. Detail of required activities is included in Element #9 - Lower Snohomish River Tributaries TMDL.
7.2 TMDLs not listed in Appendix 2	S7.B	Comply with requirements of the NPDES Phase II permit; Keep records and report activities relevant to applicable TMDLs.	N/A	
7.3 TMDLs Approved during the Permit Cycle	S7.C	Comply with future permit modifications (if applicable); Permittees are encouraged to participate in developing TMDLs and begin implementation.	N/A	
Element #8 -Special Condition S8, Monitoring				
8.1 Existing Monitoring	S8.B	Describe any stormwater monitoring or studies and type of information gathered; Assess the appropriateness of the BMPs in the SWMP and note any proposed changes.	March 31 Annually Starting 2008	Compliance is achieved through timely submittals of annual reports (Element 10.1). BMPs in the SWMP are based on those in Ecology's model SWMP and by definition are assumed to meet the requirements of the permit.
8.2 Stormwater Monitoring	S8.C.1.a	Prepare for future monitoring by identifying 2 outfalls or conveyances (1 commercial and 1 high density residential) suitable for permanent flow-weighted composite sampling equipment. Document site selection and justify basin size based on times of concentration for typical seasonal storms.	December 31, 2010	
8.3 SWMP Effectiveness Monitoring	S8.C.1.b	Prepare for future monitoring by identifying 2 suitable questions that could be studied through future monitoring; Select sites for future monitoring to explore the answers to the selected questions; Develop a monitoring plan for each question including: -Statement of the problem and why it is significant; -Specific hypothesis about the problem; -Specific parameters of attributes to be measured; -Expected modifications based on outcome of the monitoring.	December 31, 2010	
8.4 Annual Reporting	S8.C.2.a	Describe the status of identifying sites, questions, and development of monitoring plan outlined in Elements 8.2 and 8.3.	Years 3, 4, and 5	Compliance is achieved through timely submittals of annual reports (Element 10.1).
Element #9 - Lower Snohomish River Tributaries TMDL				
9.1 Illicit Discharge Detection and Elimination	Appendix 2	The IDDE program in Element 3 shall address commercial animal handling areas and commercial composting facilities including source control BMPs equivalent to the 2005 Ecology Manual. Additional activities include: 1. Comply list of existing facilities, no later than 30 months after the effective date of the permit, 2. Update and submit list with permit renewal application, no later than 6 months prior to permit expiration, 3. Beginning no later than 30 months after the effective date of the permit conduct inspection of listed sites including adequate enforcement capability. Complete inspection within 46 months of the effective date of the permit.	Variable see Activities Column	

CITY OF MARYSVILLE
STORMWATER MANAGEMENT PROGRAM REGULATORY REQUIREMENTS AND MILESTONE DATES

Stormwater Program Element	Permit Reference /Rule or Law	Activities/BMPs Needed for Regulatory Compliance	Required Implementation by end of:	Notes/Comments/Overlaps
9.2 Monitoring and Implementation Requirements	Appendix 2	<p>Four months after permit issuance the City must submit a QAPP to Ecology for approval. Begin monitoring 9 months after permit issuance. The final BPCP must be submitted to Ecology at the time of permit renewal application.</p> <ol style="list-style-type: none"> 1. Pet Waste Ordinance 2. Evaluation of water pollution control enforcement capabilities 3. Evaluation of CAO in relation to TMDL goals 4. Education program directed at reducing bacterial pollution 5. Investigation/implementation of methods that prevent additional stormwater bacterial pollution through stormwater treatment, reducing stormwater volumes, and preventing additional sources in association with new development. 6. Implementation of activities in the Quilceda/Allen or French Creek Watershed Management Plans (as applicable), methods including low impact development retrofitting and strategies to prevent additional stormwater contamination 7. Ambient Water Quality and Stormwater Quality sampling to specifically identify bacterial pollution sources, and - Tracing the source of illicit discharge; 8. Livestock ordinance and compost ordinance. <p>Prepare a Bacterial Pollution Control Plan (BPCP) no later than 12 months after permit application as a subsection of the SWMP documenting relevant City activities being taken to reduce bacterial pollution. Evaluate and document applicability of following bacterial pollution reduction approaches. Conduct public review of BPCP no later 9 months prior to permit expiration.</p>	Variable see Activities Column	The City has developed and submitted their QAPP that was approved by Ecology and is conducting water quality monitoring at seven sites throughout the Allen/Quilceda watershed.
Element #10 - Special Condition S9, Reporting				
10.1 Annual Reports	S9.A&B	Submit annual reports each year on the previous year's NPDES Phase II activities. Use reporting forms supplied in Appendix 3 of the Phase II permit and submit applicable supporting documentation.	March 31 Annually Starting 2008	
10.2 Ongoing Tracking	S9.C.2	<p>To support annual report submittal, maintain records of:</p> <ul style="list-style-type: none"> -Implementation status of each activity in Elements 2 through 6 and 9; -Assessment of progress toward meeting minimum performance measures; -Activities implemented to comply with program requirement (Elements 2 through 6 and 9); -SWMP implementation schedule and plans for meeting future permit deadlines. 	Ongoing	Maintaining good records throughout the year will aid in assembling each year's annual report (Element 10.1).
10.3 Maintaining Records	S9.C	Maintain records of final SWMP documentation and permit activities for five years.	Ongoing	
10.4 Public Access	S9.D	Make all records of final SWMP and permit activities available to the public at reasonable times during business hours.	Ongoing	Included with Element 3.2.
Element #11 - Underground Injection Control (UIC)				
11.1 Register Existing UIC Wells Used for Stormwater	WAC 173-218-070.1.a.i-iv	Complete Ecology Registration forms and submit (WAC 173-218-070.1.a.i-v). Information includes: Operator/owner information; site location; BMPs used to protect groundwater quality, UIC well description; information necessary to demonstrate that the non-endangerment standard (WAC 173-218-080 and WAC 173-218-090) has been met.	February 2, 2009 (WAC 173-218-090.2.a.i)	Requirements listed here apply when less than or equal to 50 Class V UIC wells are operated by the City. According to WAC 173-218-090.2.d, regulated MS4s that apply SWMPs developed to comply with CWA satisfy the non-endangerment standard for existing UIC wells.
11.2 Assess Existing UIC Wells Used for Stormwater	WAC 173-218-070.1.b.i	According to WAC 173-218-090.2.a.ii, the approach to conducting the well assessment will be determined by the owner. The assessment evaluates the potential risks to groundwater from the use of UIC wells. Any assessment that identifies a well as a high threat to groundwater must include a retrofit schedule (WAC 173-218-090.a.iii), and immediate action must be taken to correct the use of a well that is determined to be an imminent public health hazard (WAC 173-218-090.a.iv).	February 2, 2010 (WAC 173-218-090.2.a.ii)	

CITY OF MARYSVILLE
STORMWATER MANAGEMENT PROGRAM REGULATORY REQUIREMENTS AND MILESTONE DATES

Stormwater Program Element	Permit Reference /Rule or Law	Activities/BMPs Needed for Regulatory Compliance	Required Implementation by end of:	Notes/Comments/Overlaps
11.3 Register New UIC Wells Used for Stormwater (built after 2/3/06) Prior to Use	WAC 173-218-070. 1.a.i-iv	Complete Ecology Registration forms and submit (WAC 173-218-070.1.a.i-v). Information includes: Operator/owner information; site location; BMPs used to protect groundwater quality, UIC well description; information necessary to demonstrate that the non-endangerment standard (WAC 173-218-080 and WAC 173-218-090) has been met.	Prior to Use	
11.4 Compliance with the Nonendangerment Standard for New UIC Wells Used for Stormwater	WAC 173-218-070. 1.b.i	Prior to use, new wells must meet the requirements of WAC 173-218-080 and WAC 173-218-090 which call for preventing the movement of fluid containing any contaminant into the groundwater if it may cause a violation of groundwater quality standards. Compliance with the nonendangerment standard can be met through one or a combination of two approaches: presumptive (WAC 173-218-090.1.c.i.A-D) or demonstrative (WAC 173-218-090.1.c.ii.A-E).	Prior to Use	
11.5 Annual Update on Well Status Changes	WAC 173-218-070. 1.b.ii	After initial well registrations have been sent to Ecology, provide an annual update on any well status changes.	Annually	
11.6 UIC Well Decommissioning & Notification Requirements	WAC 173-218-110	Wells must be decommissioned by filling for plugging the well so that it will not result in an environmental, public health or safety hazard, and will not serve as a channel for movement of water or pollution to the aquifer as specified in WAC 173-218-110.3.b.i-ii). Ecology must be notified 30 days prior to decommissioning wells that pose an imminent public health hazard, otherwise notification must occur within one year of closure.	30 days prior to decommissioning or within one year of closure	
Element #12 - Endangered Species Act (ESA)				
12.1 ESA Regional Coordination		The City is a member of the Snohomish River Basin Salmon Recovery Forum. See Element #13 Puget Sound Salmon Recovery Plan for ESA compliance strategies.	Ongoing	The Recovery Forum has 39-members from Snohomish and King Counties, Tulalip Tribes, 15 cities, many special purpose districts and groups.
Element #13 - Puget Sound Salmon Recovery Plan				
13.1 Puget Sound Salmon Recovery Plan Implementation		The City is an active participant in salmon conservation planning and is implementing projects in accordance with Element 13.2. The City is coordinating with other watershed groups as shown in Element 13.3.	Ongoing	
13.2 Snohomish River Basin Salmon Conservation Implementation		The City was an active participant in developing the June 2005 Snohomish River Basin Salmon Conservation Plan published by the Salmon Recovery Forum. Currently the City is pursuing the Qwuloolt/Poortinga Estuarine Restoration Project. This project is listed in the City's October 2006 Shoreline Inventory and Characterization Report, as adopted by ordinance, as Project #9.3.1.	Ongoing	To date, a substantial amount of staff time and approximately 18 acres of City land have been invested in the project.
13.3 Coordination with other Watershed Groups		In the City's October 2006 Shoreline Inventory and Characterization Report, as adopted by ordinance, Project #9.3.3 covers the City's coordination with other watershed groups. Currently, staff time and material are only City resource commitments.		
Element #14 - WRIA #7 Salmon Habitat Recovery				
14.1 WRIA Planning	RCW 90.82	Watershed planning was not conducted in WRIA #7.	N/A	A Phase 1 watershed grant application was prepared, with the Tulalip Tribes and City of Everett as co-leads, but was never perfected. Grant funding was no awarded.

CITY OF MARYSVILLE
STORMWATER MANAGEMENT PROGRAM REGULATORY REQUIREMENTS AND MILESTONE DATES

Stormwater Program Element	Permit Reference /Rule or Law	Activities/BMPs Needed for Regulatory Compliance	Required Implementation by end of:	Notes/Comments/Overlaps
Element #15 - 2007-2009 Puget Sound Water Quality Conservation and Recovery Plan				
Regulatory Authority	RCW 90.71			
15.1 Increase Innovative Techniques Known as Low Impact Development		Adopt policy and/or regulation to allow for or encourage the use of low impact development (LID) techniques.	2007-2009	The City adopted an LID Ordinance in May 2007 to encourage LID.
15.2 Implement Local Comprehensive Stormwater Management Programs		This requirement is partially addressed by NPDES Phase II requirements. The components of local comprehensive stormwater management programs are specified in the 2000 Puget Sound Water Quality Management Plan and are outlined in Element 15.3	2007-2009	
15.3 Local Comprehensive Stormwater Management Program Components from the 2000 Puget Sound Water Quality Management Plan		See comments in Element 15.2. There are 15 components in the plan labeled a-m, which are described here in Elements 15.3 (a) through (m).	2007-2009	
15.3 (a) Stormwater Controls for New Development and Redevelopment		This requirement is consistent with NPDES Phase II requirements and is addressed in Element 5.	2007-2009	
15.3 (b) Stormwater Site Plan Review		This requirement is consistent with NPDES Phase II requirements and is addressed in Element 5.	2007-2009	
15.3 (c) Inspection of Construction Sites		This requirement is consistent with NPDES Phase II requirements and is addressed in Element 5.	2007-2009	
15.3 (d) Maintenance of Permanent Facilities		This requirement is consistent with NPDES Phase II requirements and is addressed in Elements 5 and 6.	2007-2009	
15.3 (e) Source Control		This requirement is consistent with NPDES Phase II requirements and is addressed in Element 6.	2007-2009	
15.3 (f) Illicit Discharges and Water Quality		This requirement is consistent with NPDES Phase II requirements and is addressed in Element 5.	2007-2009	
15.3 (g) Identification and Ranking of Problems		This requirement is not addressed by NPDES Phase II requirements. Watershed or basin planning is consistent with this requirement.	2007-2009	Allen/Quilceda Watershed Plan was completed in 1999. The City did not formally adapt the plan; however, it does participate on the Allen/Quilceda Action Team that is working together to implement the plan.
15.3 (h) Public Involvement and Education		This requirement is consistent with NPDES Phase II requirements and is addressed in Elements 2 and 3.	2007-2009	
15.3 (i) Low Impact Development Practices		This requirement is consistent with NPDES Phase II requirements and is addressed in Element 5. See also Element 15.1.	2007-2009	

CITY OF MARYSVILLE
STORMWATER MANAGEMENT PROGRAM REGULATORY REQUIREMENTS AND MILESTONE DATES

Stormwater Program Element	Permit Reference /Rule or Law	Activities/BMPs Needed for Regulatory Compliance	Required Implementation by end of:	Notes/Comments/Overlaps
15.3 (j) Watershed or Basin Planning		This requirement is not addressed by NPDES Phase II requirements.	2007-2009	The City participated in development of the 1999 Quilceda/Allen Watershed Plan and has representatives on the Quilceda/Allen Watershed Action Team. Plan implementation has been underway for several year and there are currently no projects identified for City implementation or completion.
15.3 (k) Funding		This requirement is not addressed by NPDES Phase II requirements. The City has implemented a stormwater utility to fund stormwater management program expenses and is currently looking at SWM funding approaches as part of this plan update.	2007-2009	
15.3 (l) Monitoring		This requirement is partially covered for program implementation by NPDES Phase II requirements for tracking and reporting consistent with Element 10. Monitoring of environmental conditions and trends over time is not covered by NPDES Phase II requirements and could be met through WRIA, watershed or basin planning.	2007-2009	
15.3 (m) Schedule for Implementation		This requirement is partially addressed for components covered by NPDES Phase II requirements. The current SWMP update will include a recommended implementation schedule.	2007-2009	

Notes:

- Activities are based on the NPDES *and State Waste Discharge General Permit for Discharges from Small MS4s in Western Washington*, issued January 17, 2007 and effective February 16, 2007.
- Year 1 ends February 15, 2008; Year 2 ends February 15, 2009; Year 3 ends February 15, 2010; Year 4 ends February 15, 2010; Year 5 ends February 15, 2011
- "Permit End" means 180 days prior to the expiration date of the permit.
- "2005 Ecology Manual" refers to the Washington State Department of Ecology's 2005 *Stormwater Management Manual for Western Washington*.
- Monitoring requirements vary based on City or County population. Guidelines listed here are for small cities (population between 10,000 and 75,000).

**Appendix 3.2.A
Data Request List**

Memorandum



10230 NE Points Drive
Suite 400
Kirkland, WA 98033
Phone (425) 822-4446
Fax (425) 827-9577

To: Kari Chennault, PE
City of Marysville

From: Joe Simmler and Maureen Knutson

Copies:

Date: October 16, 2007

Subject: Initial SWM Data Request

Project No.: 31099A

Hi Kari:

The following is an initial list of data requested needed to assist in documenting the City's Surface Water Management (SWM) program, performing a regulatory gap analysis, defining future SWM needs, and estimating future utility rates for the City of Marysville. Data that is available in electronic format is preferable, though hard copies are still very useful, where electronic format is not available.

Stormwater Program Management and Financing Information

- Annual City Budgets for 2006 and 2007 (i.e. revenues and expenditures by activity for SWM)
- Existing SWM utility rates, revenues, policies, and ordinances to include:
 - Ordinance setting up SWM utility and rate structure
 - SWM Utility financial forecasts
- Permit review fee structure
- Developer impact fees and/or system development charges
- City's SW Utility billing database, including ERU/development projections for commercial and residential rate payers
- Copy of Annual O&M Plan/O/M standards
- SWM staffing levels, by staff type
- Annual O&M staffing levels, equipment rentals/purchases and costs
- Organization chart for departments involved in stormwater
- Salary ranges for stormwater related staff including benefit costs
- List of any current or requested grants or loans
- List of current contract services or consulting services
- Copies of stormwater-related ordinances
- Any existing local agreements regarding drainage (i.e., lake management districts, WRIAs, ESA, monitoring, etc.)

Stormwater Technical Information

- Stormwater plan or any drainage studies, if available
- Capital Improvement Plan with prioritized list of projects and annualized costs, over the next 6-10 years
- Copy of stormwater design standards and associated policies
- Summary of public education activities (bulletins, brochures, booths, etc)
- Copies of any state violations, including compliance orders, NPDES permits, etc.
- Groundwater and/or Aquifer Protection Plan
- A map of jurisdictional and watershed boundaries in GIS
- Existing and proposed land use and zoning, including GMA areas within the City
- Map and inventory of SWM facilities in GIS, if available
- Public complaint records
- Map/list of drainage/habitat/water quality problem areas
- Number, type, and location of SWM infiltration facilities, per UIC Rule

Regional Planning (as applicable)

- City's ESA Plan or policy statements regarding the City's position on ESA and Section 4(d) rules compliance
- WRIA Watershed Plan and city's commitments and costs for implementation
- 2005 Swamp Creek TMDL Water Quality Improvement Plan for Fecal Coliforms, commitments and annual costs
- Lake or aquatic weed management plans, commitments and annual costs

Other SWM Related Information

- City's Comprehensive Plan
- City's Municipal Code, in electronic format
- City's SWM Drainage Design Manual, if not the 2005 Ecology Manual
- List of SWM related policies, ordinances, and codes
- Surface water quality or lake monitoring programs, commitments and costs
- City's NPDES Phase II MS4 permit
- TMDL water quality requirements, other than coliforms
- Any interlocal agreements used to support the City's existing SWM Program

Appendix 3.2.B
Stormwater Activity Questionnaire

Memorandum



10230 NE Points Drive
Suite 400
Kirkland, WA 98033
Phone (425) 822-4446
Fax (425) 827-9577

To: Kari Chennault, PE
City of Marysville

From: Joe Simmler and Maureen Knutson

Copies:

Date: October 16, 2007

Subject: SWM Activity Questionnaire/Survey

Project No.: 31099A

Abbreviations

City	City of Marysville
SWM	Surface and Stormwater Management
BMPs	Best Management Practices
DOE Manual	Ecology's Stormwater Management Manual for Western Washington (2005)
O&M	Operation and Maintenance
UIC	Underground Injection Control

Program Analysis

1. Describe the results of any self-analysis the City has performed related to its existing SWM Program.
None that I am aware of.
2. Describe any local compliance needs the City has identified.
UIC Rule, NPDES Ph II Permit and TMDLs, local ordinances
3. Describe any associated costs, space, equipment, and funding needs the City has identified.
Additional staff will be needed to perform the requirements in the permit. Specifically, additional inspectors, associated vehicles, monitoring equipment, field computers, survey equipment, GIS and GPS support, etc.
Per Doug Byde- We have identified the need for additional staffing (2 Maintenance Worker I's) to be added in 2008 and the need for additional vehicles (1 Pick up to be used as a follow up vehicle to the vactor) to be added in 2008. In addition, we have identified the need for another vehicle (service body or dump type), to be budgeted for in 2009.
4. Describe any SWM Action Plan/Schedule the City has developed.
Nothing has been developed. We are basically trying to follow the requirements/timelines as outlined in the Permit. A yearly maintenance plan is developed yearly for scheduling purposes.

5. Describe any interlocal agreements the City feels are needed.
We may possibly need an interlocal agreement with the County, Tulalip Tribe, City of Arlington, or the Marysville School District. Right now we only have one to do a small amount of the surface water billing for the City of Arlington. We may possibly need some type of agreement with Ecology to aid with spill response??
6. Describe any local sources of funding the City has identified.
Per Allena: The Water/Sewer/Surface Water fund currently has 5 outstanding revenue bonds. I can give you the dollar amount issued, the issue date, recall date and amount outstanding if you need.
Additionally, the City received a \$75K Ecology grant in 2007.
7. What elements of the stormwater program seem to be working well? What elements have been successfully integrated into the City's "normal" operating procedures?
Numerous parts of the program work well, but may not be in compliance with the Permit. For instance, the City used to annually clean almost all of their catchbasins in the past years, but will now need to reallocate staff to meet permit requirements.
- **The city recently started a recording system to track catch basin and detention facility maintenance.**
 - **We have successfully started billing our utility customers in house, but there are numerous hurdles that we need to target.**
8. Identify any existing stormwater program problems areas and/or needs (i.e. what is not being done, what needs to be done better?)
Currently we have private inspectors for detention facilities, businesses, etc. Our current staff struggle to inspect all public ponds in one year, as well as other storm facilities i.e. vaults, swales, etc. The City currently has numerous private facilities and public facilities due to the annexations. All the required inspections during construction and post construction are not currently being achieved or tracked. We are just starting to try to develop an IDDE program. As far as monitoring, we do ambient monitoring at 6 sites, but our QAPP has not yet been approved by Ecology for our TMDL requirements.
9. What elements of the stormwater program pose the most challenge to City Staff? What elements are most disruptive to daily activities?

Day to day complaints make it difficult to do reoccurring maintenance or develop additional programs. We only have 2 construction inspectors for the entire City and they do the inspection of all utility installations. It will also be costly and time consuming to implement the IDDE program. Organizing the MMC will be a challenge. The inspections/maintenance required in the Permit may be hard to meet. We need to create a written process for our utility billing procedures.

Public Education and Involvement

10. Describe the City's stormwater education and outreach strategy?
In the past we had paid the Stilly Snohomish Fisheries Enhancement Task Force to lead an elementary education program. We would like to not have to rely on another entity in the future. The City recently supported an Ecology grant application developed by Snohomish County.
11. Does the City...
- a. Develop and/or distribute any PIE brochures?
We have a variety of brochures in our kiosk i.e. car washing, WNV, Pet Waste, etc.
 - b. Have a storm drain stenciling program?
No
 - c. Contact the school districts to discuss opportunities to provide water quality educational materials?
We purchased educational material and equipment and tried to contact schools, but had very little interest from them in using it.
 - d. Provide water quality educational materials when requested?
We have very little interest from the schools. We may need to target a different audience or develop a different way of targeting the schools.
 - e. Contact volunteer organizations to discuss opportunities to integrate stormwater into existing education projects?
We have interested scout groups, etc., but do not have \$ or staff time budgeted to help them with their projects.
 - f. Have a stormwater speakers' bureau?
No
 - g. Broadcast stormwater public service announcements in the media or distribute news releases?
No
 - h. Display stormwater exhibits at community locations?
We have a bulletin board that we bring to City events i.e. Homegrown Festival, Strawberry Festival, etc.

- i. Have a stormwater web site or post SWM Program information on the City's web page?
Yes
 - j. Measure understanding and effectiveness of its public outreach efforts?
No, but something will have to be developed.
12. Describe public meetings the City holds to solicit input on stormwater related issues.
As far as the adoption of surface water documents, ordinances, etc., the City requires Council approval and the decision would be open to public opinion at the Council workshops and meetings.
13. Is there a stakeholder advisory panel related to stormwater? How does the advisory panel provide input to the City?
The Allen/Quilceda Watershed Action Team is comprised of Department of Ecology staff, City of Arlington staff, Snohomish County staff, Tulalip Tribe staff, WDFW staff, Stilly-Snohomish Fisheries Enhancement Task Force staff, Conservation District staff, City of Marysville staff, and citizens in the watershed. The group meets every other month to discuss issues in the watershed. The group was originally created to implement the actions identified in the 1999 Quilceda/Allen Plan prepared by the County. Currently the group is rarely used to provide input to the City.
14. Describe the City's system (phone number, website, etc) for logging public complaints related to stormwater, including illegal dumping, spills, illicit connections, or problems with construction site runoff? How is the system advertised? How does the City respond to calls from the public?
Currently we don't have a defined system. We have a main phone number that can also be used after hours. We also have information on our City web page with contact information for questions. Except for the phone book, our phone number is not currently advertised. We have tried to use ASIST software to log public complaints, but it has been too time consuming. We have a small Access Database that our Customer Services Rep uses to log calls.
15. Does the City pass public complaints related to construction site runoff to field inspectors?
Typically, but sometimes it is hard to determine if it is an issue for the Building Department or the Community Development Department.

Illicit Discharge

16. Describe the extent of the City's storm sewer system map? What format is it in?
We have a majority of the City's storm system mapped in mapping grade with x and y coordinates in ArcMap. We have no ditches or roadside

culverts mapped. We have a majority of the stream culverts identified and described. We have not identified all outfalls, and have only made guesses as to where they are located. Some private storm systems have also been input into GIS.

17. Describe any City ordinances prohibiting illicit discharge on private property or discharge of waste to the public stormwater system? How is the ordinance enforced?

The MMC makes reference to these activities (Chapters identified in supplemental material), but we will need to update the code to make sure there are not any conflicts, as well as to ensure enforcement authority.

18. Describe the City's inspection program for known outfalls or other alternate methods used for identifying unauthorized discharges to the public system?

We have just currently started to try to develop and employ an IDDE program.

Per Adam Bailey: The City of Marysville's target is to inspect 42 outfalls annually during dry weather months (June-Sept). If flow is observed at an outfall during dry weather a sample will be taken and in house analysis will be run on the sample. In the event that an outfall cannot be found or reached, the catch basin nearest the outfall will be inspected by city staff and, if need be, sampled to determine ammonia, potassium, surfactant, fluoride and/or boron values. Sites with samples containing high values will be inspected more thoroughly to determine the cause or causes of the high values and actions will be taken to remedy the cause or causes. **(We don't have a procedure in place to remedy the ID, or staff and funding in place).** If staff believe there to be other substances present in water flowing from an outfall or in a catch basin, (oil, grease, gasoline etc.) the appropriate analysis will be performed by a state accredited lab to determine exact values. It is the City's hope to have all outfalls inspected in 3 years.

In the summer of 2007 city staff conducted inspections at 13 outfalls/catchbasins. Samples were taken back to the Marysville Waste Water Treatment Plant laboratory and in house analysis was run to determine ammonia, potassium, surfactants, fluoride and boron values.

19. Describe the City's spill response plan.
If we receive a complaint call, we respond. If Ecology needs to be notified, we call their spill report hotline.
20. What other entities does the City rely on for spill response assistance?
The Department of Ecology and possibly Snohomish County depending on the location of the spill.
21. Describe the training program the City provides to educate staff about spills and illicit discharges?
We do not currently have a training program in place.

Construction Site Runoff Control

21. Does the City have an ordinance outlining...
- a. erosion and sediment control requirements for construction sites?
Yes, but it needs to be revised to be consistent with the Manual.
 - b. post-construction stormwater runoff (water quality and detention)?
Yes, but it needs to be revised to be consistent with the Manual.
22. When were the ordinances last updated?
They are basically piecemealed and need to be reviewed and revised. Brooke Heichel is currently reviewing the code looking for references to surface water and for inconsistencies.
23. Does the City have a design manual outlining BMPs for stormwater quantity control and water quality treatment? When was it adopted/last updated?
We are currently utilizing the 2001 Ecology Manual.
24. Are the design standards for erosion control and post-construction runoff equivalent to the DOE Manual?
They should be. We just did an update to our EDDS in 2007.
25. Describe the City's review process for site plans prior to construction to ensure compliance with...
- a. the erosion control ordinance
Per John Cowling - During construction plan review, the City's development review staff ensure TESC plans and Stormwater Pollution Prevention Plans are consistent with the recommended BMP's in the adopted 2001 DOE Stormwater Management Manual. Erosion Control review is done by a combination of CESCL construction inspectors and review engineers.
 - b. the post-construction runoff ordinance and design manual
Per John Cowling - During construction plan review, the City's development review staff ensure the post construction design for all surface water elements are consistent with the requirements of the 2001 DOE Manual and City storm drainage standards.

Does the City inspect all construction sites that are regulated by the erosion control ordinance? **Per John Cowling -** Yes, inspection is completed by CESCLs.

Describe the City's inspection program related to BMPs installation and maintenance during construction. **Per John Cowling -** TESC inspection is done throughout the construction period of a development project until completion, necessary adjustments and changes are made as recommended by the inspector.

How do private developers respond to the City's erosion control and stormwater runoff control guidelines? Are BMPs typically designed to meet the standards? **Per John**

Cowling - Developments generally design and install all BMP's required per the approved TESC & SWPPP. Compliance throughout the project period is required by the City inspector. BMP's used for erosion control are directly from the approved stormwater manual.

26. Describe the training opportunities the City provides to construction operators and City staff on local erosion control BMPs?

Our Construction Inspectors are trained as CESCLs.

27. Does the City provide or sponsor any such training?

We hosted the CESCL training last year.

Operation and Maintenance

28. Does the City have a Municipal Operation and Maintenance (O&M) Plan? When was it last updated?

In 2006 a draft O & M plan was put together that basically reiterated the requirements in the Permit.

29. Describe how O&M practices and frequency are tracked and recorded.

The City recently started tracking catch basin cleaning and pond inspections. Other than that, we don't have a formal tracking procedure for other storm operation and maintenance procedures.

30. Does the O&M Plan cover...

- a. equipment washing practices? **No**
- b. dust control? **No**
- c. catch basin cleaning? **Yes, but not detailed**
- d. street sweeping? **Yes, but not detailed**
- e. deicing and snow removal? **Yes, but not detailed**
- f. waste disposal? **No**

31. Describe how O&M practices are implemented. Are practices and frequency per the O&M Plan? **The Draft O & M Plan was compiled in 2006, prior to Permit implementation. The O & M Plan has not been implemented and will need to be reviewed and updated.**

32. Which areas of the O&M Plan are the hardest to follow and why? **N/A**

33. Which areas of the O&M Plan need further definition and/or guidelines to be effective? **The O & M Plan does not have any specifics. It basically lists what the**

needs are, but not how to achieve the needs. It will need to be reviewed and updated.

34. Describe park and open space O&M practices. Are practices and frequency implemented per the O&M Plan?

Mike Robinson to respond...

35. Describe the City's O&M waste disposal procedure.

Per Kyle Anderson - When you add the street sweepers , the storm Vactor while cleaning storm grids , the material generated during pond mucking , the material from ditching , more material hauled in from construction sites , and last of all the leafy material from fall deciduous trees , we are looking at 2500 to 3000 yards of material each year . The leaves are handled and stored from October to April for composting, we screen the ditching material and the grass and sod is added into the composting dome where our leaves are kept. After April all of this material is screened one last time and hauled into fenced storm pond sites and added on top of the berms to promote grass, and also to make mowing easier, we also store some at ponds we will be working and mucking to make them more pleasant looking after our machinery has worked the site. What is left of the non-contaminated soil is screened and put out as clean-backfill material. The sweeper material is screened at first with all the garbage going into garbage dumpsters, then to a land fill. The dirt/soil is added to Vactor grit and put under a dry storage area, after three to four more screenings this clean dirt is moved to a larger dome which holds 400 yards. This large pile is then sampled and sent to a lab for testing, then we haul the cleaned soil to a soil contractor, they add additives and sell the material.

Additional input per Kyle Anderson - Another way I'm reading the question is what is done with the storm-water ? Yes the Vactor truck has to de-water 2 -4 times each day, and there could be an issue with the high volume of suspended sediment in the tank since all the material goes up into the tank at 100 m.p.h. I've asked the crew to haul all material collected in the downtown area, and any other areas where the water will head right to a stream to only decant here at the shop. Then everything in the vactor drains thru decant into the oil separator and then it's all discharged into the sewer treatment plant. The only time we decant in the field is in areas that contain ponds or vaults and are city owned.

36. Describe the City's street sweeping procedure. **Sent separately.**
37. Describe any major upcoming O&M equipment purchases the City anticipates.

Per Doug Byde - Purchase of the new vactor truck in 2007 to be used primarily for sewer cleaning maintenance, but will be available as a back up on the stormwater system. Also purchasing the new storm and sewer camera/recording system in 2007.

In talking to other maintenance staff, we also need to purchase a pump. We don't own a track hoe, so we may need to weight the costs of rental and maintenance against purchasing one of our own.

38. Describe any O&M training for employees provided by the City.
Per Doug Byde - Certified Erosion and Sediment Control Lead (CESCL) training was provided for Kyle Anderson and Paul Kinney in May 2007.

Tracking and Reporting

39. Are there pollution prevention and management plans for all municipal facilities?
No
40. Are industrial (stormwater) permit applications submitted as needed?
?
41. Who in the City is responsible for NPDES permitting?
?
42. Describe the system the City uses to track, document, and report regulatory activities to the Department of Ecology.
We utilize the 1-800 number to report spills and document the actions taken by the City to remedy the problem. As far as I know, there is no formal system.

Underground Injection Control Rule

43. How many infiltration facilities are publicly owned? How many privately owned?
Our GIS mapping currently shows that there are 2 private facilities that are tagged as infiltration and 4 public. I anticipate there are more and we would need to pull asbuilts to confirm.
44. Are publicly owned infiltration facilities located, mapped, and registered?
Located and mapped, but not registered.
45. Is the area draining to drywells documented by land use?
We have a land use layer cover that we could apply, but we currently don't have any maps.
46. Does the City have a risk-based strategy for permitting/approving future stormwater infiltration systems (based on soils, groundwater, drinking water wells, etc)? Are there design standards for locating and constructing infiltration facilities?
Per the Ecology Manual.
47. Does the City have an ordinance relating to UIC? When was it last updated?
Not that I know of.
48. How does the City enforce construction standards for infiltration facilities?
Same as it does with all other construction.
49. Do public systems receive annual maintenance after construction is complete?

- No, our current goal is annual inspection, and maintenance as needed.**
50. What is the City's pollution prevention plan for public infiltration systems?
?
51. Has the City identified existing publicly owned infiltration systems in areas of high risk for groundwater degradation?
Not that I am aware of.
52. Does the City have a written plan for the management and/or replacement strategy that will reduce pollutant loading to groundwater in high-risk areas? (If so, please provide a copy of the management plan.)
53. **Not that I am aware of.**
54. If applicable, which of the following elements are included in the replacement strategy: monitoring, effectiveness assessment, report preparation, enhanced O&M, source control, spill control/response, opportunistic retrofits?
N/A
55. Describe any UIC training for staff the City provides?
None
56. Does the City participate in any regional interlocal agreements relating to UIC?
Not that I am aware of.
57. Does the City report to the Department of Ecology regularly concerning UIC?
Not that I am aware of.

Environmental Species Act

58. Does the City assess stormwater impacts to habitat when making land use decisions?
Per Cheryl Dungan - The City adopted the 2001 DOE Stormwater Manual which requires pre-treatment of stormwater prior to discharge in critical areas such as wetlands and streams and their associated buffers. Additionally, Chapter 19.24 MMC "Critical Areas Management" prohibits the construction of stormwater ponds with critical areas and their buffers. Bioswales are permitted in the outer 25% of required buffers provided the applicant can demonstrate the bioswale will not have a negative impact on the function and purpose the buffers serve for the critical area.
59. Describe policies in place to reduce stormwater runoff, reduce impervious surfaces, and retain native vegetation?
Per Cheryl Dungan - The City of Marysville 2005 Comprehensive Plan contains multiple policies which address stormwater runoff; impervious surface and retention of native vegetation and are contained within the attached excerpt from the plan. **(Sent separately)**
60. Does the City participate in interagency surface water quality strategy coordination?

We coordinate the location of our sampling sites with the County, Tribe, and Arlington.

Other Water Quality/TMDL Issues

61. Have any TMDLs been identified for receiving waters in the City? If so, are stormwater outfalls allocated a load in the TMDL?

Snohomish River Tributaries – Fecal Coliform. There is not a load allocation that I am aware of.

62. Describe the City's participation in the development of TMDLs for receiving waters?
?

63. Describe the City's efforts to monitor the quality of outfall discharges to impaired waters?
The City has recently tried to start an IDDE program that is focusing on outfalls, although the outfalls have been hard to locate in the field and are not running.

64. Describe the City's participation in any local or regional programs to monitor baseline conditions and evaluate surface water program effectiveness?
?

Please identify any other stormwater programs, issues, needs, or concerns that you feel should be considered in developing a SWM Plan for the City.

We need a new way to track maintenance, complaints, billing, etc.

**Appendix 3.2.C
Summary of Existing
Surface Water Management Program**

CITY OF MARYSVILLE																
SUMMARY OF EXISTING STORMWATER MANAGEMENT PROGRAM																
Stormwater Program Element	Permit Reference/Rule or Law	Current Stormwater Activities	Legal Authority/Ordinances	Responsibility		Annual Level of Effort		Annual Level of Expenditure to the Storm Drainage Fund		Annual Level of Effort from Other Funds		Annual Level of Expenditures to Other Funds			Comments/Need for Enhancement	
				Lead Department	Manager and Assigned Staff	FTE	Hours	Labor (w/benefits)	Expense	FTE	Hours	Labor (w/benefits)	Expense	Fund Allocation		
Element #1 - NPDES Phase II Permit (Permit) Element #S5.A and S5.B, Program Implementation Annual Program/Plan																
1.1	SWMP Implementation	S5.A.1	The City's SWMP activities are documented in Elements 2-6. In some areas progress has been made toward meeting the terms of the NPDES Phase II permit.													Compliance is achieved by conducting the activities outlined in Elements 2-6.
1.2	SWMP Documentation	S5.A.2	The City has a published document of the SWMP activities.		Public Works	Surface Water Program Engineer and/or Surface Water Technicians	0.10	208	\$7,730							Compliance is achieved through timely submittal of annual reports, Element 10.1. The estimated annual FTE for this element is 0.1 for surface water staff.
1.3	Program Tracking	S5.A.3	The City has some tracking mechanisms for Element 2-6.													The City has not conducted any formal studies to evaluate SWMP effectiveness. Compliance is achieved through timely submittal of annual reports, Element 10.1 and ongoing tracking in Element 10.2.
1.4	Coordination Among Permittees	S5.A.5	No program in place.													Include in the SWMP stormwater management activity coordination mechanisms as needed among: -other municipal stormwater NPDES Phase II permittees within adjoining or shared areas to clarify roles and responsibilities for pollutant control and to avoid conflicting plans, policies and regulations. -departments within each jurisdiction to eliminate barriers to compliance.
1.5	MEP and AKART	S5.B	Compliance is achieved through implementation of existing SWMP activities and the activities outlined in Elements 2-6.													The shall ensure they reduce the discharge of pollutants to the maximum extent practicable (MEP) and shall use all known, available, and reasonable methods of prevention, control and treatment (AKART) to prevent and control pollution of waters of the state of Washington.
SWMP Implementation TOTAL							0.10	208.00	\$7,730	\$0	0.00	0.00	\$0	\$0		
Element #2 - Permit Element #S5.C.1, Public Education and Outreach																
2.1	Outreach to All Target Audiences	S5.C.1.a	In the past, the City has paid the Stilly Snohomish Fisheries Enhancement Task Force to lead an elementary education stormwater program. The City would like to conduct its own public education in the future. The Allen Quilceda Watershed Action Team and the Marysville School District worked together in dedicating 11.53 acres of a School District owned parcel adjacent to Jones Creek to be used for the purpose of environmental education, including stormwater. The City of Marysville also has water quality equipment that it will loan free of charge to school districts in Marysville for education purposes. The City currently has informational brochures available for the public regarding such things as how to reduce impacts from car washing and pet waste. The City also recently coordinated with local businesses to develop a Clean Water Car Wash Kit.		Public Works	Surface Water Program Engineer and/or Surface Water Technicians	0.10	208	\$7,730	\$10,000						The City has purchased education material and equipment in the past to be used in the school system for stormwater education. There was little interest from this target group. There has been interest by the boy and girl scouts, but there is no current staff resources. There is potential for growth in the existing outreach programs including developing a stormwater stenciling program. The City is aware of the lack of knowledge among local businesses regarding the proper best management practices for the storage of hazardous chemicals. The City plans to compile a list of pertinent businesses then develop and distribute an educational flyer to each one. The annual FTE for this element is estimated to be 0.1 for surface water staff. The estimated cost to meet permit requirements has been included in the 2008 budget at \$10K from the Operating Permits-Water Stormwater Drainage Fund #40145040 553100.
2.2	Measure Results of the Educational Activities	S5.C.1.b	No program in place.													The City will need to develop and implement this activity as part of compliance with its Phase II permit.
2.3	Maintain Records	S5.C.1.c	No program in place.													The City will need to develop and implement this activity as part of ongoing tracking activity required for compliance with its NPDES Phase II permit.
Public Education and Outreach TOTAL							0.10	208.00	\$7,730	\$10,000	0.00	0.00	\$0	\$0		
Element #3 -Permit Element #S5.C.2, Public Involvement and Participation																
3.1	Input into SWMP	S5.C.2.a	The City requires Council approval for the adoption of the Surface Water Management Plan, ordinances, etc. The documents are made available for public review and comment at Council workshops and meetings. There is also a stakeholder advisory panel related to stormwater called the Quilceda/Allen Watershed Action Team that is comprised of staff from the Department of Ecology, City of Arlington, Snohomish County, Tulalip Tribe, Stilly-Snohomish Fisheries Enhancement Task Force, Conservation District, City of Marysville and citizens of the watershed. The City hosts the group meetings every other month to discuss issues in the watershed and was originally created to implement the actions identified in the 1999 Quilceda/Allen Plan prepared by the County. Currently the group is rarely used to provide input to the City. This year the City posted the SWMP on their website and advertised in the newspaper. No comments received.		Public Works	Surface Water Program Engineer and/or Surface Water Technicians	0.05	104	\$3,865	\$5,000				\$500	Utility Admin Fund (UAF)	The City needs to provide more opportunities for the public to be involved in its SWMP planning, development and implementation activities. The City may consider establishing a city wide stakeholder advisory panel related to stormwater that can provide input. The estimated cost to meet permit requirements has been included in the 2008 budget at \$5000 from the Operating Permits-Water Stormwater Drainage Fund #40145040 553100 and at \$500 for advertising from the Advertising-Utility Fund #40143410 544000. The annual FTE for this element is estimated to be 0.05 for surface water staff. In some cases, time spent being involved with the Action Team becomes over head costs for the City.
3.2	Availability of Stormwater Program Documents	S5.C.2.b	The City currently posts stormwater program information on its website.		Public Works	Surface Water Program Engineer and/or Surface Water Technicians										In compliance with Phase II requirements, the City has posted its SWMP, Annual Report, and other required NPDES Phase II permit submittals on its website.
Public Involvement TOTAL							0.05	104.00	\$3,865	\$5,000	0.00	0.00	\$0	\$500		

CITY OF MARYSVILLE																
SUMMARY OF EXISTING STORMWATER MANAGEMENT PROGRAM																
Stormwater Program Element	Permit Reference/Rule or Law	Current Stormwater Activities	Legal Authority/Ordinances	Responsibility		Annual Level of Effort		Annual Level of Expenditure to the Storm Drainage Fund		Annual Level of Effort from Other Funds		Annual Level of Expenditures to Other Funds			Comments/Need for Enhancement	
				Lead Department	Manager and Assigned Staff	FTE	Hours	Labor (w/benefits)	Expense	FTE	Hours	Labor (w/benefits)	Expense	Fund Allocation		
Element #4 - Permit Element #S5.C.3, Illicit Discharge Detection and Elimination																
4.1	Storm Sewer System Map	S5.C.3.a	The City currently owns a Trimble Pathfinder Professional sub meter Global Positioning System. Using this system over the past five years, the City has the majority of its storm sewer system, including 50% of structural BMPs, mapped in ArcGIS in mapping grade with x and y coordinates. The City has not mapped ditches or roadside culverts; however, the City does have a majority of the stream culverts identified and described. The City has not identified all outfalls and has made educated guesses regarding their locations. Some private storm sewer systems have been mapped in ArcGIS.		Community Development	GIS Analyst, GIS Administrator						0.15	312	\$11,595	Planning Fund (PF)	The City is making good progress on system mapping and will need to ensure that mapping includes tributary drainage areas mapped from previously delineated drainage areas by Snohomish County and LIDAR data sources. The storm sewer system map of all 24-inch nominal diameter outfalls needs to include: tributary conveyance (type, materials, size) and land use associated with the outfalls. This element is paid for out of Community Development. The annual FTE for this element is estimated to be 0.15 for the GIS Analyst (0.1 FTE) and the GIS Administrator (0.05 FTE).
4.2	Illicit Discharge Ordinance	S5.C.3.b	The MMC makes reference to prohibiting illicit discharge on private property or discharge of waste to public stormwater systems.	Marysville Municipal Code (MMC) 14	Public Works	Surface Water Program Engineer and/or Surface Water Technicians	0.05	104	\$3,865							The City needs to update its code to ensure consistency with the NPDES Phase II permit. The annual FTE for this element is estimated to be 0.05 for surface water staff.
4.3	Detection and Elimination Program	S5.C.3.c	The City's target is to inspect 42 outfalls annually during dry weather months (June-September). If flow is observed during dry weather then a sample will be taken and in house analysis will be run on the sample. In the event that an outfall cannot be found or reached, the catch basin nearest the outfall will be inspected by city staff, and if need be, sampled to determine ammonia, potassium, surfactant, fluoride and/or boron values. Sites with samples containing high values will be inspected more thoroughly to determine the cause or causes of the high values and actions will be taken to remedy the cause or causes. It is the City's goal to have all outfalls inspected in 3 years. During the summer of 2007, 13 outfalls (or catch basins) were inspected and samples were collected. The City currently uses the "ASIST" software program to track the stormwater program activities including tracking outfalls.		Public Works	Surface Water Program Engineer and/or Surface Water Technicians	0.20	416	\$15,460	\$40,000						This is an area that will need significant attention during the NPDES Phase II permit term. The City needs to develop and implement a comprehensive and on-going Illicit Discharge Detection and Elimination Program. The annual FTE for this element is estimated to be 0.2 for surface water staff. The estimated cost to meet NPDES Phase II permit requirements has been included in the 2008 budget at \$40K from the Operating Permits-Water Stormwater Drainage Fund #40145040 553100. The majority of this funding is used to purchase equipment.
4.4	Public Education and Spill Reporting	S5.C.3.d	The City will respond to a reported spill. If Ecology needs to be notified, the City follows up with their spill report hotline. The City has published a brochure that outlines inappropriate house hold habits including dumping oil or other automotive liquid and pet waste and makes magnets available to the public that provides information on how to report a spill. EDS Chapter 4 provides some guidance on spill prevention techniques and oil control devices.	Engineering Development Standards (EDS) Chapter 4	Public Works	Surface Water Program Engineer and/or Surface Water Technicians	0.05	104	\$3,865							The public education aspect of this task will need greater attention to comply with the NPDES Phase II permit. The annual FTE for this element is estimated to be 0.05 for surface water staff.
4.5	Program Evaluation, Assessment, and Tracking	S5.C.3.e	No program in place.		Public Works	Surface Water Program Engineer and/or Surface Water Technicians	0.05	104	\$3,865							This element should be included as on-going tracking in Element 10.2. An IDDE program evaluation system will need to be developed to meet NPDES Phase II Permit requirements. The annual FTE for this element is estimated to be 0.05 for surface water staff.
4.6	Staff Training & Records Maintenance	S5.C.3.f	No program in place.													The City will need to develop and implement a training program for staff and maintain records for compliance with NPDES Phase II permit requirements, site inspection and illicit discharge identification and provision for adequate FTE's to support a proactive program.
Illicit Discharge TOTAL							0.35	728.00	\$27,055	\$40,000	0.15	312.00	\$11,595	\$0		
Element #5 - Permit Element #S5.C.4, Controlling Runoff from New Development, Redevelopment, and Construction Sites																
5.1	Stormwater Runoff Control Ordinance	S5.C.4.a	The extent of a stormwater runoff control ordinance is covered in MMC 14.15 Stormwater Drainage Code. This section of the code adopts the 2001 Ecology Manual (DOE Manual) for Western Washington which provides flow control and water quality treatment requirements. The City is currently working on reviewing the code for references to stormwater and any existing inconsistencies with the 2005 Ecology Manual. The City has an LID ordinance which adds a new LID Section of the MMC (19.49).	MMC 14.15 and MMC 19.49												Because the City drainage requirements are nested within the Sewer/Water section of the Code, the City may want to consider creating a separate code section for stormwater. The City will need update their code to adopt the 2005 DOE manual and implement all the provisions related to development.
5.2	Site Plan Review and Permitting	S5.C.4.b	During construction plan review, the City's development review staff ensure TESC plans and Stormwater Pollution Prevention Plans are consistent with the recommended Best Management Practices in the adopted 2001 Ecology Manual. Erosion Control review is done by a combination of CESCL construction inspectors and review engineers.		Community Development	Engineering Services Manager, Community Development Director, Associate Engineer II, Code Enforcement Officer, Associate Planner, Construction Inspector, Construction Inspector Supervisor	0.40	832	\$30,920			0.31	645	\$23,963	PF	This is an area where the City has a strong program. As the City updates its stormwater runoff control ordinance, it will need to review its plan review and permitting procedures to ensure they are adequate to address any new requirements including those in the 2005 Ecology Manual. The site plan review and permitting costs are paid for by permit fees and is not shown as a cost to the SWM Program. The annual estimated FTE for this element is 0.72 for the Engineer Services Manager (0.13), Community Development Director (0.14), Associate Engineer II (0.08), Code Enforcement Officer (0.16), Associate Planner (0.09), 0.12 FTE for the Construction Inspector (0.15) and the Construction Inspector Supervisor (0.02).

**CITY OF MARYSVILLE
SUMMARY OF EXISTING STORMWATER MANAGEMENT PROGRAM**

Stormwater Program Element	Permit Reference/ Rule or Law	Current Stormwater Activities	Legal Authority/ Ordinances	Responsibility		Annual Level of Effort		Annual Level of Expenditure to the Storm Drainage Fund		Annual Level of Effort from Other Funds		Annual Level of Expenditures to Other Funds			Comments/Need for Enhancement
				Lead Department	Manager and Assigned Staff	FTE	Hours	Labor (w/benefits)	Expense	FTE	Hours	Labor (w/benefits)	Expense	Fund Allocation	
5.3 Long Term Operation and Maintenance	S5.C.4.c	During construction plan review, the City's development review staff ensure the post construction design for all surface water elements are consistent with the requirements of the 2001 DOE Manual and City stormwater drainage standards. Maintenance responsibility for private facilities are provided in MMC Section 14.17.040. The City has the legal authority to enforce its existing long term operation and maintenance requirements. In the MMC Chapter 14.15, 14.16 and 14.17 discuss the responsibility for maintenance of stormwater facilities.	MMC 14.17.040, 14.15, and 14.16	Community Development											There is no established formal maintenance inspection program for post-construction of private stormwater facilities. The City will need to increase its maintenance program to address NPDES Phase II permit requirements to inspect new water quality and flow control facilities in developments every 6 months during building construction. The existing basic O&M Plan does not include equipment washing practices, dust control procedures, waste disposal, or deicing and snow removal procedures. In 2006 a draft O & M plan was written prior to the NPDES Phase II permit implementation that basically reiterated the requirements in the NPDES Phase II permit but has not been implemented and will need to review and updated. This O&M Plan lists what the needs are, but not how to achieve it. See Element 6.2 for annual inspection costs for public water quality and flow control facilities.
5.4 Record Keeping for Inspection and Maintenance Activities	S5.C.4.d	The City uses a tracking system in Excel to track inspection and maintenance activities for new development, redevelopment and construction sites.													Existing record keeping and maintenance practices will need to be reviewed to determine if they are sufficient to meet the City's annual reporting needs in Element 11.
5.5 NOI for Construction Activity	S5.C.4.e	NOI are available in hard copies at the City of Marysville Community Development/Public Works front counter and on the City's web page. NOI are not given out at the pre-application meeting.													The City may consider to begin making the NOI available to developers as part of the development review process.
5.6 Staff Training & Records Maintenance	S5.C.4.f	Both construction inspectors are trained in CESCL. The City hosted the CESCL training in 2006. The City's two inspectors on staff also that inspects development sites under construction that are trained in proper installation and maintenance of required erosion and sediment controls.		Community Development											Training records will be addressed in ongoing tracking in Element 10.2. The City will need to conduct training for staff in permitting, plan review, construction site inspection, and enforcement concerning the Stormwater Runoff Control program (Element 5.1), when applicable. This element is funded through Community Development.
Controlling Site Runoff TOTAL							0.40	832.00	\$30,920	\$0	0.31	644.80	\$23,963	\$0	
Element #6 -Permit Element #S5.C.5, Pollution Prevention and Operation and Maintenance for Municipal Operations															
6.1 Establish Maintenance Standards	S5.C.5.a	In December 2006 the City of Marysville published the draft Pollution Prevention and Operation and Maintenance for Municipal Operations, Operation and Maintenance Plan. Please see comments in Element 5.3 for further details on the DRAFT O&M Plan.													The City will need to ensure the O&M standards are consistent with the DOE Manual as part of compliance with its NPDES Phase II permit requirements.
6.2 Annual Inspections of Water Quality and Flow Control Facilities	S5.C.5.b	The City recently started tracking catch basin cleaning and detention pond inspections. Currently there are over 215 stormwater treatment and flow control facilities that the City is responsible for the maintenance of. The City's 2008 Surface Water Budget repairs and maintenance expenditure covers all costs in Element 5.		Public Works	Surface Water Staff, Maintenance Workers, Lead Workers, Heavy Equipment Operator, Water Quality (WQ) Manager and Additional WQ and WWTP Staff	2.72	5,658	\$210,254	\$102,000	1.09	2,272	\$84,450	\$48,127	PF, UAF, Maintenance of General Plant Fund (MGPF), Maintenance Equipment Fund (MEF)	The 2008 budget expense represent Repairs and Maintenance Planning Fund #40143210 548000 (\$780), Repair and Maintenance Utility Admin Fund #40143410 548000 (\$1,000), Repairs and Maintenance of General Plant Fund#40143780 548000 (\$2,300), Facilities Maintenance of the Maintenance General Plant Fund #40143780 598100 (\$23,460.92), Interfund Repairs and Maintenance of the Maintenance Equipment Fund# 40143880 598000 (\$20,568.38), Repairs and Maintenance Stormwater Drainage Fund#40145040 548000 (\$102,000). The estimated annual FTE for this element is and includes Water Quality Manager (0.15 FTE), WWTP Maintenance Lead (0.022 FTE), 3 WW Maintenance Tech I (0.066), Water Quality Assistance (0.022), 3 WWTP Operators (0.164), WWTP Operations Lead (0.022), Water quality/filtration Lead (0.022), Meter Reader/Repairs (0.021 FTE), Water Quality/Cross Connection (0.022), 18 maintenance workers (2.13 FTE), 5 leader workers (0.58 FTE), surface water staff (0.1 FTE), and two heavy equipment operators (0.51 FTE). There are some minor FTE allocation for various staff not listed here, but included in the total FTE.
6.3 Spot Checks after Storm Events	S5.C.5.c	The maintenance crews use their judgment regarding spot checks of stormwater facilities after storm events. There is no formal tracking program in place.		Public Works	Operations Manager										The City will need to ensure that its spot checks after storm events practices are consistent with NPDES Phase II permit requirements and the O&M standards established in Element 6.1. The estimated annual FTE for this element is included in Element #6.2.
6.4 Catch Basin Inspection	S5.C.5.d	The City has annually cleaned almost all of the 6,500 total catch basins in the past years, but the City believes they will now need to reallocate staff to meet permit requirements. The City has been separated into 5 grids for catch basin cleaning purposes. The City hopes to clean one section of the grid per year.		Public Works	Operations Manager										The City's catch basin inspection and maintenance program may need to be reevaluated in light of new maintenance responsibilities under the NPDES Phase II permit and the potential needs to reallocate of existing resources.
6.5 Road Maintenance to Reduce Stormwater Impacts	S5.C.5.f	As a part of the draft O&M Plan the City has implemented the following road maintenance practices: street sweeping (20 sweeping routes throughout the City), ditch maintenance, dust control, and deicing and snow removal. The City has an extensive waste disposal procedure that includes street sweeping, vector waste and leaf litter. The City has a street sweeping schedule that includes sweeping all the routes once a week. All collected leaves are composted of waste collected during street sweeping (October to April). After April all remaining material is screened one last time and hauled into fenced stormwater pond sites and added on top of beams to promote grass growth. The remaining material that is non-contaminated is screen and used as clean back-fill material.		Public Works											The City will need to ensure that its road maintenance practices are consistent with NPDES Phase II permit requirements and the O&M standards established in Element 5.1. The estimated annual FTE for this element is included in Element 6.2. The estimated annual FTE for this element is included in Element 6.2.

CITY OF MARYSVILLE

SUMMARY OF EXISTING STORMWATER MANAGEMENT PROGRAM

Stormwater Program Element	Permit Reference/ Rule or Law	Current Stormwater Activities	Legal Authority/ Ordinances	Responsibility		Annual Level of Effort		Annual Level of Expenditure to the Storm Drainage Fund		Annual Level of Effort from Other Funds		Annual Level of Expenditures to Other Funds			Comments/Need for Enhancement
				Lead Department	Manager and Assigned Staff	FTE	Hours	Labor (w/benefits)	Expense	FTE	Hours	Labor (w/benefits)	Expense	Fund Allocation	
6.6	Non-Roadway Property Maintenance to Reduce Stormwater Impacts	S5.C.5.g	Current non-roadway maintenance activities focus on parks and open space maintenance. Marysville Parks and Recreation has a great deal of park and open space. These areas are enhanced at times by providing native tree and other natural vegetation by hosting volunteers projects, who plant the trees and other plant material. The City utilizes the crews from the Department of Corrections to remove noxious weeds in these areas to encourage the growth of natural vegetation. Dangerous trees are also removed from these areas when they pose a danger to adjacent property owners or other formal features of the park. Creek and watershed corridors are set back from formal sections of the park and the City provides buffers of natural vegetation to grow there to protect the stream channel. The City provides signage in these transition areas to inform the public about the sensitivity of the areas they are trying to protect.		Parks and Recreation										The current non-roadway property maintenance include some practices to reduce stormwater impacts. Some areas to improve practices include: trash management, dust control, equipment washing, and building exterior cleaning and maintenance for publicly owned buildings.
6.7	Staff Training & Records Maintenance	S5.C.5.h	In May of 2007 about seven employees, including two inspectors, were trained in CESCL. The City is actively communicating with other local jurisdictions on the possibility of teaming to provide the training to other staff members.						\$5,000				\$600	UAF	Maintenance records are addressed further in ongoing tracking in Element 10.2. The City could consider participation in the ESA Road Maintenance program that offers training on road related maintenance issues regarding stormwater. The estimated cost to meet all training permit requirements has been included in the 2008 budget at \$5K from the Operating Permits-Water Storm Drainage Fund #40145040 553100 and \$350 from the Utility Administrative Fund#40143410 549030 and \$250 from the Utility Administrative Fund#40143410 549060. Staff time to attend training is covered in Element 6.2.
6.8	SWPPP for Maintenance Yards	S5.C.5.i	No program in place.												For the compliance with Phase II requirements, the City will have to development and implement a Stormwater Pollution Prevention Plan for all equipment maintenance and storage yards not covered under the Industrial Stormwater General Permit. The SWPPP must include an implementation schedule for structural BMPs and conduct occasional visual inspection of discharge from the site(s).
6.9	Record Keeping	S5.C.5.j	The city recently started a record system to track catch basin and detention facility maintenance.												The City is proposing recording the maintenance program in the field using GIS/GPS equipment and an Access database. Record keeping for stormwater facilities notes separately in Element 5.4 and ties into Element 10.2.
Operation and Maintenance TOTAL								2.72	5658	\$210,254	\$107,000	1.09	2272	\$84,450	\$48,727
Element #7 - Permit Element #S7, Total Maximum Daily Load Allocations															
7.1	Applicable TMDLs in Appendix 2	S7.A	A TMDL for the Lower Snohomish River Tributaries for fecal coliform has been established. See Element 9 for more details.		Public Works										The City is a permit holder with implementation responsibilities for the Lower Snohomish River Tributaries TMDL for fecal coliform identified in Appendix 2.
7.2	TMDLs not listed in Appendix 2	S7.B	Not applicable.												
7.3	TMDLs Approved during the Permit Cycle	S7.C	Not applicable at this time.												
TMDL TOTAL								0.00	0.00	\$0	\$0	0.00	0.00	\$0	\$0
Element #8 - Permit Element #S8.B and S8.C, Monitoring															
8.1	Existing Monitoring	S8.B	The City is currently conducting monitoring in accordance with its QAPP for the Lower Snohomish River Tributaries TMDL.												
8.2	Stormwater Monitoring	S8.C.1.a	The City is not currently conducting other stormwater monitoring.												Requirements of the NPDES Phase II permit include site selection and documentation in preparation for future monitoring.
8.3	SWMP Effectiveness Monitoring	S8.C.1.b	The City has not conducted any formal studies to evaluate SWMP effectiveness.												Requirements of the NPDES Phase II permit include identification of suitable questions, site selection and development of monitoring plans in preparation for future monitoring.
8.4	Annual Reporting	S8.C.2.a	No program in place.												Annual reporting of monitoring progress is a requirement of the NPDES Phase II permit. Compliance is achieved through timely submittals of annual reports in Element 10.1.
Monitoring TOTAL								0.00	0.00	\$0	\$0	0.00	0.00	\$0	\$0

CITY OF MARYSVILLE															
SUMMARY OF EXISTING STORMWATER MANAGEMENT PROGRAM															
Stormwater Program Element	Permit Reference/Rule or Law	Current Stormwater Activities	Legal Authority/Ordinances	Responsibility		Annual Level of Effort		Annual Level of Expenditure to the Storm Drainage Fund		Annual Level of Effort from Other Funds		Annual Level of Expenditures to Other Funds			Comments/Need for Enhancement
				Lead Department	Manager and Assigned Staff	FTE	Hours	Labor (w/benefits)	Expense	FTE	Hours	Labor (w/benefits)	Expense	Fund Allocation	
Element #9 -Permit Appendix 2, Lower Snohomish River Tributaries TMDL															
9.1	Illicit Discharge Detection and Elimination	Appendix 2	No program in place.												The IDDE program in Element 4 shall address commercial animal handling areas and commercial composting facilities including source control BMPs equivalent to the 2005 DOE Manual. Additional activities include: 1. Compile list of existing facilities, no later than 30 months after the effective date of the permit, 2. Update and submit list with permit renewal application, no later than 6 months prior to permit expiration, 3. Beginning no later than 30 months after the effective date of the permit conduct inspection of listed sites including adequate enforcement capability. Complete inspection within 46 months of the effective date of the permit.
9.2	Monitoring and Implementation Requirements	Appendix 2	The City's QAPP was approved by Ecology in December 2007 and includes all monitoring and implementation requirements for this TMDL.		Public Works	Surface Water Program Engineer and/or Surface Water Technicians	0.20	416	\$15,460	\$10,000					The City will need to develop a BPCP that addresses the following topics: Pet Waste Ordinance, Evaluation of water pollution control enforcement capabilities, evaluation of CAO in relation to TMDLs goals, education program directed at reducing TMDLs goals, educational program directed at reducing bacterial pollution, investigation and implementation of methods that prevent additional stormwater bacterial pollution through stormwater treatment etc., implementation of activities of the Quilceda/Allen or French Creek Water Management Plans, ambient water quality and stormwater quality sampling and livestock ordinance and compost ordinance. The City will be making all required reporting to Ecology as part of the QAPP in the future. The estimated cost to meet permit requirements has been included in the 2008 budget at \$10K from the Operating Permits-Water Storm Drainage Fund #40145040 553100.
TMDL TOTAL								0.20	416.00	\$15,460	\$10,000	0.00	0.00	\$0	\$0
Element #10- Permit Element #S9.A and #S9.B, Reporting															
10.1	Annual Reports	S9.A&B	The City has made a systematic 2007 annual report to Ecology and the City also reports all spills to DOE. TMDL activity documentation and tracking is incorporated in the Lower Snohomish River Tributaries QAPP Element 9.												Annual reporting of NPDES Phase II permit activities is a requirement of the permit. The City uses reporting forms supplied in Appendix 3 of the NPDES Phase II permit and submits applicable supporting documentation.
10.2	Ongoing Tracking	S9.A&B	Existing tracking of SWMP activities is documented in Elements 1-10.												The City is already tracking some activities and will need to ensure that all activities are tracked that will need to be reported to be in compliance with NPDES Phase II requirements.
10.3	Maintaining Records	S9.A&B	Existing records maintenance and planned expansion of record keeping of SWMP activities are documented in Elements 1-10.												Maintaining good records throughout the year will aid in assembling the annual report in Element 10.1.
10.4	Public Access of SWMP and Activity Reports	S9.A&B	The City's 2007 Surface Water Management Plan is available on its website.												
Reporting TOTAL								0.00	0.00	\$0	\$0	0.00	0.00	\$0	\$0
Element #11 - Underground Injection Control (UIC)															
11.1	Register Existing UIC Wells Used for Stormwater	WAC 173-218-070. 1.a.i-iv	The City is not aware of any infiltration facilities that qualify as UIC facilities.												The City anticipates there may be additional infiltration facilities and will need to confirm by pulling as-builts to verify if any existing infiltration facility qualify as a UIC.
11.2	Assess Existing UIC Wells Used for Stormwater	WAC 173-218-070. 1.b.i	No program in place.												The approach to conduct the well assessment will be determined by the owner. The assessment evaluates the potential risks to groundwater from the use of UIC wells. Any assessment that identifies a well as a high threat to groundwater must include a retrofit schedule and immediate action must be taken to correct the use of a well that is determined to be imminent public health hazard.
11.3	Register New UIC Wells Used for Stormwater (built after 2/3/06) Prior to Use	WAC 173-218-070. 1.a.i-iv	No program in place.												All new UIC wells for stormwater (built after 2/3/06) will need to complete the Ecology Registration forms and submit. Information required is listed in Element 11.1.
11.4	Compliance with the Nonendangerment Standard for new UIC Wells Used for Stormwater	WAC 173-218-070. 1.b.i	No program in place.												Prior to use, new wells must meet the requirements of WAC 173-218-080 and WAC 172-218-090.
11.5	Annual Update on Well Status Changes	WAC 173-218-070. 1.b.ii	No program in place.												An annual update of any well status changes must be provided to Ecology (WAC 173-218-070(1)b.ii).
11.6	UIC Well Decommissioning Recordkeeping Requirements	WAC 173-218-110	No program in place.												Ecology is to be notified according to certain timeframes of the timing of well decommissioning ((WAC 173-218-120(4)).
Underground Injection Control TOTAL								0.00	0.00	\$0	\$0	0.00	0.00	\$0	\$0

CITY OF MARYSVILLE																
SUMMARY OF EXISTING STORMWATER MANAGEMENT PROGRAM																
Stormwater Program Element	Permit Reference/Rule or Law	Current Stormwater Activities	Legal Authority/Ordinances	Responsibility		Annual Level of Effort		Annual Level of Expenditure to the Storm Drainage Fund		Annual Level of Effort from Other Funds		Annual Level of Expenditures to Other Funds			Comments/Need for Enhancement	
				Lead Department	Manager and Assigned Staff	FTE	Hours	Labor (w/benefits)	Expense	FTE	Hours	Labor (w/benefits)	Expense	Fund Allocation		
Element #12 - Endangered Species Act (ESA)																
12.1	ESA Regional Coordination		The City is an active member of the Snohomish River Basin Recovery Forum. See Element 14 Puget Sound Salmon Recovery Plan for ESA compliance strategies.		Public Works	Surface Water Program Engineer and/or Surface Water Technicians	0.10	208	\$7,730							The annual FTE is estimated to be 0.10 for surface water staff.
Endangered Species Act TOTAL							0.10	208.00	\$7,730	\$0	0.00	0.00	\$0	\$0		
Element #13-Puget Sound Salmon Recovery Plan																
13.1	Puget Sound Salmon Recovery Plan Implementation		The City is an active participant in salmon conservation planning and is implementing projects in accordance with Element 13.2. The City is coordinating with other watershed groups as shown in Element 13.3.		Public Works, Community Development	Surface Water Program Engineer and/or Surface Water Technicians, Senior Planner	0.20	416	\$15,460		0.01	20.8	\$773		PF	The annual FTE is estimated to be 0.10 for surface water staff and 0.11 for the Senior Planner.
13.2	Snohomish River Basin Salmon Conservation Implementation		The City was an active participant in developing the June 2005 Snohomish River Basin Salmon Conservation Plan published by Salmon Recovery Forum. Currently the City is pursuing the Qwuloot/Poortinga Estuarine Restoration Project. This project is listed in the City's October 2006 Shoreline Inventory and Characterization Report, as adopted by ordinance, as Project #9.3.1.													To date, a substantial amount of staff time and approximately 18 acres of City land has been invested in this project. Associated costs are assumed to be covered by Community Development.
13.3	Coordination with other Watershed Groups		In the City's October 2006 Shoreline Inventory and Characterization Report, as adopted by ordinance, Project #9.3.3 covers the City's coordination with other watershed groups. Currently, staff time and materials are only City resource commitments.		Public Works	Surface Water Program Engineer and/or Surface Water Technicians	0.10	208	\$7,730							The annual FTE is estimated to be 0.10 for surface water staff.
Puget Sound Salmon Recovery Plan TOTAL							0.30	624.00	\$23,190	\$0	0.01	20.80	\$773	\$0		
Element #14 - WRIA #7 Snohomish River Basin Watershed Planning.																
14.1	WRIA Planning	RCW 90.82	Watershed planning was not conducted in WRIA #7.													
WRIA Salmon Conservation Plan TOTAL							0.00	0.00	\$0	\$0	0.00	0.00	\$0	\$0		
Element #15 - 2007-2009 Puget Sound Water Quality Conservation and Recovery Plan																
15.1	Increase Innovative Techniques Known as Low Impact Development	RCW 90.71	In February 2007, the City adopted Ordinance No. 2694 amending the City's development regulations related to Low Impact Development (LID) and establishing a chapter of the code to establish a new chapter 19.49 of the Marysville Municipal Code specifically for LID.	MMC 19.49												
15.2	Implement Local Comprehensive Stormwater Management Programs	RCW 90.72	The City has an existing SWM program in place and is currently updating it to meet the regulatory requirements.													This issue is partially addressed by NPDES Phase II requirements that are reflected in Elements 1-10. The components of local comprehensive stormwater management programs are specified in the 2000 Puget Sound Water Quality Management Plan and are outlined in Element 15.3
15.3	Local Comprehensive Stormwater Management Program components from the 2000 Puget Sound Water Quality Management Plan	RCW 90.73	See comments column.													See comments in Element 15.2. There are 13 components a-m which are described in Elements 15.3 (a) through 15.3 (m).
15.3 (a)	Stormwater Controls for New Development and Redevelopment	RCW 90.74	The existing activities are addressed in Element 5.													This requirement is consistent with NPDES Phase II requirements and is addressed in Element 5.
15.3 (b)	Stormwater Site Plan Review	RCW 90.75	The existing activities are addressed in Element 5.													This requirement is consistent with NPDES Phase II requirements and is addressed in Element 5.
15.3 (c)	Inspection of Construction Sites	RCW 90.76	The existing activities are addressed in Element 5.													This requirement is consistent with NPDES Phase II requirements and is addressed in Element 5.
15.3 (d)	Maintenance of Permanent Facilities	RCW 90.77	The City has an existing maintenance program as described in Elements 5 and 6.													This requirement is consistent with NPDES Phase II requirements and is addressed in Elements 5 and 6.
15.3 (e)	Source Control	RCW 90.78	The existing activities are addressed in Elements 5, 6, and 9.													This requirement is consistent with NPDES Phase II requirements and is addressed in Elements 5, 6, and 9.
15.3 (f)	Illicit Discharges and Water Quality	RCW 90.79	The existing activities are addressed in Element 5.													This requirement is consistent with NPDES Phase II requirements and is addressed in Element 5.
15.3 (g)	Identification and Ranking of Problems	RCW 90.80	See comments column.													This requirement is not covered by the NPDES Phase II requirements. The City may want to consider more rigorous watershed or basin planning as the development continues. The Six-year CIP will include recommended basin planning efforts to identify water quality and flood control facilities.
15.3 (h)	Public Education and Involvement	RCW 90.81	The existing activities are addressed in Elements 2 and 3.													This requirement is consistent with NPDES Phase II requirements and is addressed in Elements 2, 3, and 9.
15.3 (i)	Low Impact Development Practices	RCW 90.82	The existing activities are addressed in Element 5.													

**CITY OF MARYSVILLE
SUMMARY OF EXISTING STORMWATER MANAGEMENT PROGRAM**

Stormwater Program Element	Permit Reference/Rule or Law	Current Stormwater Activities	Legal Authority/Ordinances	Responsibility		Annual Level of Effort		Annual Level of Expenditure to the Storm Drainage Fund		Annual Level of Effort from Other Funds		Annual Level of Expenditures to Other Funds			Comments/Need for Enhancement
				Lead Department	Manager and Assigned Staff	FTE	Hours	Labor (w/benefits)	Expense	FTE	Hours	Labor (w/benefits)	Expense	Fund Allocation	
15.3 (j) Watershed or Basin Planning	RCW 90.83	The City participated in development of the 1999 Quilceda/Allen Watershed Plan and has representatives on the Quilceda/Allen Watershed Action Team. Plan implementation has been underway for several years and there are currently no projects identified for City implementation or completion.													This requirement is not covered by the NPDES Phase II requirements.
15.3 (k) Funding	RCW 90.84	The City of Marysville currently has a Surface Water Fund that generates revenue through stormwater rates to fund the SWM program. Some funding also comes from the fund's investment interest and recently revenue bonds, such as the 2005 Water/Sewer Revenue Bond.													As part of the City's SWM Plan update, costs for regulatory compliance and funding options will be explored.
15.3 (l) Monitoring	RCW 90.85	The City is currently conducting monitoring in accordance with its NPDES Phase II Permit requirements as specified in the QAPP for the TMDL. See Element 9.2 for further details. The City is currently doing no trend monitoring.													This requirement is partially covered for program implementation by the NPDES Phase II permit requirements for tracking and reporting. Monitoring of environmental conditions and trends over time is not covered by the NPDES Phase II permit requirements with the exception of monitoring required for TMDL implementation associated with the Lower Snohomish River Tributaries. The City has not done the trend monitoring.
15.3 (m) Schedule for Implementation	RCW 90.86	The City does not currently have a comprehensive schedule for implementation of all required activities for regulatory compliance.													As part of the City's SWM Plan update, an implementation schedule for regulatory compliance will be developed.
PSWQ Conservation and Recovery Plan TOTAL							0.00	0.00	\$0	\$0	0.00	0.00	\$0	\$0	
Element #16 - Capital Projects															
16.1 Typical Projects		The City's 2008 Storm Drainage Budget for projects includes the Smokey Point Master Plan (SDF: \$131,907), Downtown Master Plan (SDF: \$70,000), Regional Detention Pond construction (SDCF: \$6,250,000), and the 152nd St NE Lift Station (SDCF: \$1,000,000).		Public Works	Surface Water Program Engineer and/or Surface Water Technicians, Sr Traffic Control Systems Tech	0.50	1,040	\$38,650	\$201,907	0.01	24	\$889	\$7,250,000	Storm Drainage Capital Fund (SDCF)	The 2008 Storm Drainage Fund and Capital Fund includes Smokey Point Master Plan Fund #40145040 541000 D0602, Regional Detention Pond Fund #40250594 563000 D0401, 152nd St NE Lift Station Fund #40250594 563000 D0501. This is an estimated cost for capital project in 2008, however Otak is currently working on updated Marysville CIP projects and associated funding. The City has taken out bonds to cover CIP and are not being covered by stormwater utility fees. The annual estimated FTE is 0.501 surface water staff FTE to manage and oversee the CIP and Sr. Traffic Control System Tech (0.0115). CIP is funded through connection charges, the 2005 Revenue Bond, and interest earning from cash in the capital fund.
16.2 Long Term System Replacement		The City's 2008 Storm Drainage Budget allocates budget for stormwater replacement.											\$50,000	SDCF	The 2008 budget from the Storm Drainage Fund includes Stormwater Replacement/FR Fund #40145040 548000 M0519.
16.3 Additional CIP Needs and Costs		The City's 2008 Storm Drainage Budget allocated budget for additional CIP needs such as interfund transfer for capital outlay.											\$27,862	Capital Outlay Fund (COF)	The 2008 Capital Outlay Fund includes Interfund Transfer Capital Outlay Fund #40143900 500000.
Capital Projects TOTAL						0.50	1040.00	\$38,650	\$201,907	0.01	23.92	\$889	\$7,327,862		
Element #17 - Additional Activities (City Specific)															
17.1 Equipment, Materials, and Supplies		The City's 2008 Surface Water Budget for small tools, office and operating supplies, fuel consumed, uniforms and clothing.							\$31,600				\$28,898	PF, UAF, Administrative Executive Fund (AEF), MGP, MEF	The 2008 budget expense represents Office and Operating Supplies Planning Fund #40143210 531000, Small Tools Planning Fund #40143210535000, Uniforms and Clothing Utility Admin Fund #40143410 526000, Uniforms-Maintenance Crew Utility Admin Fund #40143410 526100, Uniforms-Construction Crew Utility Admin Fund #40143410 526200, Uniforms WWTP Crew Utility Admin Fund #40143410 526300, Uniforms Safety Officer Utility Admin Fund #40143410 526400, Office and Operating Supplies Utility Admin Fund #40143410 531000, Janitorial Supplies Utility Admin Fund #4014310 531200, Inventory Supplies Utility Admin Fund #40143410 534000, Small Tools Utility Admin Fund #40143410 535000, Operating Rental and Leases Utility Admin Fund #40143410 545000, Office and Operating Supplies Maintenance of General Plant Fund #40143610 531000, Fuel Consumed Maintenance of Equipment Fund #40143880 532000, Uniforms and Clothing Storm Drainage Fund #40145040 526000, Office and Operating Supplies Storm Drainage Fund #40145040 531000, Fuel Consumed Storm Drainage Fund #401445040 532000, and Small Tools Storm Drainage Fund #40145040 535000.
17.2 Program Overhead		The City's 2008 Surface Water Budget for program overhead includes state taxes, insurance, travel, and city taxes.							\$186,509				\$118,262	PF, UAF, AE	This element represents the total spending on Travel Planning Fund #40143210 543000, Travel Mgmt & Office Utility Admin Fund #401434105343010, Travel Maintenance Utility Admin Fund #40143410 543020, Travel-WWTP Utility Admin Fund #40143410 543040, Insurance Utility Admin Fund #40143410 546000, Public Utility Services Utility Admin Fund #40143410 548000, Training Mgmt&Office Utility Admin Fund #40143410 549020, Training Safety Officer Utility Admin Fund #40143410 549060, State Taxes Storm Drainage Fund #40145040 553000 and City Taxes Storm Drainage Fund #40145040 554000, Drug Testing Utility Admin Fund #40143410 549700, City Taxes-Property Utility Admin Fund #40143410 554300, and Travel Admin-Executive Fund #40143610 543000.

CITY OF MARYSVILLE																
SUMMARY OF EXISTING STORMWATER MANAGEMENT PROGRAM																
Stormwater Program Element	Permit Reference/Rule or Law	Current Stormwater Activities	Legal Authority/Ordinances	Responsibility		Annual Level of Effort		Annual Level of Expenditure to the Storm Drainage Fund		Annual Level of Effort from Other Funds		Annual Level of Expenditures to Other Funds			Comments/Need for Enhancement	
				Lead Department	Manager and Assigned Staff	FTE	Hours	Labor (w/benefits)	Expense	FTE	Hours	Labor (w/benefits)	Expense	Fund Allocation		
17.3 Professional Services and Interlocal Agreements		The City's 2008 Surface Water Budget including line items for Professional Services and the Stormwater Management Plan update.							\$320,500				\$42,350	UAF, AEF, MGPF	The 2008 budget expense represents Professional Services Utility Admin Fund#40143410 541000, Professional Services Admin-Executive Fund#40143610 541000, Professional Services Maintenance of General Plant Fund#40143780 541000, Professional Services Storm Drainage Fund # 40145040 541000, and SW Comp Plan Update Storm Drainage Fund #40145040 541000 D0720.	
17.4 Customer Response and Utility Billing		The City surface water staff responses to customer issues and does utility billing for the surface water utility. There are additional support staff required in public works for customer response and utility billing.		Public Works	Surface Water Program Engineer and/or Surface Water Technicians	1.00	2,080	\$77,299					\$90,935	UAF, MGPF	The 2008 budget expense represents Interfund Transfers Utility Admin Fund#40143400 500000, Miscellaneous Utility Admin Fund#4014341 549000, Utility Billing Utility Admin Fund#40143410 599000 04UB, and Public Utility Services Maintenance of General Plant Fund#40143780 547000. The estimated annual FTE is 1.0 for surface water staff.	
17.5 Administration		The City's 2008 Surface Water Budget expenditure for miscellaneous items, communication items, support staff such as Human Resources and other public works staff.			Public Works Director, Surface Water Staff, Council Persons, Program Specialist, Meter Reader, Program Clerk, Public Works Superintendent, Receptionist, Utility Locator, Administrative Secretary, Public Works IT Technician, Business Operations Supervisor, Financial Analyst	0.65	1,352	\$50,245	\$19,070	1.02	2,124	\$78,923	\$66,423	PF, MGPF	The 2008 budget expense represents Communication Planning Fund#401443210 542000, Communication Utility Admin Fund #40143410 542000, Community Info Officer Utility Fund#40143410 599000 03CIO, Executive Director Utility Admin Fund#40143410 599000 03 EXE, HR Department Allocation Utility Admin Fund#40143410 599000, Fin/Acct Allocation Utility Fund#40143410 599000 04ACT, Finance City Clerk Utility Admin Fund#40143410 599000 04CC, IT Allocation Utility Fund#40143410 599000 04IT, Nextel Allocation Utility Fund#40143410 599000, Communication Admin Executive Fund#40143610 542000, Communication Maintenance General Fund#40143780 542000 and Miscellaneous Storm Drainage Fund#40145040 549000. The 2008 budget FTE includes time for the program specialist (0.10 FTE), Public Works Director (0.05 FTE), Senior Planner (0.10 FTE), Public Works Technician (0.10), Surface Water Program Engineer (0.15 FTE), Administrative Secretary (0.09), Surface Water Technicians (0.15 FTE), Utility Coordinator (0.022), 2 Receptionists (0.10), 7 Council Persons (0.25), Program Specialist (0.16), Meter Reader (0.021), Business Operations Supervisor (0.15 FTE), and Financial Analyst (0.15), Program Clerk (0.10), Public Works Superintendent (0.065). There are some minor FTE allocations for various staff not listed here, but included in the total FTE.	
17.6 NPDES Phase II Permit Fees		The City's NPDES Phase II Permit Fees are \$15,000.							\$15,000						The Operating Permits-Water Storm Drainage Fund #40145040 553100 allocated \$15,000 for the permit fee.	
17.7 Debt Services		Yearly debt service to pay back the 2005 Water/Sewer/Storm Revenue Bond							\$537,100						The 2008 budget include a debt payment for the 2005 Water/Sewer/Stormwater Revenue Bond.	
Additional City Activities TOTAL						1.65	3432.00	\$127,544	\$1,109,779	1.02	2124	\$78,923	\$346,867			
TOTAL City Activities and Existing Program Elements						6.47	13,458	\$500,127	\$1,483,686	2.60	5,398	\$200,592	\$7,723,957			
						9.07	18,855	\$700,719	\$9,207,643	Grand Total:			\$9,908,362			

Note: Stormwater Program Elements #1-11 are based on the City's National Pollutant Discharge Elimination System and State Waste Discharge General Permit for Discharges from Small Municipal Separate Storm Sewers in Western Washington, issued on January 17, 2007.

Appendix 3.2.D
Staffing Allocations Across Accounts

POSITION	Total FTE	40145040 Surface Water				40143780 Maintenance of General Plant				40143610 Administration-Executive				40143410 Utility Administration				40143310 Overhead				40143210 Planning				40143010 Standby						
		% Salary Paid by	\$ Salary Paid by	FTE	Element	% Salary Paid by	\$ Salary Paid by	FTE	Element	% Salary Paid by	\$ Salary Paid by	FTE	Element	% Salary Paid by	\$ Salary Paid by	FTE	Element	% Salary Paid by	\$ Salary Paid by	FTE	Element	% Salary Paid by	\$ Salary Paid by	FTE	Element	% Salary Paid by	\$ Salary Paid by	FTE	Element			
		Surface Water	Surface Water			Surface Water	Surface Water			Surface Water	Surface Water			Surface Water	Surface Water			Surface Water	Surface Water			Surface Water	Surface Water			Surface Water	Surface Water					
Lead Worker I	0.47	45.00%	\$ 28,877.00	0.45	5.2								0.20%	\$ 128.40	0.002	5.2	2.00%	\$ 1,283.40	0.02	5.2												
GIS Analyst	0.10					0.23%	\$ 135.93	0.0023	5.2												10.00%	\$ 5,462.40	0.10	3.1								
Heavy Equipment Op	0.03	1.00%	\$ 591.00	0.01	5.2								0.20%	\$ 118.20	0.002	5.2	2.00%	\$ 1,181.30	0.02	5.2												
Maintenance Worker II	0.05					4.60%	\$ 2,583.59	0.0460	5.2																							
Surface Water Tech	1.00	100.00%	\$ 52,563.00	1.00	Various																											
Program Specialist	0.06												6.00%	\$ 2,808.20	0.060	17.5																
Maintenance Worker II	0.55	53.00%	\$ 25,600.00	0.53	5.2								0.20%	\$ 96.70	0.002	5.2	2.00%	\$ 966.10	0.02	5.2												
Meter Reader/Repair	0.02												0.10%	\$ 43.60	0.001	5.2	2.00%	\$ 871.50	0.02	5.2												
WW Maintenance Tech I	0.02												0.20%	\$ 116.00	0.002	5.2	2.00%	\$ 1,159.50	0.02	5.2												
Maintenance Worker II	0.03												0.20%	\$ 111.20	0.002	5.2	2.00%	\$ 1,111.30	0.02	5.2						1.00%	\$ 555.70	0.01	5.2			
Water Quality Manager	0.15	15.00%	\$ 12,473.00	0.15	5.2																											
Surface Water Program Engineer	1.00	100.00%	\$ 68,685.00	1.00	Various																											
Lead Worker II	0.05					4.60%	\$ 2,924.22	0.0460	5.2																							
WWTP Ops Lead	0.02												0.20%	\$ 133.30	0.002	5.2	2.00%	\$ 1,332.10	0.02	5.2												
Engineering Services Manager CD	0.13	10.00%	\$ 9,758.00	0.10	4.2																2.50%	\$ 2,439.50	0.03	4.2								
WWTP Operator	0.02																2.00%	\$ 1,235.50	0.02	5.2												
Construction Inspector	0.05																															
Water Quality Assistant	0.03												0.20%	\$ 106.30	0.002	5.2	2.00%	\$ 1,062.60	0.02	5.2						5.00%	\$ 2,867.20	0.05	4.2			
Maintenance Worker II	0.03	1.00%	\$ 508.00	0.01	5.2								0.10%	\$ 50.80	0.001	5.2	2.00%	\$ 1,015.70	0.02	5.2												
Maintenance Worker II	0.05					4.60%	\$ 2,528.39	0.0460	5.2																							
Program Clerk	0.10												10.00%	\$ 3,715.10	0.100	17.5																
GIS Administrator	0.05																				5.00%	\$ 3,587.30	0.05	3.1								
Maintenance Worker II	0.03					0.23%	\$ 127.19	0.0023	5.2				0.10%	\$ 55.30	0.001	5.2	2.00%	\$ 1,105.30	0.02	5.2						0.50%	\$ 276.40	0.005	5.2			
WW Maintenance Tech I	0.02												0.20%	\$ 110.60	0.002	5.2	2.00%	\$ 1,105.30	0.02	5.2												
WWTP Operator	0.02												0.20%	\$ 123.60	0.002	5.2	2.00%	\$ 1,235.50	0.02	5.2												
Maintenance Worker II	0.05	3.00%	\$ 1,658.00	0.03	5.2	0.23%	\$ 127.19	0.0023	5.2				0.20%	\$ 110.60	0.002	5.2	2.00%	\$ 1,105.30	0.02	5.2												
Maintenance Worker II	0.03	1.00%	\$ 562.00	0.01	5.2								0.10%	\$ 56.20	0.001	5.2	2.00%	\$ 1,123.30	0.02	5.2												
Maintenance Worker II	0.03					0.23%	\$ 127.19	0.0023	5.2				0.20%	\$ 110.60	0.002	5.2	2.00%	\$ 1,105.30	0.02	5.2						0.50%	\$ 276.40	0.005	5.2			
Maintenance Worker II	0.10																10.00%	\$ 5,369.10	0.10	5.2												
Receptionist	0.05												5.00%	\$ 1,700.40	0.050	17.5																
Receptionist	0.05												5.00%	\$ 1,769.10	0.050	17.5																
Maintenance Worker I	0.02												0.10%	\$ 40.20	0.001	5.2	2.00%	\$ 803.00	0.02	5.2												
Surface Water Technician	1.00	100.00%	\$ 48,661.00	1.00	Various																											
Construction Inspector	0.05																				5.00%	\$ 3,319.30	0.05	4.2								
Community Development Director	0.14	10.00%	\$ 13,175.00	0.10	4.2																4.00%	\$ 5,270.00	0.04	4.2								
Meter Reader	0.02												0.10%	\$ 42.10	0.001	17.5	2.00%	\$ 840.30	0.02	17.5												
Senior Planner	0.11	10.00%	\$ 7,534.00	0.10	13.1																1.00%	\$ 753.40	0.01	13.1								
Program Specialist	0.16	10.00%	\$ 4,335.00	0.10	17.5								6.00%	\$ 2,601.00	0.060	17.5																
Sr Traffic Control Systems Tech	0.01					1.15%	\$ 764.06	0.0115	16.1																							
Lead Worker I	0.02												0.20%	\$ 117.60	0.002	5.2	2.00%	\$ 1,175.30	0.02	5.2												
Heavy Equipment Operator	0.47	45.00%	\$ 26,109.00	0.45	5.2								0.20%	\$ 116.10	0.002	5.2	2.00%	\$ 1,160.40	0.02	5.2												
Construction Inspector Supervisor	0.02																															
Maintenance Worker II	0.03	1.00%	\$ 562.00	0.01	5.2	0.23%	\$ 129.26	0.0023	5.2				0.20%	\$ 112.40	0.002	5.2	2.00%	\$ 1,123.30	0.02	5.2						1.50%	\$ 1,182.90	0.02	4.2			
Public Works Superintendent	0.07												6.50%	\$ 6,691.10	0.065	17.5																
Maintenance Worker I	0.39	37.00%	\$ 14,266.00	0.37	5.2								0.20%	\$ 77.20	0.002	5.2	2.00%	\$ 771.20	0.02	5.2												
Associate Engineer II	0.08	5.00%	\$ 3,798.00	0.05	4.2																3.00%	\$ 2,278.40	0.03	4.2								
Business Operations Supervisor	0.15	10.00%	\$ 5,440.00	0.10	17.5								5.00%	\$ 2,719.60	0.050	17.5																
Utility Locator	0.03												0.20%	\$ 56.20	0.002	17.5	2.00%	\$ 1,123.30	0.02	17.5												
Council Person	0.04									3.50%	\$ 504.00	0.035	17.5																			
Financial Analyst	0.15	10.00%	\$ 5,879.00	0.10	17.5								5.00%	\$ 2,939.50	0.050	17.5																
Maintenance Worker II	0.02												0.10%	\$ 44.90	0.001	5.2	2.00%	\$ 897.30	0.02	5.2												
Maintenance Worker II	0.05					4.60%	\$ 2,603.37	0.0460	5.2																							
Lead Worker II	0.02												0.20%	\$ 129.60	0.002	5.2	2.00%	\$ 1,295.40	0.02	5.2												
Council Person	0.04									3.5																						

Appendix 3.2.D
Labor/Benefit Calculations

Regular Pay for 9.07 FTE		\$513,688.87
Benefits		
OVERTIME	\$	5,074.30
SOCIAL SECURITY	\$	38,333.45
RETIREMENT	\$	36,858.75
HEALTH INSURANCE	\$	95,397.20
WORKMEN'S COMPENSATION	\$	5,308.16
UNEMPLOYMENT COMPENSATION	\$	1,644.60
Seasonal Regulary Pay	\$	4,800.00
Total Benefits for 9.07 FTE	\$	187,416.46
Total Labor and Benefits		\$701,105.33
Total Labor and Benefit Per FTE		\$77,299.37

Appendix 3.2.E
2008 Financial Information

OPERATING & MAINTENANCE EXPENDITURES							Portion Allocated	Element
							to Surface Water	
430 STANDBY								
40143010	511000	REGULAR PAY				\$ 1,823.50	FTE \$\$	
40143010	512000	OVERTIME				\$ 3,363.40	FTE \$\$	
40143010	521000	SOCIAL SECURITY				\$ 139.00	FTE \$\$	
40143010	522000	RETIREMENT				\$ 131.90	FTE \$\$	
40143010	523000	HEALTH INSURANCE				\$ 381.90	FTE \$\$	
40143010	524000	WORKMAN'S COMP				\$ 36.20	FTE \$\$	
40143010	525000	UNEMPLOYMENT COMPENSATION				\$ 5.70	FTE \$\$	
						TOTAL STANDBY	\$ 5,881.60	
431 UTILITIES ENGR								
40143110	524000	WORKMAN'S COMP				\$ 36.30	FTE \$\$	
40143110	541000	PROFESSIONAL SERVICES				\$ 500.00	17.3	
						TOTAL UTILITIES ENGR	\$ 536.30	
432 PLANNING								
40143210	511000	REGULAR PAY				\$ 33,762.10	FTE \$\$	
40143210	512000	OVERTIME				\$ 100.00	FTE \$\$	
40143210	521000	SOCIAL SECURITY				\$ 2,494.80	FTE \$\$	
40143210	522000	RETIREMENT				\$ 2,438.00	FTE \$\$	
40143210	523000	HEALTH INSURANCE				\$ 4,109.80	FTE \$\$	
40143210	524000	WORKMEN'S COMPENSATION				\$ 205.80	FTE \$\$	
40143210	525000	UNEMPLOYMENT COMPENSATION				\$ 101.90	FTE \$\$	
40143210	531000	OFFICE & OPERATING SUPPLIE				\$ 200.00	17.1	
40143210	535000	SMALL TOOLS				\$ 200.00	17.1	
40143210	542000	COMMUNICATION				\$ 200.00	17.5	
40143210	543000	TRAVEL				\$ 150.00	17.2	
40143210	548000	REPAIRS & MAINTENANCE				\$ 780.00	5.2	
						TOTAL PLANNING	\$ 44,742.40	
433 OVERHEAD								
40143310	511000	REGULAR PAY				\$ 42,517.80	FTE \$\$	
40143310	521000	SOCIAL SECURITY				\$ 3,221.90	FTE \$\$	
40143310	522000	RETIREMENT				\$ 3,059.30	FTE \$\$	
40143310	523000	HEALTH INSURANCE				\$ 9,294.70	FTE \$\$	
40143310	524000	WORKMAN'S COMP				\$ 847.30	FTE \$\$	
40143310	525000	UNEMPLOYMENT COMPENSATION				\$ 129.30	FTE \$\$	
						TOTAL OVERHEAD	\$ 59,070.30	
434 UTIL ADMIN								
40143400	500000	INTERFUND XFRS				\$ 20,000.00	17.4	
40143400	500000	0802 BLACKBERRY WIRELESS				\$ -		
40143400	500000	0817 WORK ORDER SYSTEM				\$ -		
40143410	511000	REGULAR PAY				\$ 45,368.30	FTE \$\$	
40143410	512000	OVERTIME				\$ 60.00	FTE \$\$	
40143410	521000	SOCIAL SECURITY				\$ 3,343.40	FTE \$\$	
40143410	522000	RETIREMENT				\$ 3,204.00	FTE \$\$	
40143410	523000	HEALTH INSURANCE				\$ 8,538.10	FTE \$\$	
40143410	524000	WORKMAN'S COMP				\$ 301.00	FTE \$\$	
40143410	525000	UNEMPLOYMENT COMPENSATION				\$ 137.90	FTE \$\$	
40143410	526000	UNIFORMS & CLOTHINGS				\$ 30.00	17.1	
40143410	526100	UNIFORMS-MAINT CREW				\$ 50.00	17.1	
40143410	526200	UNIFORMS-CONSTR CREW				\$ 1,200.00	17.1	
40143410	526300	UNIFORMS-WWTP CREW				\$ 400.00	17.1	
40143410	526400	UNIFORMS-SAFETY OFFICER				\$ 10.00	17.1	
40143410	531000	OFFICE & OPERATING SUPPLIE				\$ 2,978.10	17.1	
40143410	531200	JANITORIAL SUPPLIES				\$ 500.00	17.1	
40143410	534000	INVENTORY SUPPLIES				\$ 500.00	17.1	
40143410	535000	SMALL TOOLS				\$ 2,000.00	17.1	
40143410	535000	0840 LAPTOP COMPUTERS				\$ -		
40143410	541000	PROFESSIONAL SERVICES				\$ 35,000.00	17.3	
40143410	541000	M0802 EMERGENCY PROJECTS				\$ -		
40143410	541000	W0620 IDSE STUDY				\$ -		
40143410	541000	W0704 WATER COMP PLAN				\$ -		
40143410	542000	COMMUNICATION				\$ 4,130.60	17.5	

40143410 543010 TRAVEL-MGMT & OFFICE				\$	200.00	17.2
40143410 543020 TRAVEL-MAINT				\$	250.00	17.2
40143410 543040 TRAVEL-WWTP				\$	150.00	17.2
40143410 543050 TRAVEL-SAFETY OFFICER				\$	10.00	17.2
40143410 544000 ADVERTISING				\$	500.00	2.1
40143410 545000 OPERATING RENTALS & LEASES				\$	1,000.00	17.1
40143410 546000 INSURANCE				\$	22,919.40	17.2
40143410 547000 PUBLIC UTILITY SERVICES				\$	80.00	17.2
40143410 548000 REPAIRS & MAINTENANCE				\$	1,000.00	5.2
40143410 549000 MISCELLANEOUS				\$	1,750.00	17.4
40143410 549020 TRAINING-MGMT& OFFICE				\$	197.50	17.2
40143410 549030 TRAINING-MAINT				\$	350.00	5.7
40143410 549050 TRAINING-WWTP				\$	250.00	5.7
40143410 549060 TRAINING-SAFETY OFFICER				\$	1,500.00	17.2
40143410 549070 WATER REBATE				\$	-	
40143410 549071 SEWER REBATE				\$	-	
40143410 549700 DRUG TESTING				\$	360.00	17.2
40143410 553000 STATE TAXES				\$	-	
40143410 553100 OPERATING PERMITS-WTR				\$	-	
40143410 553200 OPERATING PERMITS-SEW				\$	-	
40143410 553300 CITY TAXES-EXCISE				\$	-	
40143410 554300 CITY TAXES-PROPERTY				\$	92,000.00	17.2
40143410 599000 03CIO COMMUNITY INFO OFFICER				\$	6,924.20	17.5
40143410 599000 03EXE EXECUTIVE DEPARTMENT				\$	10,012.50	17.5
40143410 599000 03HR HR DEPARTMENT ALLOCATIO				\$	12,585.30	17.5
40143410 599000 04ACT FIN/ACCT ALLOCATION				\$	17,741.80	17.5
40143410 599000 04CC FINANCE - CITY CLERK				\$	4,984.30	17.5
40143410 599000 04IT IT ALLOCATION				\$	8,497.00	17.5
40143410 599000 04TEL NEXTEL ALLOCATION				\$	952.20	17.5
40143410 599000 04UB UTILITY BILLING				\$	54,234.51	17.4
			TOTAL UTIL ADMIN	\$	366,200.11	
436 ADMIN-EXECUTIVE						
40143610 511000 REGULAR PAY				\$	3,589.80	FTE \$\$
40143610 512000 OVERTIME				\$	270.90	FTE \$\$
40143610 521000 SOCIAL SECURITY				\$	40.60	FTE \$\$
40143610 522000 RETIREMENT				\$	100.00	FTE \$\$
40143610 523000 HEALTH INSURANCE				\$	100.00	FTE \$\$
40143610 524000 WORKMAN'S COMP				\$	50.00	FTE \$\$
40143610 525000 UNEMPLOYMENT COMPENSATION				\$	100.00	FTE \$\$
40143610 531000 OFFICE & OPERATING SUPPLIE				\$	50.00	17.1
40143610 541000 PROFESSIONAL SERVICES				\$	50.00	17.3
40143610 542000 COMMUNICATION				\$	50.00	17.5
40143610 543000 TRAVEL				\$	100.00	17.2
			TOTAL ADMIN-EXECUTIVE	\$	4,501.30	
437 MAINT OF GENL PLANT						
40143780 511000 REGULAR PAY				\$	12,050.39	FTE \$\$
40143780 512000 OVERTIME				\$	230.00	FTE \$\$
40143780 521000 SOCIAL SECURITY				\$	902.75	FTE \$\$
40143780 522000 RETIREMENT				\$	870.55	FTE \$\$
40143780 523000 HEALTH INSURANCE				\$	3,194.70	FTE \$\$
40143780 524000 WORKMAN'S COMP				\$	225.86	FTE \$\$
40143780 525000 UNEMPLOYMENT COMPENSATION				\$	36.80	FTE \$\$
40143780 531000 OFFICE & OPERATING SUPPLIE				\$	1,150.00	17.1
40143780 535000 SMALL TOOLS				\$	230.00	17.1
40143780 541000 PROFESSIONAL SERVICES				\$	6,799.95	17.3
40143780 542000 COMMUNICATION				\$	345.00	17.5
40143780 547000 PUBLIC UTILITY SERVICES				\$	14,950.00	17.4
40143780 548000 REPAIRS & MAINTENANCE				\$	2,300.00	5.2
40143780 549000 MISCELLANEOUS				\$	345.00	17.2
40143780 598100 FACILITIES MAINTENANCE				\$	23,460.92	5.2
			TOTAL MAINT OF GENL PLANT	\$	67,091.92	
438 MAINT OF EQUIPMENT						
40143880 532000 FUEL CONSUMED				\$	18,400.00	17.1

40143880 598000 INTERFUND REPAIRS & MAINT					\$	20,586.38	5.2
				TOTAL MAINT OF EQUIPMENT	\$	38,986.38	
439 CAPITAL OUTLAY							
40143900 500000 INTERFUND TRANSFER					\$	27,862.43	16.3
				TOTAL CAPITAL OUTLAY	\$	27,862.43	
450 STORM DRAINAGE							
40145040 511000 REGULAR PAY					\$	374,577.00	FTE \$\$
40145040 511100 SEASONAL REGULAR PAY					\$	4,800.00	FTE \$\$
40145040 512000 OVERTIME					\$	1,050.00	FTE \$\$
40145040 521000 SOCIAL SECURITY					\$	28,191.00	FTE \$\$
40145040 522000 RETIREMENT					\$	27,055.00	FTE \$\$
40145040 523000 HEALTH INSURANCE					\$	69,778.00	FTE \$\$
40145040 524000 WORKMEN'S COMPENSATION					\$	3,642.00	FTE \$\$
40145040 525000 UNEMPLOYMENT COMPENSATION					\$	1,133.00	FTE \$\$
40145040 526000 UNIFORMS & CLOTHING					\$	600.00	17.1
40145040 531000 OFFICE & OPERATING SUPPLIE					\$	22,000.00	17.1
40145040 532000 FUEL CONSUMED					\$	2,500.00	17.1
40145040 535000 SMALL TOOLS					\$	6,500.00	17.1
40145040 541000 PROFESSIONAL SERVICES					\$	20,500.00	17.3
40145040 541000 D0602 SMOKEY POINT MASTER PLAN					\$	131,907.00	16.1
40145040 541000 D0701 DOWNTOWN MASTER PLAN					\$	70,000.00	16.1
40145040 548000 D0720 SW COMP PLAN UPDATE					\$	300,000.00	17.3
40145040 548000 REPAIRS & MAINTENANCE					\$	102,000.00	5.2
40145040 548000 M0519 STORM REPLACEMENT					\$	50,000.00	16.2
40145040 549000 MISCELLANEOUS					\$	19,070.00	17.5
40145040 553000 STATE TAXES					\$	45,000.00	17.2
40145040 553100 OPERATING PERMITS-WATER					\$	85,000.00	Various
40145040 554000 CITY TAXES					\$	141,509.00	17.2
				TOTAL STORM DRAINAGE	\$	1,506,812.00	
DEBT PAYMENTS							
2005 WATER/SEWER/STORMWATER REVENUE BOND					\$	537,100.00	17.7
				TOTAL DEBT PAYMENTS	\$	537,100.00	
CAPITAL							
D0401 REGIONAL DETENTION POND #2					\$	6,250,000.00	16.1
D0501 152ND ST NE LIFT STATION					\$	1,000,000.00	16.1
				TOTAL CAPITAL	\$	7,250,000.00	
				GRAND TOTAL EXPENDITURES	\$	9,908,784.74	

Otak Added			
Total \$\$ to SWMP Elements		TOTAL EXPENSES	\$ 9,207,643.09
2.1 \$ 500.00		TOTAL FTE \$\$	\$ 701,141.65
5.2 \$ 150,127.30			
5.7 \$ 600.00		Total SALARY	\$ 513,688.89
16.1 \$ 7,451,907.00		Total Benefits	\$ 187,452.76
16.2 \$ 50,000.00			
16.3 \$ 27,862.43			
17.1 \$ 60,498.10			
17.2 \$ 304,770.90			
17.3 \$ 362,849.95			
17.4 \$ 90,934.51			
17.5 \$ 85,492.90			
17.7 \$ 537,100.00			
Permit Dollars			
Various Elements	\$ 85,000.00		
TOTAL Expenses	\$ 9,207,643.09		

Appendix 3.3.A
Surface Water Management Program
Gap Analysis and Costs.

CITY OF MARYSVILLE
SURFACE WATER MANAGEMENT PLAN UPDATE

Surface Water Management Program Gap Analysis and Costs

April 29, 2009



CITY OF MARYSVILLE

Surface Water Management Program Gap Analysis and Costs

April 29, 2009

Existing Program Review

Existing Activities 2008

Program Elements/Regulatory Requirements

	Dollars	FTE
Element #1 -NPDES Phase II Permit (Permit) Element #S5.A and #S5.B, Program Implementation	\$7,730	0.10
Element #2 - Permit Element #S5.C.1, Public Education and Outreach	\$17,730	0.10
Element #3 - Permit Element #S5.C.2, Public Involvement and Participation	\$9,365	0.05
Element #4 - Permit Element #S5.C.3, Illicit Discharge Detection and Elimination	\$78,650	0.50
Element #5 - Permit Element #S5.C.4, Controlling Runoff from New Development, Redevelopment, and Construction Sites	\$54,883	0.71
Element #6 - Permit Element #S5.C.5, Pollution Prevention and Operation and Maintenance for Municipal Operations	\$450,431	3.81
Element #7 -Permit Element #S7, Total Maximum Daily Load Allocations	\$0	0.00
Element #8 - Permit Element #S8.B and S8.C, Monitoring	\$0	0.00
Element #9 - Permit Appendix 2, Lower Snohomish River Tributaries TMDL	\$25,460	0.20
Element #10 - Permit Element #S9.A and #S9.B, Reporting	\$0	0.00
Element #11 - Underground Injection Control (UIC)	\$0	0.00
Element #12 - Endangered Species Act (ESA)	\$7,730	0.10
Element #13 - Puget Sound Salmon Plan	\$23,963	0.31
Element #14 - WRIA #7 Salmon Habitat Recovery	\$0	0.00
Element #15 - 2007-2009 Puget Sound Conservation and Recovery Plan	\$0	0.00

	\$675,941	5.88
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Capital Improvement Projects

Element #16 - Capital Projects	\$496,571	0.51
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Additional Activities

Element #17 - Additional Activities (City Specific)	\$1,463,113	2.67
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Total Program Cost for All Elements

	\$2,635,625	9.07
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CITY OF MARYSVILLE
Surface Water Management Program Gap Analysis and Costs

April 29, 2009

Overall Program Requirements - Funding

Program Elements/Regulatory Requirements	Annual Required Program Funding*									
	Existing Activities	Year 3 2009 Budgeted	Year 3 2009 Additional	Year 3 2009 Total	Year 4 2010	Year 5 2011	Year 6 2012	Year 7 2013	Year 8 2014	Year 9 2015
Element #1 -NPDES Phase II Permit (Permit) Element #S5.A and #S5.B, Program Implementation	\$7,730	\$8,011	\$10,167	\$18,178	\$18,723	\$19,285	\$19,863	\$20,459	\$21,073	\$21,705
Element #2 - Permit Element #S5.C.1, Public Education and Outreach	\$17,730	\$18,011	\$14,243	\$32,254	\$26,424	\$33,304	\$27,120	\$27,484	\$27,858	\$28,244
Element #3 - Permit Element #S5.C.2, Public Involvement and Participation	\$9,365	\$9,305	\$3,851	\$13,157	\$13,092	\$13,335	\$13,585	\$13,843	\$14,108	\$14,381
Element #4 - Permit Element #S5.C.3, Illicit Discharge Detection and Elimination	\$78,650	\$72,133	\$22,283	\$94,417	\$95,087	\$96,137	\$97,975	\$99,084	\$100,282	\$101,487
Element #5 - Permit Element #S5.C.4, Controlling Runoff from New Development, Redevelopment, and Construction Sites	\$54,883	\$56,875	\$25,749	\$82,624	\$64,401	\$64,696	\$66,634	\$69,324	\$71,400	\$73,539
Element #6 - Permit Element #S5.C.5, Pollution Prevention and Operation and Maintenance for Municipal Operations	\$450,431	\$497,331	\$25,145	\$522,476	\$526,358	\$552,378	\$579,817	\$607,021	\$637,494	\$669,642
Element #7 -Permit Element #S7, Total Maximum Daily Load Allocations	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Element #8 - Permit Element #S8.B and S8.C, Monitoring	\$0	\$0	\$0	\$0	\$10,314	\$0	\$65,823	\$41,097	\$41,429	\$41,772
Element #9 - Permit Appendix 2, Lower Snohomish River Tributaries TMDL	\$25,460	\$26,021	\$3,081	\$29,102	\$34,435	\$28,631	\$27,507	\$28,032	\$28,573	\$29,130
Element #10 - Permit Element #S9.A and #S9.B, Reporting	\$0	\$0	\$308	\$308	\$317	\$327	\$337	\$347	\$357	\$368
Element #11 - Underground Injection Control (UIC)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Element #12 - Endangered Species Act (ESA)	\$7,730	\$8,011	\$0	\$8,011	\$8,251	\$8,498	\$8,753	\$9,016	\$9,286	\$9,565
Element #13 - Puget Sound Salmon Plan	\$23,963	\$24,833	\$0	\$24,833	\$25,586	\$26,353	\$27,144	\$27,958	\$28,797	\$29,661
Element #14 - WRIA #7 Salmon Habitat Recovery	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Element #15 - 2007-2009 Puget Sound Conservation and Recovery Plan	\$0	\$0	\$3,081	\$3,081	\$9,760	\$9,903	\$10,050	\$10,202	\$10,358	\$10,518
	\$675,941	\$720,530	\$107,909	\$828,439	\$832,749	\$852,848	\$944,608	\$953,865	\$991,015	\$1,030,013
Capital Improvement Projects										
Element #16 - Capital Projects	\$496,571	\$8,040,974	\$0	\$8,040,974	\$721,812	\$1,230,957	\$1,317,772	\$1,269,318	\$1,361,187	\$1,456,748
Additional Activities										
Element #17 - Additional Activities (City Specific)	\$1,463,113	\$1,721,745	\$0	\$1,721,745	\$1,556,834	\$1,586,976	\$1,556,700	\$1,750,188	\$1,781,693	\$1,814,144
Total Program Cost for All Elements	\$2,635,625	\$10,483,249	\$107,909	\$10,591,158	\$3,111,396	\$3,670,780	\$3,819,080	\$3,973,371	\$4,133,895	\$4,300,905

*Dollars shown are overview only. Review analysis assumptions, activities required under each element, and required FTE in detailed Gap Analysis spreadsheets.



CITY OF MARYSVILLE

Surface Water Management Program Gap Analysis and Costs

April 29, 2009

Overall Program Requirements - Staffing

Annual Staffing Levels (Full Time Equivalents)*

Program Elements/Regulatory Requirements

	Year 3 2009 Budgeted	Year 3 2009 Additional	Year 3 2009 Total	Year 4 2010	Year 5 2011	Year 6 2012	Year 7 2013	Year 8 2014	Year 9 2015
2008 Activities									
Element #1 - NPDES Phase II Permit (Permit) Element #S5.A and #S5.B, Program Implementation	0.10	0.13	0.23	0.23	0.23	0.23	0.23	0.23	0.23
Element #2 - Permit Element #S5.C.1, Public Education and Outreach	0.10	0.12	0.22	0.14	0.22	0.14	0.14	0.14	0.14
Element #3 - Permit Element #S5.C.2, Public Involvement and Participation	0.05	0.05	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Element #4 - Permit Element #S5.C.3, Illicit Discharge Detection and Elimination	0.50	0.28	0.68	0.42	0.42	0.43	0.43	0.43	0.43
Element #5 - Permit Element #S5.C.4, Controlling Runoff from New Development, Redevelopment, and Construction Sites	0.71	0.32	1.03	0.78	0.76	0.76	0.77	0.77	0.77
Element #6 - Permit Element #S5.C.5, Pollution Prevention and Operation and Maintenance for Municipal Operations	3.81	0.28	4.27	4.13	4.25	4.38	4.49	4.63	4.77
Element #7 -Permit Element #S7, Total Maximum Daily Load Allocations	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Element #8 - Permit Element #S8.B and S8.C, Monitoring	0.00	0.00	0.00	0.13	0.00	0.18	0.12	0.12	0.12
Element #9 - Permit Appendix 2, Lower Snohomish River Tributaries TMDL	0.20	0.04	0.24	0.30	0.22	0.20	0.20	0.20	0.20
Element #10 - Permit Element #S9.A and #S9.B, Reporting	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Element #11 - Underground Injection Control (UIC)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Element #12 - Endangered Species Act (ESA)	0.10	0.00	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Element #13 - Puget Sound Salmon Plan	0.31	0.00	0.31	0.31	0.31	0.31	0.31	0.31	0.31
Element #14 - WRIA #7 Salmon Habitat Recovery	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Element #15 - 2007-2009 Puget Sound Conservation and Recovery Plan	0.00	0.04	0.04	0.06	0.06	0.06	0.06	0.06	0.06
	5.88	1.25	7.21	6.69	6.67	6.89	6.95	7.09	7.22
Capital Improvement Projects									
Element #16 - Capital Projects	0.51	0.00	0.51	0.51	0.51	0.51	0.51	0.51	0.51
Additional Activities									
Element #17 - Additional Activities (City Specific)	2.67	0.00	2.51	2.51	2.51	2.51	2.51	2.51	2.51
Total Staffing for All Elements	9.07	1.25	10.23	9.71	9.69	9.91	9.97	10.10	10.24

*Staff levels shown are overview only. Review analysis assumptions, activities required under each element, and required FTE in detailed Gap Analysis spreadsheets.



CITY OF MARYSVILLE
SURFACE WATER MANAGEMENT PROGRAM GAP ANALYSIS AND COSTS

Requirements				Existing Program (2008: Year 2)				"Gap" Between Required Activities and Existing Program	Required Cost and Staff Levels (Assumes base hourly rate of \$37.16 with an annual 3% cost of living adjustment)												Assumptions
									Average 2008 Hourly Rate			Average 2009 Hourly Rate			Annual Increase			Hours Per FTE			
Stormwater Program Element	Final Permit - January 17, 2007 Activities/BMPs Needed for Regulatory Compliance	Required Implementation by end of:	Existing Hours	Existing Labor	Existing Expense	% Complete	2009: Budgeted			2009: Additional			2010			2011					
							Yr 3 (Hrs)	Yr 3 (Labor)	Yr 3 (Exp)	Yr 3 (Hrs)	Yr 3 (Labor)	Yr 3 (Exp)	Yr 4 (Hrs)	Yr 4 (Labor)	Yr 4 (Exp)	Yr 5 (Hrs)	Yr 5 (Labor)	Yr 5 (Exp)			
Element #1 -NPDES Phase II Permit (Permit) Element #S5.A and #S5.B, Program Implementation																					
S5.A.1	1.1 SWMP Implementation	Develop and implement a SWMP that covers the geographic area subject to the permit. Included with Elements 2 through 6.	Permit End	0	\$0	\$0	0%	Need to allocate specific staff time for management of the SWMP for the Surface Water Staff. The time will be used for coordination between staff, planning for future years, identifying staff needs and assigning responsibilities.											Starting in Year 3, assume 3 staff (2 Surface Water Staff, and Public Works Director) meeting weekly (48 out of 52 week, assuming vacation and holidays) for an hour (144 hours annually) for SWMP implementation coordination and management. Assume that the level of effort in Year 5 is maintained through the planning period (2015).		
S5.A.2	1.2 SWMP Documentation	Prepare written documentation of the SWMP and maintain annual updates in accordance with Element 10.1.	March 31 Annually Starting 2008	208	\$7,730	\$0	50%	The City submitted its SWMP and its 2007 Annual Report to Ecology. Each year thereafter, the City will need to submit the updated SWMPs and Annual Reports.											In Years 3-6, assume 80 hours of additional surface water staff time to update the SWMP as necessary. Maintain 208 hours of current staff time devoted to preparing the Annual Report to Ecology. Assume that the level of effort in Year 5 is maintained through the planning period (2015).		
S5.A.3	1.3 Program Tracking	Track the cost of development and implementation of the SWMP, including the number of inspections, enforcement actions, and public education activities. Use this information to evaluate SWMP development, implementation and permit compliance and to set priorities. Include this information in the Annual Report.	March 31 Annually Starting 2009	0	\$0	\$0	0%	Compliance is achieved through timely submittals of annual reports (Element 10.1) and ongoing tracking (Element 10.2). No dollars or FTE are added here.													
S5.A.5	1.4 Coordination Among Permittees	Include in the SWMP stormwater management activity coordination mechanisms as needed among: -other municipal stormwater NPDES permittees within adjoining or shared areas to clarify roles and responsibilities for pollutant control and to avoid conflicting plans, policies and regulations. -departments within each jurisdiction to eliminate barriers to compliance.	March 31 Annually Starting 2008	0	\$0	\$0	0%	The City should consider coordination among other local permittees on permit requirements and partnering in such areas to meeting permit requirements, such as training. It is recommended the City of Marysville participates in the NPDES Phase II Permit coordinators meeting.											Assume surface water staff time at 40 hours per year for coordination with local permittees starting in Year 3. Assume that the level of effort in Year 5 is maintained through the planning period (2015).		
S5.B	1.5 MEP and AKART	Design the SWMP to reduce discharge of pollutants from the MS4 to the Maximum Extent Practicable (MEP), meet State AKART requirements, and protect water quality. Continue to implement existing SWMP activities, even if they are ahead of the schedule of this permit.	Ongoing	0	\$0	\$0	0%	Compliance is achieved through implementation of existing SWMP activities and the activities outlined in Elements 2 through 6. No dollars or FTE added here.													
SWMP Implementation TOTAL				208	\$7,730	\$0	0.10	FTE	0.10	\$8,011	\$0	0.13	\$10,167	\$0	0.23	\$18,723	\$0	0.23	\$19,285	\$0	
GAP IN EXISTING PROGRAM									0.00	\$281	\$0	0.03	\$2,437	\$0	0.13	\$10,993	\$0	0.13	\$11,555	\$0	
Element #2 - Permit Element #S5.C.1, Public Education and Outreach																					
S5.C.1.a	2.1 Education and Outreach Program	Provide an education and outreach program for the MS4 service area designed to achieve measurable improvements in the target audience's understanding of the problem and what they can do to solve it. Prioritized target audiences and subject areas: i. General public - impacts of stormwater on surface water, impacts of impervious surfaces, and source control BMPs and environmental stewardship actions and opportunities. ii. General public, businesses, including home-based/mobile businesses - BMPs for use and storage of automotive chemicals, hazardous cleaning supplies, carwash soaps and other hazardous materials, and impacts of illicit discharges and how to report them. iii. Homeowners, Landscapers, property managers - yard care techniques protective of water quality, BMPs for use/storage of pesticides/fertilizers, carpet cleaning, auto repair/maintenance, LID techniques, and stormwater pond maintenance. iv. Engineers, contractors, developers, review staff, land use planners - technical standards for stormwater site and erosion control plans, LID techniques, and storm-water treatment and flow control BMPs.	Year 2 (2/15/2009)	208	\$7,730	\$10,000	50%	The Allen Quileeda Watershed Action Team and the Marysville School District worked together in dedicating 11.53 acres of a School District owned parcel adjacent to Jones Creek to be used for the purpose of environmental education, including stormwater. The City of Marysville also has water quality equipment that loaned free of charge to the school districts. The City also has informational brochures available for public regarding such things as how to reduce impacts from car washing and pet waste. The City would like to conduct its own public education in the future. The City will need to develop and implement a formal comprehensive education and outreach program that continues to focus on current target audiences and subject areas as specified in the permit requirements.											Maintain surface water staff allocation of 0.1 FTE (208 hours) to public education and outreach. The City will need to develop a formalized program in Year 3 at 80 hours staff time and \$5K in additional expense and materials each year. Continue program development and implementation annually at a total of 288 hours of staff time. Assumes that the majority of materials distribution will be through web posting, e-mail to reduce distribution costs and at events. Assume that the level of effort in Year 5 is maintained through the planning period (2015). Note: According to proposed compliance schedule this activity is behind the permit deadline.		

CITY OF MARYSVILLE
SURFACE WATER MANAGEMENT PROGRAM GAP ANALYSIS AND COSTS

Requirements				Existing Program (2008: Year 2)				"Gap" Between Required Activities and Existing Program	Required Cost and Staff Levels (Assumes base hourly rate of \$37.16 with an annual 3% cost of living adjustment)												Assumptions
									Average 2008 Hourly Rate			Average 2009 Hourly Rate			Annual Increase			Hours Per FTE			
Stormwater Program Element	Final Permit - January 17, 2007 Activities/BMPs Needed for Regulatory Compliance	Required Implementation by end of:	Existing Hours	Existing Labor	Existing Expense	% Complete		2009: Budgeted			2009: Additional			2010			2011				
								Yr 3 (Hrs)	Yr 3 (Labor)	Yr 3 (Exp)	Yr 3 (Hrs)	Yr 3 (Labor)	Yr 3 (Exp)	Yr 4 (Hrs)	Yr 4 (Labor)	Yr 4 (Exp)	Yr 5 (Hrs)	Yr 5 (Labor)	Yr 5 (Exp)		
\$5.C.1.b	2.2 Measure Results of the Educational Activities	Participate in an effort to measure understanding and adoption of the targeted behaviors among the target audiences.	Year 2 (2/15/2009)	0	\$0	\$0	0%	The City has completed a baseline survey of a target audience, elementary school students, to measure the results of the education program in place. Recommended strategy is to conduct a baseline survey of additional targeted audiences in Year 3 prior to development and implementation of the education and outreach program then in Year 5 conduct a follow-up survey later in the permit term to measure effectiveness and changes in understanding and behavior.	0	\$0	\$0	160	\$6,162	\$0	0	\$0	\$0	160	\$6,537	\$0	Assume survey to measure baseline understanding (Year 3) and follow up survey (Year 5) conducted by staff at 160 hours in Years 3 and 5. Note: According to proposed compliance schedule this activity is behind the permit deadline.
\$5.C.1.c	2.3 Maintain Records	Track and maintain records of public education and outreach activities.	With Annual Report	0	\$0	\$0	0%	Included in Element 10.3. No dollars or FTE counted here.													
Public Education and Outreach TOTAL				208	\$7,730	\$10,000	0.10	FTE	0.10	\$8,011	\$10,000	0.12	\$9,243	\$5,000	0.14	\$11,424	\$15,000	0.22	\$18,304	\$15,000	
GAP IN EXISTING PROGRAM									0.00	\$281	\$0	0.02	\$1,513	-\$5,000	0.04	\$3,694	\$5,000	0.12	\$10,574	\$5,000	
Element #3 - Permit Element #S5.C.2, Public Involvement and Participation																					
\$5.C.2.a	3.1 Input to SWMP	Create opportunities for public to participate in the decision making processes involved in the development, implementation and update of the SWMP.	Year 1 (2/15/2008)	104	\$3,865	\$5,500	75%	City efforts to involve the public in SWMP planning have included making all documents related to stormwater available for public review and comment through the City Council and involvement in the Quilceda/Allen Watershed Action Team (Action Team). However, the Action Team is rarely used to provide input to the City regarding SWM. This year the City also posted the SWMP on their website and advertised in the newspaper. The City may want to consider creating additional opportunities for the public to input into the SWMP planning, development and implementation activities.	104	\$4,005	\$5,300	80	\$3,081	\$0	184	\$7,299	\$5,000	184	\$7,518	\$5,000	Continue participation and involvement in the Quilceda/Allen Watershed Action Team and other public involvement efforts at 104 staff hours and \$5K of expense. Costs shown are for staff hours to enhance the website in Year 3 (80 hours), and ongoing quarterly maintenance (20 hours per quarter or a total of 80 hours annually) every year after.
\$5.C.2.b	3.2 Availability of Stormwater Program Documents	Post the SWMP, the Annual Report, and all other required permit submittals on the Permittee's Website.	March 31 Each Year Starting 2008	0	\$0	\$0	90%	The City currently posts stormwater program information on its website. The City will need to assure that the SWMP and the Annual Report is posted on the City website. The City will also need to maintain copies of final documents at City Hall that can be reviewed or copied by the public.	0	\$0	\$0	20	\$770	\$0	20	\$793	\$0	20	\$817	\$0	Assumes 20 hours of additional staff time to maintain copies of final documents at City Hall each year. Any website maintenance or postings is covered under time and expense in Element 3.1. Assume that the level of effort in Year 5 is maintained through the planning period (2015).
Public Involvement TOTAL				104	\$3,865	\$5,500	0.05	FTE	0.05	\$4,005	\$5,300	0.05	\$3,851	\$0	0.10	\$8,092	\$5,000	0.10	\$8,335	\$5,000	
GAP IN EXISTING PROGRAM									0.00	\$140	-\$200	0.00	-\$14	-\$5,500	0.05	\$4,227	-\$500	0.05	\$4,470	-\$500	
Element #4 - Permit Element #S5.C.3, Illicit Discharge Detection and Elimination																					
\$5.C.3.a	4.1 Storm Sewer System Map	Develop a municipal storm sewer system map of all storm sewer outfalls, receiving waters, and structural stormwater facilities. For all outfalls with a 24-inch nominal diameter include: - Tributary conveyances (type, material, size) - Associated drainage areas - Land use Also map: - Authorized connection points; - Geographic areas served that do not discharge to surface waters Map should be in electronic format, with fully described mapping standards.	Year 4 (2/15/2011)	312	\$11,595	\$0	50%	The City of Marysville has the majority of its closed storm sewer system mapped in ArcGIS; however, the City has not mapped ditches or roadside ditches. The City has the majority of storm stream culverts identified and described; however, the City has not identified all outfalls. The City needs to address all permit requirements in their final municipal storm sewer map including associated drainage areas, land use, authorized connections points and geographic areas served that do not discharge to surface waters.	107	\$4,121	\$0	200	\$7,702	\$0	80	\$3,173	\$0	80	\$3,269	\$0	Mapping efforts were decreased to 107 hours of staff time in Year 3. An additional 200 staff hours in Year 3 is required in order to complete mapping and meet all permit requirements. Assume in Years 4 to 9, 80 hours of maintenance effort for system mapping.

CITY OF MARYSVILLE
SURFACE WATER MANAGEMENT PROGRAM GAP ANALYSIS AND COSTS

Requirements				Existing Program (2008: Year 2)				Required Cost and Staff Levels (Assumes base hourly rate of \$37.16 with an annual 3% cost of living adjustment)									Assumptions		
								Average 2008 Hourly Rate			Average 2009 Hourly Rate			Annual Increase				Hours Per FTE	
								2009: Budgeted			2009: Additional			2010			2011		
Stormwater Program Element	Final Permit - January 17, 2007 Activities/BMPs Needed for Regulatory Compliance	Required Implementation by end of:	Existing Hours	Existing Labor	Existing Expense	% Complete	"Gap" Between Required Activities and Existing Program	Yr 3 (Hrs)	Yr 3 (Labor)	Yr 3 (Exp)	Yr 3 (Hrs)	Yr 3 (Labor)	Yr 3 (Exp)	Yr 4 (Hrs)	Yr 4 (Labor)	Yr 4 (Exp)	Yr 5 (Hrs)	Yr 5 (Labor)	Yr 5 (Exp)
§5.C.3.b 4.2 Illicit Discharge Ordinance	Develop and implement an ordinance prohibiting non-stormwater discharge to the Municipal Separate Storm Sewer System (MS4). The ordinance should cover: -Potable water flushing -Lawn and landscape irrigation runoff -Swimming pool discharges -Street and sidewalk wash water -Other non-stormwater discharges The ordinance must include escalating enforcement procedures and actions and an enforcement strategy.	Year 2.5 (8/15/2009)	104	\$3,865	\$0	50%	The Marysville Municipal Code (MMC) makes reference to prohibiting illicit discharge on private property or discharge of waste to public stormwater systems. The City will need to ensure an update to this code to bring it into compliance with permit requirements occur by August 15, 2009. A model ordinance is included in Appendix 4B of the Model Program for Eastern Washington and the Center for Watershed Protection also has developed a model ordinance.	104	\$4,005	\$0	250	\$9,628	\$0	0	\$0	\$0	0	\$0	\$0
§5.C.3.c 4.3 Detection and Elimination Program	Develop and implement an ongoing program to detect and address non-stormwater discharges, spills, illicit connections and illegal dumping. -Include procedures for locating priority areas based on land use, previous complaints, and storage practices; -Prioritize receiving waters for visual inspection (Year 3 - 2/15/10); -Field assessment of 3 priority receiving waters in the first four years (Year 4 - 2/15/11); -Field assessment of at least 1 priority receiving water each year thereafter (Year 5 - 2/15/12). Screening must follow Center for Watershed Protection guidance manual. Include procedures for: -Characterizing nature and potential threat of illicit discharges; -Tracing the source of illicit discharge; -Notifying authorities and property owners; -Removing the source and conducting follow-up inspections Once identified, investigate and characterize problems (7 days), initiate investigation needed to remove source (21 days), and terminate illicit discharge (180 days)	Variable	416	\$15,460	\$40,000	25%	Currently, there is no formally established program in place. Activity is limited to notice of violations, outfall inspections (City's goal is to inspect all outfalls in 3 years) and sampling of areas of concern. Citizen notification is the primary method by which the City is alerted to potential unauthorized discharges. It will take considerable time and effort to develop a program, establish procedures, conduct field assessments, characterize discharges, trace sources, and eliminate illicit connections. Illicit Discharge Detection and Elimination. A Guidance Manual for Program Development and Technical Assessments is a resource that is available through The Center for Watershed Protection that the City map find helpful in developing its Program.	416	\$16,021	\$40,000	80	\$3,081	\$0	576	\$22,849	\$60,000	576	\$23,534	\$60,000
§5.C.3.d 4.4 Public Education and Spill Reporting	Inform public employees, businesses, and general public of hazards associated with illegal discharges and improper waste disposal. Distribute information to target audiences identified in Element #2.1 Publicly list and publicize a hotline for public reporting of spills and illicit discharges; Keep records of calls and follow-up actions taken.	Permit End (8/15/2011) Year 2 (2/15/2009)	104	\$3,865	\$0	90%	Public calls can be taken through the City's spill report hotline. The City distributes information to target audiences on dumping oil or other automotive liquid and pet waste makes magnets available to the public that provides information on how to report a spill.	104	\$4,005	\$0	0	\$0	\$0	104	\$4,125	\$0	104	\$4,249	\$0
§5.C.3.e 4.5 Program Evaluation and Tracking	Adopt and implement procedures for program evaluation and assessment, including tracking number and type of spills identified, inspections made, and feedback from public education efforts.	With Annual Report	104	\$3,865	\$0	0%	The City has no formalized program for evaluation or assessment. The City uses the ASIST program for compliance and spill report tracking. The City is considering using a different system for tracking. It is assumed no additional time would be needed to integrate tracking of this permit requirement into the tracking system.	104	\$3,981	\$0	0	\$0	\$0	104	\$4,125	\$0	104	\$4,249	\$0

**CITY OF MARYSVILLE
SURFACE WATER MANAGEMENT PROGRAM GAP ANALYSIS AND COSTS**

Requirements				Existing Program (2008: Year 2)				"Gap" Between Required Activities and Existing Program	Required Cost and Staff Levels (Assumes base hourly rate of \$37.16 with an annual 3% cost of living adjustment)												Assumptions
									Average 2008 Hourly Rate			Average 2009 Hourly Rate			Annual Increase			Hours Per FTE			
Stormwater Program Element	Final Permit - January 17, 2007 Activities/BMPs Needed for Regulatory Compliance	Required Implementation by end of:	Existing Hours	Existing Labor	Existing Expense	% Complete	Yr 3 (Hrs)	Yr 3 (Labor)	Yr 3 (Exp)	Yr 3 (Hrs)	Yr 3 (Labor)	Yr 3 (Exp)	Yr 4 (Hrs)	Yr 4 (Labor)	Yr 4 (Exp)	Yr 5 (Hrs)	Yr 5 (Labor)	Yr 5 (Exp)			
\$5.C.3.f	4.6 Staff Training & Records Maintenance Train responsible staff on illicit discharge identification, investigation, termination, clean-up, and reporting with follow up training as needed to address changes; Ongoing training for all municipal field staff on identification and reporting with follow up training as needed to address changes; Document and maintain records of trainings.	Year 2.5 (8/15/2009) Year 3 (2/15/2010)	0	\$0	\$0	0%	The City currently has no program in place. Conduct staff training on new ordinance in Year 3. Conduct annual training in Years 3-6 for operations staff on identification and reporting.	0	\$0	\$0	46	\$1,772	\$100	18	\$714	\$100	18	\$735	\$100	In Year 3, training for 5 of the 19 Operations staff and 2 surface water staff on identification and reporting assumes 2-hour in house training performed by surface water staff. Staff time to organize and conduct training events is assumed to be 24 hours. In Year 3 assume 4 hours of training for the two additional surface water staff on clean-up procedures and protocols. In Years 4-9 assume ongoing training for 5 Operations staff on identification and reporting at 2-hour in hour training performed by surface water staff at 8 hours annually to organize and conduct training. Assume \$100 annually for the cost of training materials.	
Illicit Discharge TOTAL			1,040	\$38,650	\$40,000	0.50	FTE	0.40	\$32,133	\$40,000	0.28	\$22,183	\$100	0.42	\$34,987	\$60,100	0.42	\$36,037	\$60,100		
GAP IN EXISTING PROGRAM								-0.10	-\$6,516	\$0	-0.22	-\$16,467	-\$39,900	-0.08	-\$3,663	\$20,100	-0.08	-\$2,613	\$20,100		
Element #5 - Permit Element #S5.C.4, Controlling Runoff from New Development, Redevelopment, and Construction Sites																					
\$5.C.4.a	5.1 Stormwater Runoff Control Ordinance Adopt an ordinance to address runoff from new development, redevelopment, and construction site projects disturbing 1 or more acre. The ordinance should include: -Minimum requirements and thresholds equivalent to the 2005 Ecology Manual; -BMP selection and design criteria equivalent to the 2005 Ecology Manual; -Legal authority for inspection of private facilities discharging to the MS4; -Provisions to allow LID techniques to reduce impervious surfaces; -Guidelines and for applying Ecology's "erosivity waiver" (if applicable)	Year 2.5 (8/15/2009)	0	\$0	\$0	0%	The City has adopted the 2001 Ecology Manual. The City will need to adopt the 2005 Ecology Manual and plans to have this adoption formalized by August 2009. The City has an LID ordinance which adds a new LID Section of the MMC (19.49). This section of the code has been completed.	0	\$0	\$0	250	\$9,628	\$0	0	\$0	\$0	0	\$0	\$0	Assume 250 hours of staff time for ordinance development and public review process to adopt the 2005 Ecology Manual in Year 3 per City direction.	
\$5.C.4.b	5.2 Site Plan Review and Permitting Develop a permitting process with plan review, inspection, and enforcement to ensure that the ordinance guidelines (Element 5.1) are applied to all sites disturbing 1 acre of land or greater. Inspection should apply to high risk sites prior to construction and all sites during and after construction. Compliance for inspection requirements is presence and records of an established inspection program designed to inspect all sites and achieving at least 95% of scheduled inspections.	Year 2.5 (8/15/2009)	1,477	\$54,883	\$0	100%	The City conducts site plan review and construction inspection to ensure compliance with stormwater runoff control ordinance referenced in Element 5.1. The City will need to review the site plan review and construction inspection after the 2005 Manual Adoption to ensure compliance with the regulations. All construction site plans are reviewed by Community Development for compliance.	1477	\$56,875	\$0	0	\$0	\$0	1517	\$60,176	\$0	1477	\$60,347	\$0	Maintain current level of effort for plan review and permitting at 1,477 hours per year with an additional 40 hours of staff time in Year 4 to ensure consistent application of the 2005 Ecology Manual. Assume that the level of effort in Year 5 is maintained through the planning period (2015).	
\$5.C.4.c	5.3 Long Term Operation and Maintenance Adopt an ordinance identifying parties responsible for maintenance and inspection of facilities permitted under Element 5.2, requiring inspection and establishing enforcement procedures; Adopt maintenance standards for facilities permitted under Element 5.2 consistent with the 2005 Ecology Manual; Inspect established facilities (water quality and flow control) annually; Inspect new water quality and flow control facilities, including catch basins, every 6 months during building construction.	Year 2.5 (8/15/2009)	0	\$0	\$0	50%	During construction plan review, the City's development review staff verify the post construction design for all surface water elements are consistent with the 2001 Ecology Manual and City stormwater drainage standards. The City will need to ensure that the plan review is consistent with the requirements of the 2005 Ecology Manual. The City will need to review its facility maintenance guidance consistent with the 2005 Ecology Manual. Public facility maintenance is addressed in Element 6. The City will need to develop a system for private facility maintenance enforcement annually.	0	\$0	\$0	240	\$9,243	\$0	0	\$0	\$0	0	\$0	\$0	Finalize the Pollution Prevention and Operation and Maintenance Plan with 120 staff hours in Year 3. Develop a private facility maintenance enforcement program with 120 staff hours in Year 3.	

CITY OF MARYSVILLE
SURFACE WATER MANAGEMENT PROGRAM GAP ANALYSIS AND COSTS

Requirements				Existing Program (2008: Year 2)				"Gap" Between Required Activities and Existing Program	Required Cost and Staff Levels (Assumes base hourly rate of \$37.16 with an annual 3% cost of living adjustment)												Assumptions
									Average 2008 Hourly Rate			Average 2009 Hourly Rate			\$37.39			Annual Increase 3.00%			
									2009: Budgeted			2009: Additional			2010			2011			
Stormwater Program Element	Final Permit - January 17, 2007 Activities/BMPs Needed for Regulatory Compliance	Required Implementation by end of:	Existing Hours	Existing Labor	Existing Expense	% Complete		Yr 3 (Hrs)	Yr 3 (Labor)	Yr 3 (Exp)	Yr 3 (Hrs)	Yr 3 (Labor)	Yr 3 (Exp)	Yr 4 (Hrs)	Yr 4 (Labor)	Yr 4 (Exp)	Yr 5 (Hrs)	Yr 5 (Labor)	Yr 5 (Exp)		
\$5.C.4.d	5.4 Record Keeping for Inspection and Maintenance Activities Develop procedure for keeping records. Keep records of all inspections, enforcement actions, maintenance activities, and construction sites.	Year 2.5 (8/15/2009)	0	\$0	\$0	75%	The City uses a tracking system in Excel to track inspection and maintenance activities for new development, redevelopment and construction sites. This system should be reviewed to ensure it is sufficient for the record keeping of inspection and maintenance activities requirements.	0	\$0	\$0	120	\$4,621	\$0	80	\$3,173	\$0	80	\$3,269	\$0	Assume 80 hours of staff time for annual administration for maintaining the tracking system. In Year 3 assume 40 hours of staff time to review and enhance tracking system to support record keeping and annual reporting requirements. Assume that the level of effort in Year 5 is maintained through the planning period (2015).	
\$5.C.4.e	5.5 NOI for Construction Activity Make copies of the "Notice of Intent for Construction Activity" and "Notice of Intent for Industrial Activity" available to developers.	February 16, 2007	0	\$0	\$0	100%	The City is currently complying with this requirement through its preapplication requirement.	0	\$0	\$0	0	\$0	\$0	0	\$0	\$0	0	\$0	\$0	Assumes the minimal time necessary to set up and administer annually can be absorbed by existing staff, and that developers submit NOI directly to Ecology.	
\$5.C.4.f	5.6 Staff Training and Records Maintenance Conduct training for staff in permitting, plan review, construction site inspection, and enforcement concerning the Stormwater Runoff Control program (Element 5.1); Maintain records of training.	Year 2.5 (8/15/2009)	0	\$0	\$0	0%	Both construction inspectors are trained in CESCL and the City hosted the training in 2006. The City will need to adopt the 2005 Ecology Manual and provide training on the maintenance requirements of the manual. The City will also need to maintain the current training activities, with additional training on the NPDES Phase II requirements. This training can be conducted in-house or through web-based seminars offered by EPA and/or other agencies.	0	\$0	\$0	56	\$2,157	\$100	24	\$952	\$100	24	\$981	\$100	Assume in Year 3, 8 staff at 4-hours of training plus \$100 in material expense. Assume 24 hours in Year 3 of staff time to develop, organize, conduct and manage the training session. Assume in Years 4-9, 8 hours of staff time to develop and conduct refresher training, and 4 staff at 4 hours of staff time for refresher training plus \$100 in material expense.	
Controlling Site Runoff TOTAL			1,477	\$54,883	\$0	0.71	FTE	0.71	\$56,875	\$0	0.32	\$25,649	\$100	0.78	\$64,301	\$100	0.76	\$64,596	\$100		
GAP IN EXISTING PROGRAM								0.00	\$1,992	\$0	-0.39	-\$29,233	\$100	0.07	\$9,419	\$100	0.05	\$9,714	\$100		
Element #6 - Permit Element #S5.C.5, Pollution Prevention and Operation and Maintenance for Municipal Operations																					
\$5.C.5.a	6.1 Establish Maintenance Standards Establish maintenance standards consistent with the 2005 Ecology Manual; When an inspection identifies an exceedance of the maintenance standard, maintenance shall be performed: -Within 1 year for wet pool facilities and retention/detention ponds. -Within 6 months for typical maintenance. -Within 9 months for maintenance that requires capital construction. -Within 2 years for maintenance that requires capital construction of less than \$25K.	Year 3 (2/15/2010)	0	\$0	\$0	0%	Included in Element 5.3. No dollars or FTE included here.														
\$5.C.5.b	6.2 Annual Inspections of Water Quality and Flow Control Facilities Conduct annual inspections of stormwater treatment and flow control facilities, other than catch basins; Perform necessary maintenance actions in accordance with established maintenance standards. Compliance of inspection requirements is the presence of an established inspection program designed to inspect all sites and achieving inspection of 95% of all sites.	Years 3 (2/15/2010), 4 (2/15/2011) and 5 (2/15/2012)	7,930	\$294,704	\$150,127	75%	This is a recently implemented element for the City. There are 215 stormwater treatment and flow control facilities that the City is responsible to maintain. The City's 2008 Surface Water Budget repairs and maintenance expenditure covers all costs in Element 6. The City will need to evaluate the current practices to assure they meet all permit requirements.	8295	\$319,460	\$172,271	80	\$3,081	\$0	8544	\$338,915	\$177,439	8800	\$359,555	\$182,762	Assume 80 hours in Year 3 to evaluate maintenance practices. Assuming maintenance practices in Year 3 are sufficient, maintain current level of effort with slight annual increase of 3% per year in required staff time to account for additional facilities being added to inventory associated with new development. Assume that the level of effort in Year 5 is maintained through the planning period (2015) with a 3% increase in expense each year.	
\$5.C.5.c	6.3 Spot Checks after Storm Events Spot check stormwater treatment and flow control facilities after major storm events (>10-year recurrence interval); Conduct repairs as necessary. Compliance of inspection requirements is the presence of an established inspection program designed to inspect all sites and achieving inspection of 95% of all sites.	Year 3 (2/15/2010)	0	\$0	\$0	50%	The City's standard practice is to use best judgment regarding spot checks of stormwater facilities after storm events. The City will need to develop a system to ensure and document spot checks after a 10-year and greater storm event.	0	\$0	\$0	80	\$3,081	\$0	0	\$0	\$0	0	\$0	\$0	Add 80 hours in Year 3 to develop a system to ensure and document spot checks.	

CITY OF MARYSVILLE
SURFACE WATER MANAGEMENT PROGRAM GAP ANALYSIS AND COSTS

Requirements				Existing Program (2008: Year 2)				"Gap" Between Required Activities and Existing Program	Required Cost and Staff Levels (Assumes base hourly rate of \$37.16 with an annual 3% cost of living adjustment)												Assumptions
									Average 2008 Hourly Rate			Average 2009 Hourly Rate			Annual Increase			Hours Per FTE			
Stormwater Program Element	Final Permit - January 17, 2007 Activities/BMPs Needed for Regulatory Compliance	Required Implementation by end of:	Existing Hours	Existing Labor	Existing Expense	% Complete	2009: Budgeted	2009: Additional	2010	2011	Yr 3 (Hrs)	Yr 3 (Labor)	Yr 3 (Exp)	Yr 4 (Hrs)	Yr 4 (Labor)	Yr 4 (Exp)	Yr 5 (Hrs)	Yr 5 (Labor)	Yr 5 (Exp)		
\$5.C.5.d	6.4 Catch Basin Inspection	Permit End (8/15/2011)	0	\$0	\$0	75%														0	\$0
\$5.C.5.f	6.5 Road Maintenance to Reduce Stormwater Impacts	Year 4 (2/15/2010)	0	\$0	\$0	75%	0	\$0	\$0	80	\$3,081	\$0	0	\$0	\$0	0	\$0	\$0	Assume in Year 3 80 hours to develop a system to ensure and document the roadway practices for consistency with the permit requirements. Staff hours to perform this maintenance practice are included in Element 6.2.		
\$5.C.5.g	6.6 Non-Roadway Property Maintenance to Reduce Stormwater Impacts	Year 4 (2/15/2010)	0	\$0	\$0	25%	0	\$0	\$0	80	\$3,081	\$0	0	\$0	\$0	0	\$0	\$0	Staff hours to perform this maintenance practice is included in Element 6.2. Allocate 80 hours of staff time to develop a non-roadway property maintenance manual in Year 3.		
\$5.C.5.h	6.7 Staff Training and Records Maintenance	Year 4 (2/15/2010)	0	\$0	\$5,600	0%	0	\$0	\$5,600	48	\$1,849	\$2,500	48	\$1,904	\$8,100	48	\$1,961	\$8,100	Maintain existing training budget for \$5K each year. In Years 3-9, 8 hours each of training time for 5 of the 19 maintenance staff (5 Lead Workers plus 14 Maintenance Workers) at \$2,500 class cost, plus 8 hours staff time for surface water staff to identify and coordinate classes and maintain records.		
\$5.C.5.i	6.8 SWPPP for Maintenance Yards	Year 4 (2/15/2010)	0	\$0	\$0	0%	0	\$0	\$0	160	\$6,162	\$0	0	\$0	\$0	0	\$0	\$0	In Year 3, conduct review and develop SWPPP with 160 staff hours.		

**CITY OF MARYSVILLE
SURFACE WATER MANAGEMENT PROGRAM GAP ANALYSIS AND COSTS**

Requirements				Existing Program (2008: Year 2)				"Gap" Between Required Activities and Existing Program	Required Cost and Staff Levels (Assumes base hourly rate of \$37.16 with an annual 3% cost of living adjustment)											Assumptions	
									Average 2008 Hourly Rate			Average 2009 Hourly Rate			Annual Increase			Hours Per FTE			
Stormwater Program Element	Final Permit - January 17, 2007 Activities/BMPs Needed for Regulatory Compliance	Required Implementation by end of:	Existing Hours	Existing Labor	Existing Expense	% Complete	Yr 3 (Hrs)	Yr 3 (Labor)	Yr 3 (Exp)	Yr 3 (Hrs)	Yr 3 (Labor)	Yr 3 (Exp)	Yr 4 (Hrs)	Yr 4 (Labor)	Yr 4 (Exp)	Yr 5 (Hrs)	Yr 5 (Labor)	Yr 5 (Exp)			
S5.C.5.j	6.9 Record Keeping	Maintain records of inspection and/or repair activities.	Ongoing	0	\$0	\$0	50%	The City recently started a record system to track catch basin and detention facility maintenance. The City is proposing recording the maintenance in the field using GIS/GPS equipment and an Access database. The City will need to assure that the record system tracks all inspection and maintenance records so they can be easily accessed for annual reporting.	0	\$0	\$0	20	\$770	\$0	0	\$0	\$0	0	\$0	\$0	Maintain current level of tracking. Add 20 hours in Year 3 to review record system and assure adequacy for annual reporting.
Operation and Maintenance TOTAL				7,930	\$294,704	\$155,727	3.81	FTE	3.99	\$319,460	\$177,871	0.28	\$22,645	\$2,500	4.13	\$340,819	\$185,539	4.25	\$361,516	\$190,862	
GAP IN EXISTING PROGRAM									0.18	\$24,756	\$22,144	-3.53	-\$272,059	-\$153,227	0.32	\$46,115	\$29,812	0.44	\$66,812	\$35,135	
Element #7 -Permit Element #S7, Total Maximum Daily Load Allocations																					
S7.A	7.1 Applicable TMDLs in Appendix 2	Comply with requirements of Appendix 2 of the Phase II permit; When monitoring is required, submit a Quality Assurance Project Plan (QAPP) to Ecology.	Variable	0	\$0	\$0	0%	The Lower Snohomish River Tributaries TMDL is addressed in Element 9. No dollars or FTE added here.													
S7.B	7.2 TMDLs not listed in Appendix 2	Comply with requirements of the NPDES Phase II permit; Keep records and report activities relevant to applicable TMDLs.	N/A	0	\$0	\$0	0%	Compliance is achieved through implementation of activities outlined in Elements 2 through 6 and submittal of annual reports (Element #10.1). No dollars or FTE added here.													
S7.C	7.3 TMDLs Approved during the Permit Cycle	Comply with future permit modifications (if applicable); Permittees are encouraged to participate in developing TMDLs and begin implementation.	As specified in future permit modifications	0	\$0	\$0	0%	For TMDLs developed during the permit cycle implementation requirements will be included in any future permit modifications. There are no TMDLs currently being developed with requirements that apply to the City.	0	\$0	\$0	0	\$0	\$0	0	\$0	\$0	0	\$0	\$0	
TMDL TOTAL				0	\$0	\$0	0.00	FTE	0.00	\$0	\$0	0.00	\$0	\$0	0.00	\$0	\$0	0.00	\$0	\$0	
GAP IN EXISTING PROGRAM									0.00	\$0	\$0	0.00	\$0	\$0	0.00	\$0	\$0	0.00	\$0	\$0	
Element #8 - Permit Element #S8.B and S8.C, Monitoring																					
S8.B	8.1 Existing Monitoring	Describe any stormwater monitoring or studies and type of information gathered; Assess the appropriateness of the BMPs in the SWMP and note any proposed changes.	March 31 Annually Starting 2008	0	\$0	\$0	0%	The City is conducting monitoring according to the TMDL for the Lower Snohomish River Tributaries. See Element 9 for more details.													
S8.C.1.a	8.2 Stormwater Monitoring	Prepare for future monitoring by identifying 2 outfalls or conveyances (1 commercial and 1 high density residential) suitable for permanent flow-weighted composite sampling equipment. Document site selection and justify basin size based on times of concentration for typical seasonal storms.	December 31, 2010	0	\$0	\$0	0%	Identify sites for future monitoring. Proposed sites are to be mapped per Element 4.1.	0	\$0	\$0	0	\$0	\$0	60	\$2,380	\$0	0	\$0	\$0	In Year 4, assume surface water staff time at 60 hours for site identification, including site field visit and documentation. Complete in Year 4 as fourth and subsequent annual reports must describe the status of identification of monitoring sites. Year 6 will be the first year of the second permit cycle. Assume second permit cycle requires initiation of monitoring. Conduct monitoring and manage data in house at 136 hours staff time (8 hours per month for monitoring, sample handling and data management) and 40 hours for equipment research, purchase and installation) and \$20K for lab costs and \$10K equipment purchases. Assume QAPP development for monitoring at 80 hours. In Year 7-9, assume 96 hours of staff time (8 hours per month for monitoring, sample handling and data management) and \$20K for lab costs is maintained through the planning period (2015).

CITY OF MARYSVILLE
SURFACE WATER MANAGEMENT PROGRAM GAP ANALYSIS AND COSTS

Requirements			Existing Program (2008: Year 2)				"Gap" Between Required Activities and Existing Program	Required Cost and Staff Levels (Assumes base hourly rate of \$37.16 with an annual 3% cost of living adjustment)													Assumptions
								Average 2008 Hourly Rate \$37.16			Average 2009 Hourly Rate \$37.39			Annual Increase 3.00%			Hours Per FTE 2080				
Stormwater Program Element	Final Permit - January 17, 2007 Activities/BMPs Needed for Regulatory Compliance	Required Implementation by end of:	Existing Hours	Existing Labor	Existing Expense	% Complete		2009: Budgeted			2009: Additional			2010			2011				
								Yr 3 (Hrs)	Yr 3 (Labor)	Yr 3 (Exp)	Yr 3 (Hrs)	Yr 3 (Labor)	Yr 3 (Exp)	Yr 4 (Hrs)	Yr 4 (Labor)	Yr 4 (Exp)	Yr 5 (Hrs)	Yr 5 (Labor)	Yr 5 (Exp)		
S8.C.1.b	8.3 SWMP Effectiveness Monitoring	Prepare for future monitoring by identifying 2 suitable questions that could be studied through future monitoring; Select sites for future monitoring to explore the answers to the selected questions; Develop a monitoring plan for each question including: -Statement of the problem and why it is significant; -Specific hypothesis about the problem; -Specific parameters or attributes to be measured; -Expected modifications based on outcome of the monitoring.	December 31, 2010	0	\$0	\$0	0%	Identify questions suitable to effectiveness monitoring and select sites. Develop monitoring plans for each question.	0	\$0	\$0	0	\$0	\$0	200	\$7,934	\$0	0	\$0	\$0	In Year 4, assume surface water staff time at 200 hours to fully develop suitable questions (40 hours) to assess program effectiveness, and to develop monitoring plans (80 hours for each). Mapping of sites and land use is covered in Element #4.1. Start work in Year 4, as fourth and subsequent annual reports must summarize the proposed questions, and describe the status of developing the monitoring plans. Year 6 will be the first year of second permit cycle. Assume second permit cycle requires initiation of monitoring. Conduct monitoring in house at 160 hours staff time and \$10K for lab costs and \$10K for equipment. In Years 7-9, assume 160 hours of staff time and \$10K in lab costs is maintained through the planning period (2015).
S8.C.2	8.4 Annual Reporting	Describe the status of identifying sites, questions, and development of monitoring plan outlined in Elements 8.2 and 8.3.	Years 4 and 5	0	\$0	\$0	0%	Compliance is achieved through timely submittals of annual reports (Element 10.1). No dollars or FTE added here.													
Monitoring TOTAL				0	\$0	\$0	0.00	FTE	0.00	\$0	\$0	0.00	\$0	\$0	0.13	\$10,314	\$0	0.00	\$0	\$0	
GAP IN EXISTING PROGRAM								0.00	\$0	\$0	0.00	\$0	\$0	0.13	\$10,314	\$0	0.00	\$0	\$0		
Element #9 - Permit Appendix 2, Lower Snohomish River Tributaries TMDL																					
S9.A&B	9.1 Illicit Discharge Detection and Elimination	The IDDE program in Element 3 shall address commercial animal handling areas and commercial composting facilities including source control BMPs equivalent to the 2005 DOE Manual. Additional activities include: 1. Compile list of existing facilities, no later than 30 months after the effective date of the permit, (8/15/2009) 2. Update and submit list with permit renewal application, no later than 6 months prior to permit expiration, (8/15/2011) 3. Beginning no later than 30 months after the effective date of the permit conduct inspection of listed sites including adequate enforcement capability. Complete inspection within 46 months of the effective date of the permit. (Start date - 8/15/2009; Completion date - 1/15/2010)	Variable	0	\$0	\$0	0%	The City currently does not have an IDDE program. A program will need to be developed to meet both TMDL and Permit requirements.	0	\$0	\$0	80	\$3,081	\$0	40	\$1,587	\$0	40	\$1,634	\$0	Assume 40 hours of staff time in Year 3 for compiling a list of existing facilities. Assume in Years 3-4, 40 hours each year for inspections of listed sites. Assume in Year 5, 40 hours of staff time to update the list of existing facilities.
S9.E	9.2 Monitoring and Implementation Reporting	Four months after permit issuance the City must submit a QAPP to Ecology for approval. Begin monitoring 9 months after permit issuance. No later than 12 months prior to permit expiration, a BPCP shall be developed, (2/15/2011) No later than 9 months prior to permit expiration, conduct public review process for the BPCP, (5/15/2011) The final BPCP must be submitted to Ecology at the time of permit renewal application.	Variable	416	\$15,460	\$10,000	50%	The City's has an approved QAPP for all monitoring and implementation requirements for this TMDL and has been in compliance with all monitoring requirements under the QAPP. The City will need to develop a BPCP that addresses the following topics: Pet Waste Ordinance, Evaluation of water pollution control enforcement capabilities, evaluation of CAO in relation to TMDLs goals, education program directed at reducing TMDLs goals, educational program directed at reducing bacterial pollution, investigation and implementation of methods that prevent additional stormwater bacterial pollution through stormwater treatment etc, implementation of activities of the Quilceda/Allen or French Creek Water Management Plans, ambient water quality and stormwater quality sampling and livestock ordinance and compost ordinance.	416	\$16,021	\$10,000	0	\$0	\$0	576	\$22,849	\$10,000	416	\$16,997	\$10,000	Maintain current level of expense and activity at 416 surface water staff hours to conduct monitoring. An additional 160 staff hours is included in Year 4 to develop a BPCP and conduct public review. Assume that the level of effort in Year 5 is maintained through the planning period (2015).
Lower Snohomish River Tributaries TMDL TOTAL				416	\$15,460	\$10,000	0.20	FTE	0.20	\$16,021	\$10,000	0.04	\$3,081	\$0	0.30	\$24,435	\$10,000	0.22	\$18,631	\$10,000	

CITY OF MARYSVILLE
SURFACE WATER MANAGEMENT PROGRAM GAP ANALYSIS AND COSTS

Requirements				Existing Program (2008: Year 2)				Required Cost and Staff Levels (Assumes base hourly rate of \$37.16 with an annual 3% cost of living adjustment)									Assumptions				
								Average 2008 Hourly Rate			Average 2009 Hourly Rate			Annual Increase				Hours Per FTE			
Stormwater Program Element	Final Permit - January 17, 2007 Activities/BMPs Needed for Regulatory Compliance	Required Implementation by end of:	Existing Hours	Existing Labor	Existing Expense	% Complete	"Gap" Between Required Activities and Existing Program	2009: Budgeted			2009: Additional			2010			2011				
								Yr 3 (Hrs)	Yr 3 (Labor)	Yr 3 (Exp)	Yr 3 (Hrs)	Yr 3 (Labor)	Yr 3 (Exp)	Yr 4 (Hrs)	Yr 4 (Labor)	Yr 4 (Exp)	Yr 5 (Hrs)	Yr 5 (Labor)	Yr 5 (Exp)		
GAP IN EXISTING PROGRAM								0.00	\$561	\$0	-0.16	-\$12,379	-\$10,000	0.10	\$8,975	\$0	0.02	\$3,171	\$0		
Element #10 - Permit Element #S9.A and #S9.B, Reporting																					
	10.1 Annual Reports	Each annual report shall include: -Copy of the current SWMP; -Submittal of Appendix 3 (Annual Report Forms) summarizing compliance with permit conditions, including: -Implementation status of Elements 1 through 5; -Assessment of progress toward meeting minimum performance measures; -Activities implemented to comply with each element in Elements 1 through 5; -SWMP implementation schedule and plans for meeting future permit deadlines; -Summary of the SWMP Evaluation.		0	\$0	\$0	0%	Through the year: -Track all storm and surface water activities completed by the City departments and correlate to Phase II permit requirements. -Document staff hours and money used to meet the various permit requirements. -Track progress toward meeting milestones outlined in the permit. -Identify programs or activities that are behind schedule. -Revise implementation schedule as needed to maintain realistic goals. On an annual basis summarize all information collected for inclusion in the annual report.	0	\$0	\$0	0	\$0	\$0	0	\$0	\$0	0	\$0	\$0	See Element 1.2 for FTE allocation for developing the Annual Report.
S9.E	10.2 Ongoing Tracking	Perform ongoing tracking of NPDES Phase II Permit activities.	Ongoing	0	\$0	\$0	0%	The City's tracking of SWMP activities is documented in Elements 1-10.	0	\$0	\$0	0	\$0	\$0	0	\$0	\$0	0	\$0	\$0	
S9.C	10.3 Maintaining Records	Maintain records of SWMP and permit activities for five years.	Ongoing	0	\$0	\$0	0%	Archive the permit and SWMP records in City records. Maintain for a minimum of five years.	0	\$0	\$0	8	\$308	\$0	8	\$317	\$0	8	\$327	\$0	Assume minimal effort at 8 hours by existing surface water staff. Assume that the level of effort in Year 5 is maintained through the planning period (2015).
S9.D	10.4 Public Access of SWMP and Activity Reports	Make all records of SWMP and permit activities available to the public at reasonable times during business hours.	Ongoing	0	\$0	\$0	0%	Included in Element 3.2. No dollars or FTE counted here.													
Reporting TOTAL				0	\$0	\$0	0.00	FTE	0.00	\$0	\$0	0.00	\$308	\$0	0.00	\$317	\$0	0.00	\$327	\$0	
GAP IN EXISTING PROGRAM								0.00	\$0	\$0	0.00	\$308	\$0	0.00	\$317	\$0	0.00	\$327	\$0		
Element #11 - Underground Injection Control (UIC)																					
	11.1 Register Existing UIC Wells Used for Stormwater	Complete Ecology Registration forms and submit (WAC 173-218-070.1.a.i-v). Information includes: Operator/owner information; site location; BMPs used to protect groundwater quality, UIC well description; information necessary to demonstrate that the non-endangerment standard (WAC 173-218-080 and WAC 173-218-090) has been met.	N/A	0	\$0	\$0	0%	The City is not aware of any publicly owned infiltration facilities that qualify as UIC facilities.	0	\$0	\$0	0	\$0	\$0	0	\$0	\$0	0	\$0	\$0	

CITY OF MARYSVILLE
SURFACE WATER MANAGEMENT PROGRAM GAP ANALYSIS AND COSTS

Requirements				Existing Program (2008: Year 2)				"Gap" Between Required Activities and Existing Program	Required Cost and Staff Levels (Assumes base hourly rate of \$37.16 with an annual 3% cost of living adjustment)												Assumptions
									Average 2008 Hourly Rate			Average 2009 Hourly Rate			Annual Increase			Hours Per FTE			
									2008	2009: Budgeted	2009: Additional	2010	2011	2012	2013	2014	2015	2016	2017	2018	
Stormwater Program Element	Final Permit - January 17, 2007 Activities/BMPs Needed for Regulatory Compliance	Required Implementation by end of:	Existing Hours	Existing Labor	Existing Expense	% Complete		Yr 3 (Hrs)	Yr 3 (Labor)	Yr 3 (Exp)	Yr 3 (Hrs)	Yr 3 (Labor)	Yr 3 (Exp)	Yr 4 (Hrs)	Yr 4 (Labor)	Yr 4 (Exp)	Yr 5 (Hrs)	Yr 5 (Labor)	Yr 5 (Exp)		
11.2 Assess Existing UIC Wells Used for Stormwater	According to WAC 173-218-090.2.a.ii, the approach to conducting the well assessment will be determined by the owner. The assessment evaluates the potential risks to groundwater from the use of UIC wells. Any assessment that identifies a well as a high threat to groundwater must include a retrofit schedule (WAC 173-218-090.a.iii), and immediate action must be taken to correct the use of a well that is determined to be an imminent public health hazard (WAC 173-218-090.a.iv).	N/A	0	\$0	\$0	0%	Not Applicable	0	\$0	\$0	0	\$0	\$0	0	\$0	\$0	0	\$0	\$0		
11.3 Register New UIC Wells Used for Stormwater (built after 2/3/06) Prior to Use	Complete Ecology Registration forms and submit (WAC 173-218-070.1.a.i-v). Information includes: Operator/owner information; site location; BMPs used to protect groundwater quality; UIC well description; information necessary to demonstrate that the non-endangerment standard (WAC 173-218-080 and WAC 173-218-090) has been met.	N/A	0	\$0	\$0	0%	Not Applicable	0	\$0	\$0	0	\$0	\$0	0	\$0	\$0	0	\$0	\$0		
11.4 Compliance with the Nonendangerment Standard for New UIC Wells Used for Stormwater	Prior to use, new wells must meet the requirements of WAC 173-218-080 and WAC 173-218-090 which call for preventing the movement of fluid containing any contaminant into the groundwater if it may cause a violation of groundwater quality standards. Compliance with the nonendangerment standard can be met through one or a combination of two approaches: presumptive (WAC 173-218-090.1.c.i.A-D) or demonstrative (WAC 173-218-090.1.c.ii.A-E).	N/A	0	\$0	\$0	0%	Not Applicable	0	\$0	\$0	0	\$0	\$0	0	\$0	\$0	0	\$0	\$0		
11.5 Annual Update on Well Status Changes	After initial well registrations have been sent to Ecology, provide an annual update on any well status changes.	N/A	0	\$0	\$0	0%	Not Applicable														
11.6 UIC Well Decommissioning & Notification Requirements	Wells must be decommissioned by filling for plugging the well so that it will not result in an environmental, public health or safety hazard, and will not serve as a channel for movement of water or pollution to the aquifer as specified in WAC 173-218-120.3.b.i-ii). Ecology must be notified 30 days prior to decommissioning wells that pose an imminent public health hazard, otherwise notification must occur within one year of closure.	N/A	0	\$0	\$0	0%	Not Applicable														
Underground Injection Control Regulations TOTAL			0	\$0	\$0	0.00	FTE	0.00	\$0	\$0	0.00	\$0	\$0	0.00	\$0	\$0	0.00	\$0	\$0		
GAP IN EXISTING PROGRAM								0.00	\$0	\$0	0.00	\$0	\$0	0.00	\$0	\$0	0.00	\$0	\$0		
Element #12 - Endangered Species Act (ESA)																					
12.1 ESA Regional Coordination	The City is an active member of the Snohomish River Basin Recovery Forum. See Element 14 Puget Sound Salmon Recovery Plan for ESA compliance strategies.	Ongoing	208	\$7,730	\$0	0%	See Element 13.1 for further information.	208	\$8,011	\$0	0	\$0	\$0	208	\$8,251	\$0	208	\$8,498	\$0	Maintain existing participation at 208 staff hours. Assume that the level of effort in Year 5 is maintained through the planning period (2015).	
Endangered Species Act TOTAL			208	\$7,730	\$0	0.10	FTE	0.10	\$8,011	\$0	0.00	\$0	\$0	0.10	\$8,251	\$0.00	0.10	\$8,498	0.00		
GAP IN EXISTING PROGRAM								0.00	\$281	\$0	-0.10	-\$7,730	\$0	0.00	\$521	\$0	0.00	\$768	\$0		
Element #13 - Puget Sound Salmon Plan																					
13.1 Puget Sound Salmon Recovery Plan Implementation	The City is an active participant in salmon conservation planning and is implementing projects in accordance with Element 13.2. The City is coordinating with other watershed groups as shown in Element 13.3.	Ongoing	437	\$16,233	\$0	0%	The City should continue participation levels in salmon conservation planning.	437	\$16,822	\$0	0	\$0	\$0	437	\$17,335	\$0	437	\$17,855	\$0	Maintain current level of participation at 437 staff hours. Assume that the level of effort in Year 5 is maintained through the planning period (2015).	
13.2 Snohomish River Basin Salmon Conservation Implementation	The City was an active participant in developing the June 2005 Snohomish River Basin Salmon Conservation Plan published by the Salmon Recovery Forum. Currently the City is pursuing the Qvuloolt/Pooritanga Estuarine Restoration Project. This project is listed in the City's October 2006 Shoreline Inventory and Characterization Report, as adopted by ordinance, as Project #9.3.1.	Ongoing	0	\$0	\$0	0%	The City should continue the level of participation in the Salmon Recovery Forum.	0	\$0	\$0	0	\$0	\$0	0	\$0	\$0	0	\$0	\$0	See Element 13.1 for FTE allocation.	

CITY OF MARYSVILLE
SURFACE WATER MANAGEMENT PROGRAM GAP ANALYSIS AND COSTS

Requirements				Existing Program (2008: Year 2)				"Gap" Between Required Activities and Existing Program	Required Cost and Staff Levels (Assumes base hourly rate of \$37.16 with an annual 3% cost of living adjustment)											Assumptions
									Average 2008 Hourly Rate			Average 2009 Hourly Rate			Annual Increase			Hours Per FTE		
Stormwater Program Element	Final Permit - January 17, 2007 Activities/BMPs Needed for Regulatory Compliance	Required Implementation by end of:	Existing Hours	Existing Labor	Existing Expense	% Complete		2009: Budgeted			2009: Additional			2010			2011			
								Yr 3 (Hrs)	Yr 3 (Labor)	Yr 3 (Exp)	Yr 3 (Hrs)	Yr 3 (Labor)	Yr 3 (Exp)	Yr 4 (Hrs)	Yr 4 (Labor)	Yr 4 (Exp)	Yr 5 (Hrs)	Yr 5 (Labor)	Yr 5 (Exp)	
13.3 Coordination with other Watershed Groups	In the City's October 2006 Shoreline Inventory and Characterization Report, as adopted by ordinance, Project #9.3.3 covers the City's coordination with other watershed groups. Currently, staff time and material are the only City resource commitments.	Ongoing	208	\$7,730	\$0	0%	Continue with the level of staff time and materials commitment.	208	\$8,011	\$0	0	\$0	\$0	208	\$8,251	\$0	208	\$8,498	\$0	Maintain current level of participation at 208 staff hours. Assume that the level of effort in Year 5 is maintained through the planning period (2015).
Puget Sound Salmon Recovery Plan TOTAL			645	\$23,963	\$0	0.31	FTE	0.31	\$24,833	\$0	0.00	\$0	\$0	0.31	\$25,586	\$0	0.31	\$26,353	\$0	
GAP IN EXISTING PROGRAM								0.00	\$870	\$0	-0.31	-\$23,963	\$0	0.00	\$1,623	\$0	0.00	\$2,390	\$0	
Element #14 - WRIA #7 Salmon Habitat Recovery																				
14.1 WRIA Planning		Priority for 2006-2011	0	\$0	\$0	0%	Watershed planning was not conducted in WRIA #7.	0	\$0	\$0	0	\$0	\$0	0	\$0	\$0	0	\$0	\$0	
WRIA #7 Salmon Conservation Plan TOTAL			0	\$0	\$0	0.00	FTE	0.00	\$0	\$0	0.00	\$0	\$0	0.00	\$0	\$0	0.00	\$0	\$0	
GAP IN EXISTING PROGRAM								0.00	\$0	\$0	0.00	\$0	\$0	0.00	\$0	\$0	0.00	\$0	\$0	
Element #15 - 2007-2009 Puget Sound Conservation and Recovery Plan																				
15.1 Increase Innovative Techniques Known as Low Impact Development		2007-2009	0	\$0	\$0	25%	The City adopted Ordinance No. 2694 amending the City's development regulations relating LID. The City has finished the development of MMC 19.49 for LID regulations and standards.	0	\$0	\$0	0	\$0	\$0	0	\$0	\$0	0	\$0	\$0	
15.2 Continue Development of Local Comprehensive Stormwater Management Programs		2007-2009	0	\$0	\$0	0%	See Element 15.3. No dollars or FTE included here.													
15.3 Local Comprehensive Stormwater Management Program Components from the 2000 Puget Sound Water Quality Management Plan		2007-2009	0	\$0	\$0	0%	Included in Elements 15.3(a) through 15.3 (m). No dollars or FTE included here.													
15.3 (a) Stormwater Controls for New Development and Redevelopment		2007-2009	0	\$0	\$0	0%	Included in Element 5.1. No dollars or FTE included here.													
15.3 (b) Stormwater Site Plan Review		2007-2009	0	\$0	\$0	0%	Included in Element 5.2. No dollars or FTE included here.													
15.3 (c) Inspection of Construction Sites		2007-2009	0	\$0	\$0	0%	Included in Element 5.2. No dollars or FTE included here.													
15.3 (d) Maintenance of Permanent Facilities		2007-2009	0	\$0	\$0	0%	Included in Element 5.3 and 6.2. No dollars or FTE included here.													
15.3 (e) Source Control		2007-2009	0	\$0	\$0	0%	Included in Elements 2, 4, 5, 6, and 9. No dollars or FTE included here.													
15.3 (f) Illicit Discharges and Water Quality		2007-2009	0	\$0	\$0	0%	Included in Element 4. No dollars or FTE included here.													

CITY OF MARYSVILLE
SURFACE WATER MANAGEMENT PROGRAM GAP ANALYSIS AND COSTS

Requirements				Existing Program (2008: Year 2)				"Gap" Between Required Activities and Existing Program	Required Cost and Staff Levels (Assumes base hourly rate of \$37.16 with an annual 3% cost of living adjustment)											Assumptions
									Average 2008 Hourly Rate			Average 2009 Hourly Rate			Annual Increase			Hours Per FTE		
Stormwater Program Element	Final Permit - January 17, 2007 Activities/BMPs Needed for Regulatory Compliance	Required Implementation by end of:	Existing Hours	Existing Labor	Existing Expense	% Complete		2009: Budgeted	2009: Additional			2010			2011					
								Yr 3 (Hrs)	Yr 3 (Labor)	Yr 3 (Exp)	Yr 3 (Hrs)	Yr 3 (Labor)	Yr 3 (Exp)	Yr 4 (Hrs)	Yr 4 (Labor)	Yr 4 (Exp)	Yr 5 (Hrs)	Yr 5 (Labor)	Yr 5 (Exp)	
15.3 (g) Identification and Ranking of Problems		2007-2009	0	\$0	\$0	0%	Included in Element 15.3 (j). No dollars or FTE included here.													
15.3 (h) Public Involvement and Education		2007-2009	0	\$0	\$0	0%	Included in Elements 2.1 and 15.1. No dollars or FTE included here.													
15.3 (i) Low Impact Development Practices		2007-2009	0	\$0	\$0	0%	See Element 15.1. No dollars or FTE included here.													
15.3 (j) Watershed or Basin Planning		2007-2009	0	\$0	\$0	0%	Continue participation in the Quilceda/Allen Watershed Action Team. See Element 3.1.	0	\$0	\$0	0	\$0	\$0	0	\$0	\$0	0	\$0	\$0	Staff hours are covered in Element 3.1.
15.3 (k) Funding		2007-2009	0	\$0	\$0	0%	The City has a Surface Water Fund that generates revenue through stormwater rates to fund the SWM program. Some funding also comes from the fund's investment interest and revenue bonds.	0	\$0	\$0	0	\$0	\$0	0	\$0	\$0	0	\$0	\$0	
15.3 (l) Monitoring		2007-2009	0	\$0	\$0	0%	NPDES Phase II Permit requirements for stormwater and program effectiveness monitoring and reporting partially addresses this requirement. The City is currently conducting monitoring in accordance with the TMDL QAPP. The City will need to develop a trend monitoring strategy that monitors the impact of continuing but mitigated development on water quality flow, and habitat to assist in measuring program effectiveness.	0	\$0	\$0	80	\$3,081	\$0	120	\$4,760	\$5,000	120	\$4,903	\$5,000	In Year 3, evaluate existing monitoring program and identify gaps in trend monitoring program at 80 staff hours. Assume in Years 4-9, 120 staff hours and \$5K in expenses is needed for trend monitoring.
15.3 (m) Schedule for Implementation		2007-2009	0	\$0	\$0	0%	NPDES Phase II Permit required implementation dates of certain program activities partially address this requirement. A complete implementation schedule meeting this requirement will be produced as part of this SWM Plan update and supplemented by basin plan implementation schedules and funding sources as developed.	0	\$0	\$0	0	\$0	\$0	0	\$0	\$0	0	\$0	\$0	
2007-09 Puget Sound C&RP TOTAL			0	\$0	\$0	0.00	FTE	0.00	\$0	\$0	0.04	\$3,081	\$0	0.06	\$4,760	\$5,000	0.06	\$4,903	\$5,000	
GAP IN EXISTING PROGRAM								0.00	\$0	\$0	0.04	\$3,081	\$0	0.06	\$4,760	\$5,000	0.06	\$4,903	\$5,000	

CITY OF MARYSVILLE
SURFACE WATER MANAGEMENT PROGRAM GAP ANALYSIS AND COSTS

Requirements			Existing Program (2008: Year 2)				"Gap" Between Required Activities and Existing Program	Required Cost and Staff Levels (Assumes base hourly rate of \$37.16 with an annual 3% cost of living adjustment)												Assumptions
								Average 2008 Hourly Rate \$37.16			Average 2009 Hourly Rate \$37.39			Annual Increase 3.00%			Hours Per FTE 2080			
Stormwater Program Element	Final Permit - January 17, 2007 Activities/BMPs Needed for Regulatory Compliance	Required Implementation by end of:	Existing Hours	Existing Labor	Existing Expense	% Complete		2009: Budgeted			2009: Additional			2010			2011			
								Yr 3 (Hrs)	Yr 3 (Labor)	Yr 3 (Exp)	Yr 3 (Hrs)	Yr 3 (Labor)	Yr 3 (Exp)	Yr 4 (Hrs)	Yr 4 (Labor)	Yr 4 (Exp)	Yr 5 (Hrs)	Yr 5 (Labor)	Yr 5 (Exp)	
Element #16 - Capital Projects																				
16.1 Typical Projects		Ongoing	1,064	\$39,539	\$379,170	100%	In 2008, there was originally budgeted \$6,250,000 for Regional Detention Pond #2 and \$1,000,000 for 152nd St NE Lift Station, however only a total of \$379,170 was spent. The 2009 budget allocated \$7,250,000 for Regional Detention Pond #2 and \$750,000 the 152nd St NE Lift Station.	1064	\$40,974	\$8,000,000	0	\$0	\$0	1064	\$42,206	\$679,606	1064	\$43,473	\$1,187,484	Assume that the level of effort in Year 5 is maintained through the planning period (2015) with remaining revenue from the stormwater utility allocated for CIP.
16.2 Long Term System Replacement		Ongoing	0	\$0	\$50,000	100%	In 2009, no funding was allocated for long term system replacement.	0	\$0	\$0	0	\$0	\$0	0	\$0	\$0	0	\$0	\$0	
16.3 Additional CIP Needs and Costs		Ongoing	0	\$0	\$27,862	100%		0	\$0	\$0	0	\$0	\$0	0	\$0	\$0	0	\$0	\$0	
Capital Projects TOTAL			1,064	\$39,539	\$457,032	0.51	FTE	0.51	\$40,974	\$8,000,000	0.00	\$0	\$0	0.51	\$42,206	\$679,606	0.51	\$43,473	\$1,187,484	
GAP IN EXISTING PROGRAM								0.00	\$1,435	\$7,542,968	-0.51	-\$39,539	-\$457,032	0.00	\$2,668	\$222,574	0.00	\$3,934	\$730,452	
Element #17 - Additional Activities (City Specific)																				
17.1 Equipment, Materials and Supplies	The City's 2007 SWM Budget identifies line items for Work Equipment Maintenance and Repair, Equipment Rental Charges, Small Items of Equipment, and Small Tools.		0	\$0	\$60,498	0%	For Year 3, allocated budget dollars are provided for this element. For Years 4-9 equipment, materials, and supplies are expected to remain constant with an annual increase of 3% per year similar to the annual labor costs of living increases.	0	\$0	\$58,425	0	\$0	\$0	0	\$0	\$60,178	0	\$0	\$61,983	Assume a 3% increase each year for the cost of equipment materials and supplies expense. Assume that the level of effort in Year 5 is maintained through the planning period (2015) with a 3% increase in expense each year.
17.2 Program Overhead	Program overhead includes items such as insurance, and billing administration. The City's 2008 Surface Water Budget for program overhead includes state taxes, insurance, travel and city taxes.		0	\$0	\$304,771	0%	For Year 3, allocated budget dollars are provided for this element. For Years 4-9 equipment, materials, and supplies are expected to remain constant with an annual increase of 3% per year similar to the annual labor costs of living increases.	0	\$0	\$343,715	0	\$0	\$0	0	\$0	\$354,026	0	\$0	\$364,647	Assume a 3% increase each year for the cost of program overhead expense. Assume that the level of effort in Year 5 is maintained through the planning period (2015) with a 3% increase in expense each year.

CITY OF MARYSVILLE
SURFACE WATER MANAGEMENT PROGRAM GAP ANALYSIS AND COSTS

Requirements				Existing Program (2008: Year 2)				"Gap" Between Required Activities and Existing Program	Required Cost and Staff Levels (Assumes base hourly rate of \$37.16 with an annual 3% cost of living adjustment)												Assumptions
									Average 2008 Hourly Rate \$37.16			Average 2009 Hourly Rate \$37.39			Annual Increase 3.00%			Hours Per FTE 2080			
Stormwater Program Element	Final Permit - January 17, 2007 Activities/BMPs Needed for Regulatory Compliance	Required Implementation by end of:	Existing Hours	Existing Labor	Existing Expense	% Complete		2009: Budgeted			2009: Additional			2010			2011				
								Yr 3 (Hrs)	Yr 3 (Labor)	Yr 3 (Exp)	Yr 3 (Hrs)	Yr 3 (Labor)	Yr 3 (Exp)	Yr 4 (Hrs)	Yr 4 (Labor)	Yr 4 (Exp)	Yr 5 (Hrs)	Yr 5 (Labor)	Yr 5 (Exp)		
17.3 Professional Services and Interlocal Agreements	The SWM Program uses contracts and agreements for any professional services needed for the program.		0	\$0	\$162,850	0%	For Year 2, the City's SWM Budget identifies a total of \$300K for the City's Surface Water Plan Update, however, only \$100K of those funds were spent, therefore an additional \$200K was allocated for the City's Surface Water Plan Update in 2009. For Years 4-9 a increase of 3% per year similar to the annual labor and benefit costs of living increases on the base professional services budget of \$118K.	0	\$0	\$308,300	0	\$0	\$0	0	\$0	\$117,549	0	\$0	\$121,075	Assume a 3% increase each year for the cost of typical professional services from Year 3 to 9. Year 3 accounts for \$200K in professional services to complete the Stormwater Comprehensive Plan not required in Years 4 to 6. Assume that the level of effort in Year 6 is maintained through the planning period (2015) with a 3% increase in expense each year.	
17.4 Customer Response and Utility Billing	The surface water staff is responsible to perform customer and utility billing.		2,080	\$77,299	\$90,935	0%	For Year 3, allocated budget dollars are provided for this element. For Years 3-6 customer response and utility billing are expected to remain constant with an annual increase of 3% per year similar to the annual labor costs of living increases.	2080	\$80,106	\$170,607	0	\$0	\$0	2080	\$82,509	\$175,725	2080	\$84,984	\$180,997	Assume that the level of effort in Year 5 is maintained through the planning period (2015) with a 3% increase in expense each year.	
17.5 Administration	The City's 2007 Stormwater Utility Fund Budget includes a line item for Administrative Services, Full Time Employee, Part Time Employee and On call Employee Salaries.		3,476	\$129,167	\$85,493	0%	For Year 3, allocated budget dollars are provided for this element. For Years 4-9 administration is expected to remain constant with an annual increase of 3% per year similar to the annual labor costs of living increases.	3133	\$120,659	\$87,833	0	\$0	\$0	3133	\$124,279	\$90,468	3133	\$128,007	\$93,182	Assume a 3% increase each year for program administration expenses.	
17.6 NPDES Phase II Permit Fees	The City is responsible for their NPDES Phase II Permit Fee.		0	\$0	\$15,000	0%	For Years 3-6, it is expected that the City's permit fee will remain constant.	0	\$0	\$15,000	0	\$0	\$0	0	\$0	\$15,000	0	\$0	\$15,000	Assumes the expense for the NPDES Phase II Permit is \$15,000 each year.	
17.7 Debt Services	Yearly debt service to pay back the 2005 Water/Sewer/Storm Revenue Bond.		0	\$0	\$537,100	0%	For Years 3-6 is expected that the debt service amount will remain constant and increase in Year 7-9. All debt service goes towards the 2005 Water/Sewer/Storm Bond. It is assumed no additional bonds or loans will be taken out by the City during the planning period.	0	\$0	\$537,100	0	\$0	\$0	0	\$0	\$537,100	0	\$0	\$537,100	Per City direction, assumes the debt services to be constant at \$537,100 each year from 2009-2012 and \$700,000 each year from 2013-2015 for the 2005 water/sewer/storm revenue bond.	
Additional Activities TOTAL			5,556	\$206,467	\$1,256,646	2.67	FTE	2.51	\$200,765	\$1,520,980	0.00	\$0	\$0	2.51	\$206,788	\$1,350,046	2.51	\$212,991	\$1,373,985		
GAP IN EXISTING PROGRAM								-0.16	-\$5,702	\$264,334	-2.67	-\$206,467	-\$1,256,646	-0.16	\$321	\$93,400	-0.16	\$6,525	\$117,338		
TOTAL SWM ACTIVITIES			18,855	\$700,719	\$1,934,906	9.07	FTE	8.98	\$719,098	\$9,764,151	1.25	\$100,209	\$7,700	9.71	\$801,004	\$2,310,392	9.69	\$823,249	\$2,847,531		
TOTAL SWM ACTIVITIES MINUS CIP			17,791	\$661,180	\$1,477,874	8.55		8.47	\$678,124	\$1,764,151	1.25	\$100,209	\$7,700	9.20	\$758,798	\$1,630,786	9.18	\$779,777	\$1,660,047		
Total SWM Program Gap								-0.09	\$18,379	\$7,829,245	-7.81	-\$600,510	-\$1,927,206	0.64	\$100,285	\$375,485	0.62	\$122,530	\$912,625		

- Notes:
- Activities are based on the NPDES State Waste Discharge General Permit for Discharges from Small MS4s in Western Washington, Final Permit issued on January 17, 2007.
 - "2005 Ecology Manual" refers to the Washington State Department of Ecology's 2005 Stormwater Management Manual for Western Washington.
 - Monitoring requirements vary based on City or County population. Guidelines listed here are for small cities (population between 10,000 and 25,000).
 - Capital projects, estimated cost, and years for implementation provided by the City of Marysville.
 - Cost for program elements assumes staff time at an average of \$37.16/hour (salary + benefits) in 2008 and \$37.39 for 2009, with cost of living increases at 3% per year thereafter.
 - The City's annual hourly basis per one staff position or full time equivalent (FTE) is 2080 hours.

CITY OF MARYSVILLE
SURFACE WATER MANAGEMENT PROGRAM GAP ANALYSIS AND COSTS

Requirements			2012			2013			2014			2015			
			Yr 6 (Hrs)	Yr 6 (Labor)	Yr 6 (Exp)	Yr 7 (Hrs)	Yr 7 (Labor)	Yr 7 (Exp)	Yr 8 (Hrs)	Yr 8 (Labor)	Yr 8 (Exp)	Yr 9 (Hrs)	Yr 9 (Labor)	Yr 9 (Exp)	
Stormwater Program Element	Final Permit - January 17, 2007 Activities/BMPs Needed for Regulatory Compliance	Required Implementation by end of:													
Element #1 -NPDES Phase II Permit (Permit) Element #S5.A and #S5.B, Program Implementation															
S5.A.1	1.1 SWMP Implementation	Develop and implement a SWMP that covers the geographic area subject to the permit. Included with Elements 2 through 6.	Permit End	144	\$6,060	\$0	144	\$6,242	\$0	144	\$6,429	\$0	144	\$6,622	\$0
S5.A.2	1.2 SWMP Documentation	Prepare written documentation of the SWMP and maintain annual updates in accordance with Element 10.1.	March 31 Annually Starting 2008	288	\$12,120	\$0	288	\$12,484	\$0	288	\$12,858	\$0	288	\$13,244	\$0
S5.A.3	1.3 Program Tracking	Track the cost of development and implementation of the SWMP, including the number of inspections, enforcement actions, and public education activities. Use this information to evaluate SWMP development, implementation and permit compliance and to set pr	March 31 Annually Starting 2009												
S5.A.5	1.4 Coordination Among Permittees	Include in the SWMP stormwater management activity coordination mechanisms as needed among: -other municipal stormwater NPDES permittees within adjoining or shared areas to clarify roles and responsibilities for pollutant control and to avoid conflicting	March 31 Annually Starting 2008	40	\$1,683	\$0	40	\$1,734	\$0	40	\$1,786	\$0	40	\$1,839	\$0
S5.B	1.5 MEP and AKART	Design the SWMP to reduce discharge of pollutants from the MS4 to the Maximum Extent Practicable (MEP), meet State AKART requirements, and protect water quality. Continue to implement existing SWMP activities, even if they are ahead of the schedule of thi	Ongoing												
SWMP Implementation TOTAL				0.23	\$19,863	\$0	0.23	\$20,459	\$0	0.23	\$21,073	\$0	0.23	\$21,705	\$0
GAP IN EXISTING PROGRAM				0.13	\$12,133	\$0	0.13	\$12,729	\$0	0.13	\$13,343	\$0	0.13	\$13,975	\$0
Element #2 - Permit Element #S5.C,1, Public Education and Outreach															
S5.C.1.a	2.1 Education and Outreach Program	Provide an education and outreach program for the MS4 service area designed to achieve measurable improvements in the target audience's understanding of the problem and what they can do to solve it. Prioritized target audiences and subject areas: i. Gene	Year 2 (2/15/2009)	288	\$12,120	\$15,000	288	\$12,484	\$15,000	288	\$12,858	\$15,000	288	\$13,244	\$15,000
S5.C.1.b	2.2 Measure Results of the Educational Activities	Participate in an effort to measure understanding and adoption of the targeted behaviors among the target audiences.	Year 2 (2/15/2009)	0	\$0	\$0	0	\$0	\$0	0	\$0	\$0	0	\$0	\$0

CITY OF MARYSVILLE
SURFACE WATER MANAGEMENT PROGRAM GAP ANALYSIS AND COSTS

Requirements			2012			2013			2014			2015					
			Yr 6 (Hrs)	Yr 6 (Labor)	Yr 6 (Exp)	Yr 7 (Hrs)	Yr 7 (Labor)	Yr 7 (Exp)	Yr 8 (Hrs)	Yr 8 (Labor)	Yr 8 (Exp)	Yr 9 (Hrs)	Yr 9 (Labor)	Yr 9 (Exp)			
S5.C.1.c	2.3 Maintain Records	Track and maintain records of public education and outreach activities.	With Annual Report			Included in Element 10.3. No dollars or FTE counted here.											
Public Education and Outreach TOTAL			0.14	\$12,120	\$15,000	0.14	\$12,484	\$15,000	0.14	\$12,858	\$15,000	0.14	\$13,244	\$15,000			
GAP IN EXISTING PROGRAM			0.04	\$4,390	\$5,000	0.04	\$4,754	\$5,000	0.04	\$5,128	\$5,000	0.04	\$5,514	\$5,000			
Element #3 - Permit Element #S5.C.2, Public Involvement and Participation																	
S5.C.2.a	3.1 Input to SWMP	Create opportunities for public to participate in the decision making processes involved in the development, implementation and update of the SWMP.	Year 1 (2/15/2008)			184	\$7,743	\$5,000	184	\$7,976	\$5,000	184	\$8,215	\$5,000	184	\$8,461	\$5,000
S5.C.2.b	3.2 Availability of Stormwater Program Documents	Post the SWMP, the Annual Report, and all other required permit submittals on the Permittee's Website.	March 31 Each Year Starting 2008			20	\$842	\$0	20	\$867	\$0	20	\$893	\$0	20	\$920	\$0
Public Involvement TOTAL			0.10	\$8,585	\$5,000	0.10	\$8,843	\$5,000	0.10	\$9,108	\$5,000	0.10	\$9,381	\$5,000			
GAP IN EXISTING PROGRAM			0.05	\$4,720	-\$500	0.05	\$4,978	-\$500	0.05	\$5,243	-\$500	0.05	\$5,516	-\$500			
Element #4 - Permit Element #S5.C.3, Illicit Discharge Detection and Elimination																	
S5.C.3.a	4.1 Storm Sewer System Map	Develop a municipal storm sewer system map of all storm sewer outfalls, receiving waters, and structural stormwater facilities. For all outfalls with a 24-inch nominal diameter include: -Tributary conveyances (type, material, size) - Associated drainage	Year 4 (2/15/2011)			80	\$3,367	\$0	80	\$3,468	\$0	80	\$3,572	\$0	80	\$3,679	\$0
S5.C.3.b	4.2 Illicit Discharge Ordinance	Develop and implement an ordinance prohibiting non-stormwater discharge to the Municipal Separate Storm Sewer System (MS4). The ordinance should cover: -Potable water flushing -Lawn and landscape irrigation runoff -Swimming pool discharges -Street and si	Year 2.5 (8/15/2009)			0	\$0	\$0	0	\$0	\$0	0	\$0	\$0	0	\$0	\$0
S5.C.3.c	4.3 Detection and Elimination Program	Develop and implement an ongoing program to detect and address non-stormwater discharges, spills, illicit connections and illegal dumping. -Include procedures for locating priority areas based on land use, previous complaints, and storage practices; -Prio	Variable			576	\$24,240	\$60,000	576	\$24,967	\$60,000	576	\$25,716	\$60,000	576	\$26,488	\$60,000

CITY OF MARYSVILLE
SURFACE WATER MANAGEMENT PROGRAM GAP ANALYSIS AND COSTS

Requirements			2012			2013			2014			2015		
Stormwater Program Element	Final Permit - January 17, 2007 Activities/BMPs Needed for Regulatory Compliance	Required Implementation by end of:	Yr 6 (Hrs)	Yr 6 (Labor)	Yr 6 (Exp)	Yr 7 (Hrs)	Yr 7 (Labor)	Yr 7 (Exp)	Yr 8 (Hrs)	Yr 8 (Labor)	Yr 8 (Exp)	Yr 9 (Hrs)	Yr 9 (Labor)	Yr 9 (Exp)
S5.C.3.d	4.4 Public Education and Spill Reporting Inform public employees, businesses, and general public of hazards associated with illegal discharges and improper waste disposal. Distribute information to target audiences identified in Element #2.1 Publicly list and publicize a hotline for public repo	Permit End (8/15/2011) Year 2 (2/15/2009)	104	\$4,377	\$0	104	\$4,481	\$0	104	\$4,643	\$0	104	\$4,783	\$0
S5.C.3.e	4.5 Program Evaluation and Tracking Adopt and implement procedures for program evaluation and assessment, including tracking number and type of spills identified, inspections made, and feedback from public education efforts.	With Annual Report	104	\$4,377	\$0	104	\$4,508	\$0	104	\$4,643	\$0	104	\$4,783	\$0
S5.C.3.f	4.6 Staff Training & Records Maintenance Train responsible staff on illicit discharge identification, investigation, termination, clean-up, and reporting with follow up training as needed to address changes; Ongoing training for all municipal field staff on identification and reporting with fol	Year 2.5 (8/15/2009) Year 3 (2/15/2010)	36	\$1,515	\$100	36	\$1,560	\$100	36	\$1,607	\$100	36	\$1,655	\$100
Illicit Discharge TOTAL			0.43	\$37,875	\$60,100	0.43	\$38,984	\$60,100	0.43	\$40,182	\$60,100	0.43	\$41,387	\$60,100
GAP IN EXISTING PROGRAM			-0.07	-\$775	\$20,100	-0.07	\$334	\$20,100	-0.07	\$1,532	\$20,100	-0.07	\$2,737	\$20,100
Element #5 - Permit Element #S5.C.4, Controlling Runoff from New Development, Redevelopment, and Construction Sites														
S5.C.4.a	5.1 Stormwater Runoff Control Ordinance Adopt an ordinance to address runoff from new development, redevelopment, and construction site projects disturbing 1 or more acre. The ordinance should include: -Minimum requirements and thresholds equivalent to the 2005 Ecology Manual; -BMP selection an	Year 2.5 (8/15/2009)	0	\$0	\$0	0	\$0	\$0	0	\$0	\$0	0	\$0	\$0
S5.C.4.b	5.2 Site Plan Review and Permitting Develop a permitting process with plan review, inspection, and enforcement to ensure that the ordinance guidelines (Element 5.1) are applied to all sites disturbing 1 acre of land or greater. Inspection should apply to high risk sites prior to constructio	Year 2.5 (8/15/2009)	1,477	\$62,157	\$0	1,477	\$64,022	\$0	1,477	\$65,943	\$0	1,477	\$67,921	\$0
S5.C.4.c	5.3 Long Term Operation and Maintenance Adopt an ordinance identifying parties responsible for maintenance and inspection of facilities permitted under Element 5.2, requiring inspection and establishing enforcement procedures; Adopt maintenance standards for facilities permitted under Element 5	Year 2.5 (8/15/2009)	0	\$0	\$0	0	\$0	\$0	0	\$0	\$0	0	\$0	\$0

CITY OF MARYSVILLE
SURFACE WATER MANAGEMENT PROGRAM GAP ANALYSIS AND COSTS

Requirements			2012			2013			2014			2015		
Stormwater Program Element	Final Permit - January 17, 2007 Activities/BMPs Needed for Regulatory Compliance	Required Implementation by end of:	Yr 6 (Hrs)	Yr 6 (Labor)	Yr 6 (Exp)	Yr 7 (Hrs)	Yr 7 (Labor)	Yr 7 (Exp)	Yr 8 (Hrs)	Yr 8 (Labor)	Yr 8 (Exp)	Yr 9 (Hrs)	Yr 9 (Labor)	Yr 9 (Exp)
S5.C.4.d	5.4 Record Keeping for Inspection and Maintenance Activities Develop procedure for keeping records. Keep records of all inspections, enforcement actions, maintenance activities, and construction sites.	Year 2.5 (8/15/2009)	80	\$3,367	\$0	80	\$3,468	\$0	80	\$3,572	\$0	80	\$3,679	\$0
S5.C.4.e	5.5 NOI for Construction Activity Make copies of the "Notice of Intent for Construction Activity" and "Notice of Intent for Industrial Activity" available to developers.	February 16, 2007	0	\$0	\$0	0	\$0	\$0	0	\$0	\$0	0	\$0	\$0
S5.C.4.f	5.6 Staff Training and Records Maintenance Conduct training for staff in permitting, plan review, construction site inspection, and enforcement concerning the Stormwater Runoff Control program (Element 5.1); Maintain records of training.	Year 2.5 (8/15/2009)	24	\$1,010	\$100	40	\$1,734	\$100	40	\$1,786	\$100	40	\$1,839	\$100
Controlling Site Runoff TOTAL			0.76	\$66,534	\$100	0.77	\$69,224	\$100	0.77	\$71,300	\$100	0.77	\$73,439	\$100
GAP IN EXISTING PROGRAM			0.05	\$11,651	\$100	0.06	\$14,341	\$100	0.06	\$16,418	\$100	0.06	\$18,557	\$100
Element #6 - Permit Element #S5.C.5, Pollution Prevention and Operation and Maintenance for Municipal Operations														
S5.C.5.a	6.1 Establish Maintenance Standards Establish maintenance standards consistent with the 2005 Ecology Manual; When an inspection identifies an exceedance of the maintenance standard, maintenance shall be performed: -Within 1 year for wet pool facilities and retention/detention ponds. -Within	Year 3 (2/15/2010)												
S5.C.5.b	6.2 Annual Inspections of Water Quality and Flow Control Facilities Conduct annual inspections of stormwater treatment and flow control facilities, other than catch basins; Perform necessary maintenance actions in accordance with established maintenance standards. Compliance of inspection requirements is the presence of a	Years 3 (2/15/2010), 4 (2/15/2011) and 5 (2/15/2012)	9,064	\$381,452	\$188,245	9,336	\$404,682	\$193,893	9,616	\$429,327	\$199,709	9,905	\$455,473	\$205,701
S5.C.5.c	6.3 Spot Checks after Storm Events Spot check stormwater treatment and flow control facilities after major storm events (>10-year recurrence interval); Conduct repairs as necessary. Compliance of inspection requirements is the presence of an established inspection program designed to inspe	Year 3 (2/15/2010)	0	\$0	\$0	0	\$0	\$0	0	\$0	\$0	0	\$0	\$0
S5.C.5.d	6.4 Catch Basin Inspection Inspect all catch basins and inlets at least once during the permit term; Clean catch basins as necessary; Dispose of decant water appropriately. Compliance of inspection requirements is the presence of an established inspection program designed to inspec	Permit End (8/15/2011)	0	\$0	\$0	0	\$0	\$0	0	\$0	\$0	0	\$0	\$0

CITY OF MARYSVILLE
SURFACE WATER MANAGEMENT PROGRAM GAP ANALYSIS AND COSTS

Requirements			2012			2013			2014			2015		
Stormwater Program Element	Final Permit - January 17, 2007 Activities/BMPs Needed for Regulatory Compliance	Required Implementation by end of:	Yr 6 (Hrs)	Yr 6 (Labor)	Yr 6 (Exp)	Yr 7 (Hrs)	Yr 7 (Labor)	Yr 7 (Exp)	Yr 8 (Hrs)	Yr 8 (Labor)	Yr 8 (Exp)	Yr 9 (Hrs)	Yr 9 (Labor)	Yr 9 (Exp)
S5.C.5.f	6.5 Road Maintenance to Reduce Stormwater Impacts Implement practices to reduce stormwater impacts from street, parking lot, and highway runoff. Address the following activities: -Pipe and culvert cleaning; -Ditch and roadside areas including vegetation management; -Street cleaning; -Street repair and re	Year 4 (2/15/2010)	0	\$0	\$0	0	\$0	\$0	0	\$0	\$0	0	\$0	\$0
S5.C.5.g	6.6 Non-Roadway Property Maintenance to Reduce Stormwater Impacts Implement practices to reduce stormwater impacts from non-roadway property runoff (parks, open space, right-of-way, and maintenance yards). Address the following: -Application of fertilizer, pesticides, and herbicides, including the development of nutrient	Year 4 (2/15/2010)	0	\$0	\$0	0	\$0	\$0	0	\$0	\$0	0	\$0	\$0
S5.C.5.h	6.7 Staff Training and Records Maintenance Implement ongoing training activities for construction, maintenance, and operations personnel. Include training on: -Permit requirements; -O&M standards; -Inspection procedures; -Selecting appropriate BMPs; -Reducing water quality impact in daily activities	Year 4 (2/15/2010)	48	\$2,020	\$8,100	8	\$347	\$8,100	8	\$357	\$8,100	8	\$368	\$8,100
S5.C.5.i	6.8 SWPPP for Maintenance Yards Develop and implement Stormwater Pollution Prevention Plans for all equipment maintenance and storage yards not covered under the Industrial Stormwater General Permit. Include an implementation schedule for structural BMPs and conduct occasional visual in	Year 4 (2/15/2010)	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0	\$0	\$0
S5.C.5.j	6.9 Record Keeping Maintain records of inspection and/or repair activities.	Ongoing	0	\$0	\$0	0	\$0	\$0	0	\$0	\$0	0	\$0	\$0
Operation and Maintenance TOTAL			4.38	\$383,472	\$196,345	4.49	\$405,029	\$201,993	4.63	\$429,684	\$207,809	4.77	\$455,841	\$213,801
GAP IN EXISTING PROGRAM			0.57	\$88,768	\$40,618	0.68	\$110,325	\$46,265	0.81	\$134,981	\$52,082	0.95	\$161,137	\$58,073
Element #7 -Permit Element #S7, Total Maximum Daily Load Allocations														
S7.A	7.1 Applicable TMDLs in Appendix 2 Comply with requirements of Appendix 2 of the Phase II permit; When monitoring is required, submit a Quality Assurance Project Plan (QAPP) to Ecology.	Variable	The Lower Snohomish River Tributaries TMDL is addressed in Element 9. No dollars or FTE added here.											

CITY OF MARYSVILLE
SURFACE WATER MANAGEMENT PROGRAM GAP ANALYSIS AND COSTS

Requirements			2012			2013			2014			2015		
Stormwater Program Element	Final Permit - January 17, 2007 Activities/BMPs Needed for Regulatory Compliance	Required Implementation by end of:	Yr 6 (Hrs)	Yr 6 (Labor)	Yr 6 (Exp)	Yr 7 (Hrs)	Yr 7 (Labor)	Yr 7 (Exp)	Yr 8 (Hrs)	Yr 8 (Labor)	Yr 8 (Exp)	Yr 9 (Hrs)	Yr 9 (Labor)	Yr 9 (Exp)
S7.B	7.2 TMDLs not listed in Appendix 2	Comply with requirements of the NPDES Phase II permit; Keep records and report activities relevant to applicable TMDLs.	N/A			Compliance is achieved through implementation of activities outlined in Elements 2 through 6 and submittal of annual reports (Element #10.1). No dollars or FTE added here.								
S7.C	7.3 TMDLs Approved during the Permit Cycle	Comply with future permit modifications (if applicable); Permittees are encouraged to participate in developing TMDLs and begin implementation.	0	\$0	\$0	0	\$0	\$0	0	\$0	\$0	0	\$0	\$0
TMDL TOTAL			0.00	\$0	\$0	0.00	\$0	\$0	0.00	\$0	\$0	0.00	\$0	\$0
GAP IN EXISTING PROGRAM			0.00	\$0	\$0	0.00	\$0	\$0	0.00	\$0	\$0	0.00	\$0	\$0
Element #8 - Permit Element #S8.B and S8.C, Monitoring														
S8.B	8.1 Existing Monitoring	Describe any stormwater monitoring or studies and type of information gathered; Assess the appropriateness of the BMPs in the SWMP and note any proposed changes.	March 31 Annually Starting 2008											
S8.C.1.a	8.2 Stormwater Monitoring	Prepare for future monitoring by identifying 2 outfalls or conveyances (1 commercial and 1 high density residential) suitable for permanent flow-weighted composite sampling equipment. Document site selection and justify basin size based on times of concern	216	\$9,090	\$30,000	96	\$4,161	\$20,000	96	\$4,286	\$20,000	96	\$4,415	\$20,000
S8.C.1.b	8.3 SWMP Effectiveness Monitoring	Prepare for future monitoring by identifying 2 suitable questions that could be studied through future monitoring; Select sites for future monitoring to explore the answers to the selected questions; Develop a monitoring plan for each question including:	160	\$6,733	\$20,000	160	\$6,935	\$10,000	160	\$7,143	\$10,000	160	\$7,358	\$10,000
S8.C.2	8.4 Annual Reporting	Describe the status of identifying sites, questions, and development of monitoring plan outlined in Elements 8.2 and 8.3.	Years 4 and 5			Compliance is achieved through timely submittals of annual reports (Element 10.1). No dollars or FTE added here.								
Monitoring TOTAL			0.18	\$15,823	\$50,000	0.12	\$11,097	\$30,000	0.12	\$11,429	\$30,000	0.12	\$11,772	\$30,000
GAP IN EXISTING PROGRAM			0.18	\$15,823	\$50,000	0.12	\$11,097	\$30,000	0.12	\$11,429	\$30,000	0.12	\$11,772	\$30,000
Element #9 - Permit Appendix 2, Lower Snohomish River Tributaries TMDL														
S9.A&B	9.1 Illicit Discharge Detection and Elimination	The IDDE program in Element 3 shall address commercial animal handling areas and commercial composting facilities including source control BMPs equivalent to the 2005 DOE Manual. Additional activities include: 1. Compile list of existing facilities, no	Variable			0	\$0	\$0	0	\$0	\$0	0	\$0	\$0

CITY OF MARYSVILLE
SURFACE WATER MANAGEMENT PROGRAM GAP ANALYSIS AND COSTS

Requirements			2012			2013			2014			2015		
Stormwater Program Element	Final Permit - January 17, 2007 Activities/BMPs Needed for Regulatory Compliance	Required Implementation by end of:	Yr 6 (Hrs)	Yr 6 (Labor)	Yr 6 (Exp)	Yr 7 (Hrs)	Yr 7 (Labor)	Yr 7 (Exp)	Yr 8 (Hrs)	Yr 8 (Labor)	Yr 8 (Exp)	Yr 9 (Hrs)	Yr 9 (Labor)	Yr 9 (Exp)
S9.E	9.2 Monitoring and Implementation Reporting Four months after permit issuance the City must submit a QAPP to Ecology for approval. Begin monitoring 9 months after permit issuance. No later than 12 months prior to permit expiration, a BPCP shall be developed, (2/15/2011) No later than 9 months prior	Variable	416	\$17,507	\$10,000	416	\$18,032	\$10,000	416	\$18,573	\$10,000	416	\$19,130	\$10,000
Lower Snohomish River Tributaries TMDL TOTAL			0.20	\$17,507	\$10,000	0.20	\$18,032	\$10,000	0.20	\$18,573	\$10,000	0.20	\$19,130	\$10,000
GAP IN EXISTING PROGRAM			0.00	\$2,047	\$0	0.00	\$2,572	\$0	0.00	\$3,113	\$0	0.00	\$3,670	\$0
Element #10 - Permit Element #S9.A and #S9.B, Reporting														
	10.1 Annual Reports Each annual report shall include: -Copy of the current SWMP; -Submittal of Appendix 3 (Annual Report Forms) summarizing compliance with permit conditions, including: -Implementation status of Elements 1 through 5; -Assessment of progress toward meeting mi		0	\$0	\$0	0	\$0	\$0	0	\$0	\$0	0	\$0	\$0
S9.E	10.2 Ongoing Tracking Perform ongoing tracking of NPDES Phase II Permit activities.	Ongoing	0	\$0	\$0	0	\$0	\$0	0	\$0	\$0	0	\$0	\$0
S9.C	10.3 Maintaining Records Maintain records of SWMP and permit activities for five years.	Ongoing	8	\$337	\$0	8	\$347	\$0	8	\$357	\$0	8	\$368	\$0
S9.D	10.4 Public Access of SWMP and Activity Reports Make all records of SWMP and permit activities available to the public at reasonable times during business hours.	Ongoing												
Reporting TOTAL			0.00	\$337	\$0	0.00	\$347	\$0	0.00	\$357	\$0	0.00	\$368	\$0
GAP IN EXISTING PROGRAM			0.00	\$337	\$0	0.00	\$347	\$0	0.00	\$357	\$0	0.00	\$368	\$0
Element #11 - Underground Injection Control (UIC)														
	11.1 Register Existing UIC Wells Used for Stormwater Complete Ecology Registration forms and submit (WAC 173-218-070.1.a.i-v). Information includes: Operator/owner information; site location; BMPs used to protect groundwater quality, UIC well description; information necessary to demonstrate that the non-	N/A	0	\$0	\$0	0	\$0	\$0	0	\$0	\$0	0	\$0	\$0
	11.2 Assess Existing UIC Wells Used for Stormwater According to WAC 173-218-090.2.a.ii, the approach to conducting the well assessment will be determined by the owner. The assessment evaluates the potential risks to groundwater from the use of UIC wells. Any assessment that identifies a well as a high t	N/A	0	\$0	\$0	0	\$0	\$0	0	\$0	\$0	0	\$0	\$0

CITY OF MARYSVILLE
SURFACE WATER MANAGEMENT PROGRAM GAP ANALYSIS AND COSTS

Requirements			2012			2013			2014			2015		
			Yr 6 (Hrs)	Yr 6 (Labor)	Yr 6 (Exp)	Yr 7 (Hrs)	Yr 7 (Labor)	Yr 7 (Exp)	Yr 8 (Hrs)	Yr 8 (Labor)	Yr 8 (Exp)	Yr 9 (Hrs)	Yr 9 (Labor)	Yr 9 (Exp)
11.3 Register New UIC Wells Used for Stormwater (built after 2/3/06) Prior to Use	Complete Ecology Registration forms and submit (WAC 173-218-070.1.a.i-v). Information includes: Operator/owner information; site location; BMPs used to protect groundwater quality, UIC well description; information necessary to demonstrate that the non-	N/A	0	\$0	\$0	0	\$0	\$0	0	\$0	\$0	0	\$0	\$0
11.4 Compliance with the Nonendangerment Standard for New UIC Wells Used for Stormwater	Prior to use, new wells must meet the requirements of WAC 173-218-080 and WAC 173-218-090 which call for preventing the movement of fluid containing any contaminant into the groundwater if it may cause a violation of groundwater quality standards. Compli	N/A	0	\$0	\$0	0	\$0	\$0	0	\$0	\$0	0	\$0	\$0
11.5 Annual Update on Well Status Changes	After initial well registrations have been sent to Ecology, provide an annual update on any well status changes.	N/A	Not Applicable											
11.6 UIC Well Decommissioning & Notification Requirements	Wells must be decommissioned by filling for plugging the well so that it will not result in an environmental, public health or safety hazard, and will not serve as a channel for movement of water or pollution to the aquifer as specified in WAC 173-218-120	N/A	Not Applicable											
Underground Injection Control Regulations TOTAL			0.00	\$0	\$0	0.00	\$0	\$0	0.00	\$0	\$0	0.00	\$0	\$0
GAP IN EXISTING PROGRAM			0.00	\$0	\$0	0.00	\$0	\$0	0.00	\$0	\$0	0.00	\$0	\$0
Element #12 - Endangered Species Act (ESA)														
12.1 ESA Regional Coordination	The City is an active member of the Snohomish River Basin Recovery Forum. See Element 14 Puget Sound Salmon Recovery Plan for ESA compliance strategies.	Ongoing	208	\$8,753	\$0	208	\$9,016	\$0	208	\$9,286	\$0	208	\$9,565	\$0
Endangered Species Act TOTAL			0.10	\$8,753	\$0	0.10	\$9,016	\$0	0.10	\$9,286	\$0	0.10	\$9,565	\$0
GAP IN EXISTING PROGRAM			0.00	\$1,023	\$0	0.00	\$1,286	\$0	0.00	\$1,557	\$0	0.00	\$1,835	\$0
Element #13 - Puget Sound Salmon Plan														
13.1 Puget Sound Salmon Recovery Plan Implementation	The City is an active participant in salmon conservation planning and is implementing projects in accordance with Element 13.2. The City is coordinating with other watershed groups as shown in Element 13.3.	Ongoing	437	\$18,390	\$0	437	\$18,942	\$0	437	\$19,510	\$0	437	\$20,096	\$0
13.2 Snohomish River Basin Salmon Conservation Implementation	The City was an active participant in developing the June 2005 Snohomish River Basin Salmon Conservation Plan published by the Salmon Recovery Forum. Currently the City is pursuing the Qwuloolt/Poortinga Estuarine Restoration Project. This project is lis	Ongoing	0	\$0	\$0	0	\$0	\$0	0	\$0	\$0	0	\$0	\$0

CITY OF MARYSVILLE
SURFACE WATER MANAGEMENT PROGRAM GAP ANALYSIS AND COSTS

Requirements			2012			2013			2014			2015		
			Yr 6 (Hrs)	Yr 6 (Labor)	Yr 6 (Exp)	Yr 7 (Hrs)	Yr 7 (Labor)	Yr 7 (Exp)	Yr 8 (Hrs)	Yr 8 (Labor)	Yr 8 (Exp)	Yr 9 (Hrs)	Yr 9 (Labor)	Yr 9 (Exp)
Stormwater Program Element	Final Permit - January 17, 2007 Activities/BMPs Needed for Regulatory Compliance	Required Implementation by end of:												
13.3 Coordination with other Watershed Groups	In the City's October 2006 Shoreline Inventory and Characterization Report, as adopted by ordinance, Project #9.3.3 covers the City's coordination with other watershed groups. Currently, staff time and material are the only City resource commitments.	Ongoing	208	\$8,753	\$0	208	\$9,016	\$0	208	\$9,286	\$0	208	\$9,565	\$0
Puget Sound Salmon Recovery Plan TOTAL			0.31	\$27,144	\$0	0.31	\$27,958	\$0	0.31	\$28,797	\$0	0.31	\$29,661	\$0
GAP IN EXISTING PROGRAM			0.00	\$3,181	\$0	0.00	\$3,995	\$0	0.00	\$4,834	\$0	0.00	\$5,698	\$0
Element #14 - WRIA #7 Salmon Habitat Recovery														
14.1 WRIA Planning		Priority for 2006-2011	0	\$0	\$0	0	\$0	\$0	0	\$0	\$0	0	\$0	\$0
WRIA #7 Salmon Conservation Plan TOTAL			0.00	\$0	\$0	0.00	\$0	\$0	0.00	\$0	\$0	0.00	\$0	\$0
GAP IN EXISTING PROGRAM			0.00	\$0	\$0	0.00	\$0	\$0	0.00	\$0	\$0	0.00	\$0	\$0
Element #15 - 2007-2009 Puget Sound Conservation and Recovery Plan														
15.1 Increase Innovative Techniques Known as Low Impact Development		2007-2009	0	\$0	\$0	0	\$0	\$0	0	\$0	\$0	0	\$0	\$0
15.2 Continue Development of Local Comprehensive Stormwater Management Programs		2007-2009	See Element 15.3. No dollars or FTE included here.											
15.3 Local Comprehensive Stormwater Management Program Components from the 2000 Puget Sound Water Quality Management Plan		2007-2009	Included in Elements 15.3(a) through 15.3 (m). No dollars or FTE included here.											
15.3 (a) Stormwater Controls for New Development and Redevelopment		2007-2009	Included in Element 5.1. No dollars or FTE included here.											

CITY OF MARYSVILLE
SURFACE WATER MANAGEMENT PROGRAM GAP ANALYSIS AND COSTS

Requirements			2012			2013			2014			2015		
Stormwater Program Element	Final Permit - January 17, 2007 Activities/BMPs Needed for Regulatory Compliance	Required Implementation by end of:	Yr 6 (Hrs)	Yr 6 (Labor)	Yr 6 (Exp)	Yr 7 (Hrs)	Yr 7 (Labor)	Yr 7 (Exp)	Yr 8 (Hrs)	Yr 8 (Labor)	Yr 8 (Exp)	Yr 9 (Hrs)	Yr 9 (Labor)	Yr 9 (Exp)
15.3 (b) Stormwater Site Plan Review		2007-2009	Included in Element 5.2. No dollars or FTE included here.											
15.3 (c) Inspection of Construction Sites		2007-2009	Included in Element 5.2. No dollars or FTE included here.											
15.3 (d) Maintenance of Permanent Facilities		2007-2009	Included in Element 5.3 and 6.2. No dollars or FTE included here.											
15.3 (e) Source Control		2007-2009	Included in Elements 2, 4, 5, 6, and 9. No dollars or FTE included here.											
15.3 (f) Illicit Discharges and Water Quality		2007-2009	Included in Element 4. No dollars or FTE included here.											
15.3 (g) Identification and Ranking of Problems		2007-2009	Included in Element 15.3 (j). No dollars or FTE included here.											
15.3 (h) Public Involvement and Education		2007-2009	Included in Elements 2.1 and 15.1. No dollars or FTE included here.											
15.3 (i) Low Impact Development Practices		2007-2009	See Element 15.1. No dollars or FTE included here.											
15.3 (j) Watershed or Basin Planning		2007-2009	0	\$0	\$0	0	\$0	\$0	0	\$0	\$0	0	\$0	\$0
15.3 (k) Funding		2007-2009	0	\$0	\$0	0	\$0	\$0	0	\$0	\$0	0	\$0	\$0

CITY OF MARYSVILLE
SURFACE WATER MANAGEMENT PROGRAM GAP ANALYSIS AND COSTS

Requirements			2012			2013			2014			2015		
			Yr 6 (Hrs)	Yr 6 (Labor)	Yr 6 (Exp)	Yr 7 (Hrs)	Yr 7 (Labor)	Yr 7 (Exp)	Yr 8 (Hrs)	Yr 8 (Labor)	Yr 8 (Exp)	Yr 9 (Hrs)	Yr 9 (Labor)	Yr 9 (Exp)
Stormwater Program Element	Final Permit - January 17, 2007 Activities/BMPs Needed for Regulatory Compliance	Required Implementation by end of:												
15.3 (l) Monitoring		2007-2009	120	\$5,050	\$5,000	120	\$5,202	\$5,000	120	\$5,358	\$5,000	120	\$5,518	\$5,000
15.3 (m) Schedule for Implementation		2007-2009	0	\$0	\$0	0	\$0	\$0	0	\$0	\$0	0	\$0	\$0
2007-09 Puget Sound C&RP TOTAL			0.06	\$5,050	\$5,000	0.06	\$5,202	\$5,000	0.06	\$5,358	\$5,000	0.06	\$5,518	\$5,000
GAP IN EXISTING PROGRAM			0.06	\$5,050	\$5,000	0.06	\$5,202	\$5,000	0.06	\$5,358	\$5,000	0.06	\$5,518	\$5,000
Element #16 - Capital Projects														
16.1 Typical Projects		Ongoing	1,064	\$44,777	\$1,272,995	1,064	\$46,120	\$1,223,198	1,064	\$47,504	\$1,313,683	1,064	\$48,929	\$1,407,819
16.2 Long Term System Replacement		Ongoing	0	\$0	\$0	0	\$0	\$0	0	\$0	\$0	0	\$0	\$0
16.3 Additional CIP Needs and Costs		Ongoing	0	\$0	\$0	0	\$0	\$0	0	\$0	\$0	0	\$0	\$0
Capital Projects TOTAL			0.51	\$44,777	\$1,272,995	0.51	\$46,120	\$1,223,198	0.51	\$47,504	\$1,313,683	0.51	\$48,929	\$1,407,819
GAP IN EXISTING PROGRAM			0.00	\$5,238	\$815,963	0.00	\$6,581	\$766,166	0.00	\$7,965	\$856,651	0.00	\$9,390	\$950,787
Element #17 - Additional Activities (City Specific)														
17.1 Equipment, Materials and Supplies	The City's 2007 SWM Budget identifies line items for Work Equipment Maintenance and Repair, Equipment Rental Charges, Small Items of Equipment, and Small Tools.		0	\$0	\$61,984	0	\$0	\$63,844	0	\$0	\$65,759	0	\$0	\$67,732
17.2 Program Overhead	Program overhead includes items such as insurance, and billing administration. The City's 2008 Surface Water Budget for program overhead includes state taxes, insurance, travel and city taxes.		0	\$0	\$343,716	0	\$0	\$354,028	0	\$0	\$364,648	0	\$0	\$375,588

CITY OF MARYSVILLE
SURFACE WATER MANAGEMENT PROGRAM GAP ANALYSIS AND COSTS

Requirements			2012			2013			2014			2015		
Stormwater Program Element	Final Permit - January 17, 2007 Activities/BMPs Needed for Regulatory Compliance	Required Implementation by end of:	Yr 6 (Hrs)	Yr 6 (Labor)	Yr 6 (Exp)	Yr 7 (Hrs)	Yr 7 (Labor)	Yr 7 (Exp)	Yr 8 (Hrs)	Yr 8 (Labor)	Yr 8 (Exp)	Yr 9 (Hrs)	Yr 9 (Labor)	Yr 9 (Exp)
17.3 Professional Services and Interlocal Agreements	The SWM Program uses contracts and agreements for any professional services needed for the program.		0	\$0	\$121,077	0	\$0	\$124,709	0	\$0	\$128,450	0	\$0	\$132,304
17.4 Customer Response and Utility Billing	The surface water staff is responsible to perform customer and utility billing.		2,080	\$87,534	\$170,608	2,080	\$90,160	\$175,726	2,080	\$92,864	\$180,998	2,080	\$95,650	\$186,428
17.5 Administration	The City's 2007 Stormwater Utility Fund Budget includes a line item for Administrative Services, Full Time Employee, Part Time Employee and On call Employee Salaries.		3,133	\$131,847	\$87,834	3,133	\$135,803	\$90,469	3,133	\$139,877	\$93,183	3,133	\$144,073	\$95,979
17.6 NPDES Phase II Permit Fees	The City is responsible for their NPDES Phase II Permit Fee.		0	\$0	\$15,000	0	\$0	\$15,450	0	\$0	\$15,914	0	\$0	\$16,391
17.7 Debt Services	Yearly debt service to pay back the 2005 Water/Sewer/Storm Revenue Bond.		0	\$0	\$537,100	0	\$0	\$700,000	0	\$0	\$700,000	0	\$0	\$700,000
Additional Activities TOTAL			2.51	\$219,381	\$1,337,319	2.51	\$225,963	\$1,524,225	2.51	\$232,741	\$1,548,952	2.51	\$239,724	\$1,574,421
GAP IN EXISTING PROGRAM			-0.16	\$12,914	\$80,672	-0.16	\$19,496	\$267,579	-0.16	\$26,275	\$292,306	-0.16	\$33,257	\$317,774
TOTAL SWM ACTIVITIES			9.91	\$867,221	\$2,951,859	9.97	\$898,755	\$3,074,616	10.10	\$938,251	\$3,195,644	10.24	\$979,665	\$3,321,240
TOTAL SWM ACTIVITIES MINUS CIP			9.40	\$822,444	\$1,678,864	9.46	\$852,635	\$1,851,418	9.59	\$890,747	\$1,881,961	9.73	\$930,736	\$1,913,421
Total SWM Program Gap			0.84	\$166,502	\$1,016,953	0.90	\$198,037	\$1,139,710	1.04	\$237,532	\$1,260,738	1.18	\$278,946	\$1,386,334

- Notes:
- Activities are based on the NPDES State Waste Discharge General Permit for Discharges from Small MS4s in Western Washington, Final Permit issued on January 17, 2007.
 - "2005 Ecology Manual" refers to the Washington State Department of Ecology's 2005 Stormwater Management Manual for Western Washington.
 - Monitoring requirements vary based on City or County population. Guidelines listed here are for small cities (population between 10,000 and 25,000).
 - Capital projects, estimated cost, and years for implementation provided by the City of Marysville.
 - Cost for program elements assumes staff time at an average of \$37.16/hour (salary + benefits) in 2008 and \$37.39 for 2009, with cost of living increases at 3% per year thereafter.
 - The City's annual hourly basis per one staff position or full time equivalent (FTE) is 2080 hours.

2008 Labor/Benefit Calculations

Regular Pay for 9.07 FTE		\$513,688.87
Benefits		
OVERTIME		\$ 5,074.30
SOCIAL SECURITY		\$ 38,333.45
RETIREMENT		\$ 36,858.75
HEALTH INSURANCE		\$ 95,397.20
WORKMEN'S COMPENSATION		\$ 5,308.16
UNEMPLOYMENT COMPENSATION		\$ 1,644.60
Seasonal Regular Pay		\$ 4,800.00
Total Benefits for 9.07 FTE		\$ 187,416.46
Total Labor and Benefits		\$701,105.33
Total Labor and Benefit Per FTE		\$77,299.37
Avg. Hourly Rate		\$37.16

OPERATING & MAINTENANCE EXPENDITURES		2008	2009 Budg	2009 % Change
	BUDGET	Portion Allocate Element to Surface Water	Portion Allocated to Surface Water	
430 STANDBY				
40143010 511000 REGULAR PAY	18235	1823.5 FTE \$\$	11980	1198 -0.34302
40143010 512000 OVERTIME	33634	3363.4 FTE \$\$	50000	5000 0.486591
40143010 521000 SOCIAL SECURITY	1390	139 FTE \$\$	909	90.9 -0.34604
40143010 522000 RETIREMENT	1319	131.9 FTE \$\$	939	93.9 -0.2881
40143010 523000 HEALTH INSURANCE	3819	381.9 FTE \$\$	2364	236.4 -0.38099
40143010 524000 WORKMAN'S COMP	362	36.2 FTE \$\$	312	31.2 -0.13812
40143010 525000 UNEMPLOYMENT COMPENSATION	57	5.7 FTE \$\$	24	2.4 -0.57895
	TOTAL STANDBY	5881.6	66528	6652.8
431 UTILITIES ENGR				
40143110 511000 REGULAR PAY				
40143110 521000 SOCIAL SECURITY				
40143110 522000 RETIREMENT				
40143110 523000 HEALTH INSURANCE				
40143110 524000 WORKMAN'S COMP	363	36.3 FTE \$\$	123	12.3 -0.66116
40143110 525000 UNEMPLOYMENT COMPENSATION			0	0
40143110 541000 PROFESSIONAL SERVICES	5000	500 17.3	5000	500 0
	TOTAL UTILITIES ENGR	536.3	5123	512.3
432 PLANNING				
40143210 511000 REGULAR PAY	337621	33762.1 FTE \$\$	379737	37973.7 0.124743
40143210 512000 OVERTIME	1000	100 FTE \$\$	1000	100 0
40143210 521000 SOCIAL SECURITY	24948	2494.8 FTE \$\$	27508	2750.8 0.102613
40143210 522000 RETIREMENT	24380	2438 FTE \$\$	29300	2930 0.201805
40143210 523000 HEALTH INSURANCE	41098	4109.8 FTE \$\$	53801	5380.1 0.30909
40143210 524000 WORKMEN'S COMPENSATION	2058	205.8 FTE \$\$	3333	333.3 0.619534
40143210 525000 UNEMPLOYMENT COMPENSATION	1019	101.9 FTE \$\$	747	74.7 -0.26693
40143210 531000 OFFICE & OPERATING SUPPLIE	2000	200 17.1	2000	200 0
40143210 535000 SMALL TOOLS	2000	200 17.1	2000	200 0
40143210 542000 COMMUNICATION	2000	200 17.5	2000	200 0
40143210 543000 TRAVEL	1500	150 17.2	500	50 -0.66667
40143210 548000 REPAIRS & MAINTENANCE	7800	780 6.2	0	0 -1
	TOTAL PLANNING	44742.4	501926	50192.6
433 OVERHEAD				
40143310 511000 REGULAR PAY	425178	42517.8 FTE \$\$	443009	44300.9 0.041938
40143310 512000 OVERTIME		FTE \$\$	0	0 #DIV/0!
40143310 521000 SOCIAL SECURITY	32219	3221.9 FTE \$\$	33390	3339 0.036345
40143310 522000 RETIREMENT	30593	3059.3 FTE \$\$	34734	3473.4 0.135358
40143310 523000 HEALTH INSURANCE	92947	9294.7 FTE \$\$	100417	10041.7 0.080368
40143310 524000 WORKMAN'S COMP	8473	847.3 FTE \$\$	11317	1131.7 0.335654
40143310 525000 UNEMPLOYMENT COMPENSATION	1293	129.3 FTE \$\$	885	88.5 -0.31555
	TOTAL OVERHEAD	59070.3	623752	62375.2
434 UTIL ADMIN				
40143400 500000 INTERFUND XFERS	200000	20000 17.4	200000	20000 0
40143400 500000 0802 BLACKBERRY WIRELESS	1422	0	0	0 0
40143400 500000 0817 WORK ORDER SYSTEM	59000	0	0	0 0
40143410 511000 REGULAR PAY	453683	45368.3 FTE \$\$		0 -1
40143410 512000 OVERTIME	600	60 FTE \$\$	600	60 0
40143410 521000 SOCIAL SECURITY	33434	3343.4 FTE \$\$	23402	2340.2 -0.30005
40143410 522000 RETIREMENT	32040	3204 FTE \$\$	24412	2441.2 -0.23808
40143410 523000 HEALTH INSURANCE	85381	8538.1 FTE \$\$	68171	6817.1 -0.20157
40143410 524000 WORKMAN'S COMP	3010	301 FTE \$\$	3008	300.8 -0.00066
40143410 525000 UNEMPLOYMENT COMPENSATION	1379	137.9 FTE \$\$	623	62.3 -0.54822
40143410 526000 UNIFORMS & CLOTHINGS	300	30 17.1	300	30 0
40143410 526100 UNIFORMS-MAINT CREW	500	50 17.1	500	50 0
40143410 526200 UNIFORMS-CONSTR CREW	12000	1200 17.1	7200	720 -0.4
40143410 526300 UNIFORMS-WWTP CREW	4000	400 17.1	3800	380 -0.05
40143410 526400 UNIFORMS-SAFETY OFFICER	100	10 17.1	0	0 -1

40143410 531000 OFFICE & OPERATING SUPPLIE	29781	2978.1	17.1	25000	2500	-0.16054
40143410 531200 JANITORIAL SUPPLIES	5000	500	17.1	5000	500	0
40143410 534000 INVENTORY SUPPLIES	5000	500	17.1	5000	500	0
40143410 535000 SMALL TOOLS	20000	2000	17.1	20000	2000	0
40143410 535000 0840 LAPTOP COMPUTERS	12000	0		0	0	0
40143410 541000 PROFESSIONAL SERVICES	350000	35000	17.3	350000	35000	0
40143410 541000 M0802 EMERGENCY PROJECTS	50000	0		0	0	0
40143410 541000 W0620 IDSE STUDY	10000	0		0	0	0
40143410 541000 W0704 WATER COMP PLAN	280000	0		0	0	0
40143410 542000 COMMUNICATION	41306	4130.6	17.5	40000	4000	-0.03162
40143410 543010 TRAVEL-MGMT & OFFICE	2000	200	17.2	2500	250	0.25
40143410 543020 TRAVEL-MAINT	2500	250	17.2	3600	360	0.44
40143410 543040 TRAVEL-WWTP	1500	150	17.2	3400	340	1.266667
40143410 543050 TRAVEL-SAFETY OFFICER	100	10	17.2	0	0	-1
40143410 544000 ADVERTISING	5000	500	3.1	3000	300	-0.4
40143410 545000 OPERATING RENTALS & LEASES	10000	1000	17.1	10000	1000	0
40143410 546000 INSURANCE	229194	22919.4	17.2	231108	23110.8	0.008351
40143410 547000 PUBLIC UTILITY SERVICES	800	80	17.2	800	80	0
40143410 548000 REPAIRS & MAINTENANCE	10000	1000	6.2	10000	1000	0
40143410 549000 MISCELLANEOUS	17500	1750	17.4	17500	1750	0
40143410 549020 TRAINING-MGMT& OFFICE	1975	197.5	17.2	7500	750	2.797468
40143410 549030 TRAINING-MAINT	3500	350	6.7	5400	540	0.542857
40143410 549050 TRAINING-WWTP	2500	250	6.7	5100	510	1.04
40143410 549060 TRAINING-SAFETY OFFICER	15000	1500	17.2	10000	1000	-0.333333
40143410 549070 WATER REBATE	2000	0		2000	0	0
40143410 549071 SEWER REBATE	4000	0		5000	0	0
40143410 549700 DRUG TESTING	3600	360	17.2	3600	360	0
40143410 553000 STATE TAXES	500000	0		500000	0	0
40143410 553100 OPERATING PERMITS-WTR	15000	0		15000	0	0
40143410 553200 OPERATING PERMITS-SEW	50000	0		50000	0	0
40143410 553300 CITY TAXES-EXCISE	849057	0		837736	0	0
40143410 554300 CITY TAXES-PROPERTY	400000	92000	17.2	750000	172500	0.875
40143410 599000 03CIO COMMUNITY INFO OFFICER	69242	6924.2	17.5	80219.41	8021.941	0.158537
40143410 599000 03EXE EXECUTIVE DEPARTMENT	100125	10012.5	17.5	98852.06	9885.206	-0.01271
40143410 599000 03HR HR DEPARTMENT ALLOCATIO	125853	12585.3	17.5	125045.5	12504.55	-0.00642
40143410 599000 04ACT FIN/ACCT ALLOCATION	177418	17741.8	17.5	190294.8	19029.48	0.072579
40143410 599000 04CC FINANCE - CITY CLERK	49843	4984.3	17.5	40189.56	4018.956	-0.19368
40143410 599000 04IT IT ALLOCATION	84970	8497	17.5	97555.44	9755.544	0.148116
40143410 599000 04TEL NEXTEL ALLOCATION	9522	952.2	17.5	9522	952.2	0
40143410 599000 04UB UTILITY BILLING	164347	54234.51	17.4	402295	132757.4	1.447839
		TOTAL UTIL ADMIN		366200.11	4294234	478477.6
436 ADMIN-EXECUTIVE						
40143610 511000 REGULAR PAY	35898	3589.8 FTE \$\$		33075	3307.5	-0.07864
40143610 512000 OVERTIME	2709	270.9 FTE \$\$		Omitted	0	-1
40143610 521000 SOCIAL SECURITY	406	40.6 FTE \$\$		1687	168.7	3.155172
40143610 522000 RETIREMENT	1000	100 FTE \$\$		0	0	-1
40143610 523000 HEALTH INSURANCE	1000	100 FTE \$\$		0	0	-1
40143610 524000 WORKMAN'S COMP	500	50 FTE \$\$		602	60.2	0.204
40143610 525000 UNEMPLOYMENT COMPENSATION	1000	100 FTE \$\$		0	0	-1
40143610 531000 OFFICE & OPERATING SUPPLIE	500	50	17.1	500	50	0
40143610 541000 PROFESSIONAL SERVICES	500	50	17.3	500	50	0
40143610 542000 COMMUNICATION	500	50	17.5	500	50	0
40143610 543000 TRAVEL	1000	100	17.2	500	50	-0.5
		TOTAL ADMIN-EXECUTIVE		4501.3	37364	3736.4
437 MAINT OF GENL PLANT						
40143780 511000 REGULAR PAY	52393	12050.39 FTE \$\$		59288	13636.24	0.131602
40143780 512000 OVERTIME	1000	230 FTE \$\$		100	23	-0.9
40143780 521000 SOCIAL SECURITY	3925	902.75 FTE \$\$		4417	1015.91	0.12535
40143780 522000 RETIREMENT	3785	870.55 FTE \$\$		4648	1069.04	0.228005

40143780 523000 HEALTH INSURANCE	13890	3194.7 FTE \$\$	15488	3562.24	0.115047	
40143780 524000 WORKMAN'S COMP	982	225.86 FTE \$\$	1472	338.56	0.498982	
40143780 525000 UNEMPLOYMENT COMPENSATION	160	36.8 FTE \$\$	117	26.91	-0.26875	
40143780 531000 OFFICE & OPERATING SUPPLIE	5000	1150	17.1	5000	1150	0
40143780 535000 SMALL TOOLS	1000	230	17.1	1500	345	0.5
40143780 541000 PROFESSIONAL SERVICES	29565	6799.95	17.3	29565	6799.95	0
40143780 542000 COMMUNICATION	1500	345	17.5	1500	345	0
40143780 547000 PUBLIC UTILITY SERVICES	65000	14950	17.4	70000	16100	0.076923
40143780 548000 REPAIRS & MAINTENANCE	10000	2300	6.2	10000	2300	0
40143780 549000 MISCELLANEOUS	1500	345	17.2	1500	345	0
40143780 598100 FACILITIES MAINTENANCE	102004	23460.92	6.2	102004.2	23460.97	2.16E-06
TOTAL MAINT OF GENL PL		67091.92		306599.2	70517.82	
438 MAINT OF EQUIPMENT						
40143880 532000 FUEL CONSUMED	80000	18400	17.1	80000	18400	0
40143880 598000 INTERFUND REPAIRS & MAINT	89506	20586.38	5.2	132653.3	30510.25	0.48206
TOTAL MAINT OF EQUIPM		38986.38		212653.3	48910.25	
439 CAPITAL OUTLAY						
40143900 500000 INTERFUND TRANSFER	121141	27862.43	16.3	0	0	-1
40143980 549000 MISCELLANEOUS						#DIV/0!
40143980 562000 BUILDINGS & STRUCTURES						
TOTAL CAPITAL OUTLAY		27862.43		0	0	
450 STORM DRAINAGE						
40145040 511000 REGULAR PAY	374577	374577 FTE \$\$	407426.6	407426.6	0.087698	
40145040 511100 SEASONAL REGULAR PAY	4800	4800 FTE \$\$	4606.75	4606.75	-0.04026	
40145040 512000 OVERTIME	1050	1050 FTE \$\$	1050	1050	0	
40145040 521000 SOCIAL SECURITY	28191	28191 FTE \$\$	30621	30621	0.086198	
40145040 522000 RETIREMENT	27055	27055 FTE \$\$	30621	30621	0.131806	
40145040 523000 HEALTH INSURANCE	69778	69778 FTE \$\$	64467	64467	-0.07611	
40145040 524000 WORKMEN'S COMPENSATION	3642	3642 FTE \$\$	4991	4991	0.370401	
40145040 525000 UNEMPLOYMENT COMPENSATION	1133	1133 FTE \$\$	813	813	-0.28244	
40145040 526000 UNIFORMS & CLOTHING	600	600	17.1	600	600	0
40145040 531000 OFFICE & OPERATING SUPPLIE	22000	22000	17.1	22000	22000	0
40145040 532000 FUEL CONSUMED	2500	2500	17.1	2500	2500	0
40145040 535000 SMALL TOOLS	6500	6500	17.1	3500	3500	-0.46154
40145040 541000 PROFESSIONAL SERVICES	20500	20500	17.3	20500	20500	0
40145040 541000 D0602 SMOKEY POINT MASTER PLAN	131907	131907	16.1	0	0	-1
40145040 541000 D0701 DOWNTOWN MASTER PLAN	70000	70000	16.1	0	0	-1
40145040 548000 D0720 SW COMP PLAN UPDATE	300000	300000	17.3	200000	200000	-0.33333
40145040 548000 REPAIRS & MAINTENANCE	102000	102000	6.2	115000	115000	0.127451
40145040 548000 M0519 STORM REPLACEMENT	50000	50000	16.2	0	0	-1
40145040 549000 MISCELLANEOUS	19070	19070	17.5	19070	19070	0
40145040 553000 STATE TAXES	45000	45000	17.2	45000	45000	0
40145040 553100 OPERATING PERMITS-WATER	85000	85000 Various		100000	100000	0.176471
40145040 554000 CITY TAXES	141509	141509	17.2	141509	141509	0
TOTAL STORM DRAINAGE		1506812		1214275	1214275	
DEBT PAYMENTS						
2005 WATER/SEWER/STORMWATER REVENUE BOND		537100	17.7	0	537100	0
TOTAL DEBT PAYMENTS		537100		1984846	2521946	
CAPITAL						
D0401 REGIONAL DETENTION POND #2		6250000	16.1	0	7250000	0.16
D0501 152ND ST NE LIFT STATION		1000000	16.1	0	750000	-0.25
TOTAL CAPITAL		7250000		0	8000000	
GRAND TOTAL EXPENDIT		9908784.74		7262455	10472750	0.056916
Otak Added						
2008 Total \$\$ to Elem	2009	2008	TOTAL EXPENSES		\$9,207,643.09	

3.1	500	300	2009	TOTAL EXPENSES	\$1,237,241.20
6.2	150127.3	172271.2	2008	TOTAL FTE \$\$	\$701,141.65
6.7	600	1050	2009	TOTAL FTE \$\$	\$698,396.85
16.1	7451907	8000000		Total SALARY	\$513,688.89
16.2	50000	0		Total Benefits	\$187,452.76
16.3	27862.43	0	2008	2008 TOTAL HOURLY RATIO	\$37.17
17.1	60498.1	56625	2009	2009 TOTAL HOURLY RATIO	\$37.39
17.2	304770.9	385704.8			
17.3	362850	262850			
17.4	90934.51	170607.4			
17.5	85492.9	87832.88			
17.7	537100	537100			
Permit Doll	85000	100000			
TOTAL Expenditures	9207643	9774341			

Program Categories	Existing Year 2 2008	Year 3 2009	Year 4 2010	Year 5 2011	Year 6 2012	Year 7 2013	Year 8 2014	Year 9 2015	Total \$ Yr 2-9
Staffing Level (FTE)	9.07	10.23	9.71	9.69	9.91	9.97	10.10	10.24	N/A
Regulatory Program Activities*	\$676	\$828	\$833	\$853	\$945	\$954	\$991	\$1,030	\$7,109
CIP*	\$497	\$8,041	\$722	\$1,231	\$1,318	\$1,269	\$1,361	\$1,457	\$15,895
Additional Activities*	\$1,463	\$1,722	\$1,557	\$1,587	\$1,557	\$1,750	\$1,782	\$1,814	\$13,231
Totals	\$2,636	\$10,591	\$3,111	\$3,671	\$3,819	\$3,973	\$4,134	\$4,301	\$36,236

*Includes expense, labor and benefit costs

Marysville ERUs and Revenues

Assumed Growth Rate	2.00%
2009 Bi-Monthly Rate	\$16.32
Assumed 2010 Bi-Monthly Rate	\$21.22
Assumed 2011 Bi-Monthly Rate	\$24.40
Assumed 2012 Bi-Monthly Rate	\$24.89
Assumed 2013 Bi-Monthly Rate	\$25.38
Assumed 2014 Bi-Monthly Rate	\$25.89
Assumed 2015 Bi-Monthly Rate	\$26.41

Utility	2006 ERUs	2007 ERUs	2008 ERUs	2009 ERUs	2010 ERUs	2011 ERUs	2012 ERUs	2013 ERUs	2014 ERUs	2015 ERUs
Stormwater	23166	23629	24102	24584	25075	25577	26088	26610	27142	27685

Revenue	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Stormwater Utility	N/A	N/A	N/A	\$2,407,227	\$3,191,983	\$3,744,196	\$3,895,462	\$4,052,839	\$4,216,573	\$4,386,923
TOTAL REVENUE				\$2,407,227	\$3,191,983	\$3,744,196	\$3,895,462	\$4,052,839	\$4,216,573	\$4,386,923
Program Costs Minus CIP				\$2,550,184	\$2,389,583	\$2,439,824	\$2,501,308	\$2,704,053	\$2,772,709	\$2,844,157
CIP FTE Costs				\$40,974	\$42,206	\$43,473	\$44,777	\$46,120	\$47,504	\$48,929
Remaining Funding for CIP Projects				-\$183,931	\$760,194	\$1,260,900	\$1,349,377	\$1,302,665	\$1,396,361	\$1,493,837
Use to avoid circular reference				-\$231,131	\$679,606	\$1,187,484	\$1,272,995	\$1,223,198	\$1,313,683	\$1,407,819

Appendix 3.3.B
Budget Model Integration 2009

Appendix 3.3.B

OPERATING & MAINTENANCE EXPENDITURES				2008		2009 Budgeted		% Change
				Portion Allocated to Surface Water	Element		Portion Allocated to Surface Water	
430 STANDBY								
40143010	511000	REGULAR PAY	\$	1,823.50	FTE \$\$	\$11,980	\$1,198	-34.30%
40143010	512000	OVERTIME	\$	3,363.40	FTE \$\$	\$50,000	\$5,000	48.66%
40143010	521000	SOCIAL SECURITY	\$	139.00	FTE \$\$	\$909	\$91	-34.60%
40143010	522000	RETIREMENT	\$	131.90	FTE \$\$	\$939	\$94	-28.81%
40143010	523000	HEALTH INSURANCE	\$	381.90	FTE \$\$	\$2,364	\$236	-38.10%
40143010	524000	WORKMAN'S COMP	\$	36.20	FTE \$\$	\$312	\$31	-13.81%
40143010	525000	UNEMPLOYMENT COMPENSATION	\$	5.70	FTE \$\$	\$24	\$2	-57.89%
TOTAL STANDBY			\$	5,881.60		\$ 66,528.00	\$ 6,652.80	
431 UTILITIES ENGR								
40143110	524000	WORKMAN'S COMP	\$	36.30	FTE \$\$	\$123	\$12	-66.12%
40143110	541000	PROFESSIONAL SERVICES	\$	500.00	17.3	\$5,000	\$500	0.00%
TOTAL UTILITIES ENGR			\$	536.30		\$ 5,123.00	\$ 512.30	
432 PLANNING								
40143210	511000	REGULAR PAY	\$	33,762.10	FTE \$\$	\$379,737	\$37,974	12.47%
40143210	512000	OVERTIME	\$	100.00	FTE \$\$	\$1,000	\$100	0.00%
40143210	521000	SOCIAL SECURITY	\$	2,494.80	FTE \$\$	\$27,508	\$2,751	10.26%
40143210	522000	RETIREMENT	\$	2,438.00	FTE \$\$	\$29,300	\$2,930	20.18%
40143210	523000	HEALTH INSURANCE	\$	4,109.80	FTE \$\$	\$53,801	\$5,380	30.91%
40143210	524000	WORKMEN'S COMPENSATION	\$	205.80	FTE \$\$	\$3,333	\$333	61.95%
40143210	525000	UNEMPLOYMENT COMPENSATION	\$	101.90	FTE \$\$	\$747	\$75	-26.69%
40143210	531000	OFFICE & OPERATING SUPPLIE	\$	200.00	17.1	\$2,000	\$200	0.00%
40143210	535000	SMALL TOOLS	\$	200.00	17.1	\$2,000	\$200	0.00%
40143210	542000	COMMUNICATION	\$	200.00	17.5	\$2,000	\$200	0.00%
40143210	543000	TRAVEL	\$	150.00	17.2	\$500	\$50	-66.67%
40143210	548000	REPAIRS & MAINTENANCE	\$	780.00	6.2	\$0	\$0	-100.00%
TOTAL PLANNING			\$	44,742.40		\$ 501,926.00	\$ 50,192.60	
433 OVERHEAD								
40143310	511000	REGULAR PAY	\$	42,517.80	FTE \$\$	\$443,009	\$44,301	4.19%
40143310	521000	SOCIAL SECURITY	\$	3,221.90	FTE \$\$	\$33,390	\$3,339	3.63%
40143310	522000	RETIREMENT	\$	3,059.30	FTE \$\$	\$34,734	\$3,473	13.54%
40143310	523000	HEALTH INSURANCE	\$	9,294.70	FTE \$\$	\$100,417	\$10,042	8.04%
40143310	524000	WORKMAN'S COMP	\$	847.30	FTE \$\$	\$11,317	\$1,132	33.57%
40143310	525000	UNEMPLOYMENT COMPENSATION	\$	129.30	FTE \$\$	\$885	\$89	-31.55%
TOTAL OVERHEAD			\$	59,070.30		\$ 623,752.00	\$ 62,375.20	
434 UTIL ADMIN								
40143400	500000	INTERFUND XFERS	\$	20,000.00	17.4	\$200,000	\$20,000	0.00%
40143400	500000	0802 BLACKBERRY WIRELESS	\$	-		\$0	\$-	0.00%
40143400	500000	0817 WORK ORDER SYSTEM	\$	-		\$0	\$-	0.00%
40143410	511000	REGULAR PAY	\$	45,368.30	FTE \$\$		\$0	-100.00%
40143410	512000	OVERTIME	\$	60.00	FTE \$\$	\$600	\$60	0.00%
40143410	521000	SOCIAL SECURITY	\$	3,343.40	FTE \$\$	\$23,402	\$2,340	-30.01%
40143410	522000	RETIREMENT	\$	3,204.00	FTE \$\$	\$24,412	\$2,441	-23.81%
40143410	523000	HEALTH INSURANCE	\$	8,538.10	FTE \$\$	\$68,171	\$6,817	-20.16%
40143410	524000	WORKMAN'S COMP	\$	301.00	FTE \$\$	\$3,008	\$301	-0.07%
40143410	525000	UNEMPLOYMENT COMPENSATION	\$	137.90	FTE \$\$	\$623	\$62	-54.82%
40143410	526000	UNIFORMS & CLOTHINGS	\$	30.00	17.1	\$300	\$30	0.00%
40143410	526100	UNIFORMS-MAINT CREW	\$	50.00	17.1	\$500	\$50	0.00%
40143410	526200	UNIFORMS-CONSTR CREW	\$	1,200.00	17.1	\$7,200	\$720	-40.00%
40143410	526300	UNIFORMS-WWTP CREW	\$	400.00	17.1	\$3,800	\$380	-5.00%
40143410	526400	UNIFORMS-SAFETY OFFICER	\$	10.00	17.1	\$0	\$0	-100.00%
40143410	531000	OFFICE & OPERATING SUPPLIE	\$	2,978.10	17.1	\$25,000	\$2,500	-16.05%
40143410	531200	JANITORIAL SUPPLIES	\$	500.00	17.1	\$5,000	\$500	0.00%
40143410	534000	INVENTORY SUPPLIES	\$	500.00	17.1	\$5,000	\$500	0.00%
40143410	535000	SMALL TOOLS	\$	2,000.00	17.1	\$20,000	\$2,000	0.00%
40143410	535000	0840 LAPTOP COMPUTERS	\$	-		\$0	\$0	0.00%
40143410	541000	PROFESSIONAL SERVICES	\$	35,000.00	17.3	\$350,000	\$35,000	0.00%
40143410	541000	M0802 EMERGENCY PROJECTS	\$	-		\$-	\$-	0.00%
40143410	541000	W0620 IDSE STUDY	\$	-		\$-	\$-	0.00%
40143410	541000	W0704 WATER COMP PLAN	\$	-		\$-	\$-	0.00%
40143410	542000	COMMUNICATION	\$	4,130.60	17.5	\$ 40,000.00	\$4,000	-3.16%
40143410	543010	TRAVEL-MGMT & OFFICE	\$	200.00	17.2	\$ 2,500.00	\$250	25.00%
40143410	543020	TRAVEL-MAINT	\$	250.00	17.2	\$ 3,600.00	\$360	44.00%
40143410	543040	TRAVEL-WWTP	\$	150.00	17.2	\$ 3,400.00	\$340	126.67%
40143410	543050	TRAVEL-SAFETY OFFICER	\$	10.00	17.2	\$-	\$0	-100.00%
40143410	544000	ADVERTISING	\$	500.00	3.1	\$ 3,000.00	\$300	-40.00%
40143410	545000	OPERATING RENTALS & LEASES	\$	1,000.00	17.1	\$ 10,000.00	\$1,000	0.00%
40143410	546000	INSURANCE	\$	22,919.40	17.2	\$ 231,108.00	\$23,111	0.84%
40143410	547000	PUBLIC UTILITY SERVICES	\$	80.00	17.2	\$ 800.00	\$80	0.00%
40143410	548000	REPAIRS & MAINTENANCE	\$	1,000.00	6.2	\$ 10,000.00	\$1,000	0.00%
40143410	549000	MISCELLANEOUS	\$	1,750.00	17.4	\$ 17,500.00	\$1,750	0.00%
40143410	549020	TRAINING-MGMT & OFFICE	\$	197.50	17.2	\$ 7,500.00	\$750	279.75%
40143410	549030	TRAINING-MAINT	\$	350.00	6.7	\$ 5,400.00	\$540	54.29%
40143410	549050	TRAINING-WWTP	\$	250.00	6.7	\$ 5,100.00	\$510	104.00%
40143410	549060	TRAINING-SAFETY OFFICER	\$	1,500.00	17.2	\$ 10,000.00	\$1,000	-33.33%
40143410	549070	WATER REBATE	\$	-		\$ 2,000.00	\$-	0.00%
40143410	549071	SEWER REBATE	\$	-		\$ 5,000.00	\$-	0.00%
40143410	549700	DRUG TESTING	\$	360.00	17.2	\$ 3,600.00	\$360	0.00%
40143410	553000	STATE TAXES	\$	-		\$ 500,000.00	\$-	0.00%
40143410	553100	OPERATING PERMITS-WTR	\$	-		\$ 15,000.00	\$-	0.00%
40143410	553200	OPERATING PERMITS-SEW	\$	-		\$ 50,000.00	\$-	0.00%

Appendix 3.3.B

40143410 553300 CITY TAXES-EXCISE				\$ -		\$ 837,736.00	\$ -	0.00%
40143410 554300 CITY TAXES-PROPERTY				\$ 92,000.00	17.2	\$ 750,000.00	\$172,500	87.50%
40143410 599000 03CIO COMMUNITY INFO OFFICER				\$ 6,924.20	17.5	\$ 80,219.41	\$8,022	15.85%
40143410 599000 03EXE EXECUTIVE DEPARTMENT				\$ 10,012.50	17.5	\$ 98,852.06	\$9,885	-1.27%
40143410 599000 03HR HR DEPARTMENT ALLOCATIO				\$ 12,585.30	17.5	\$ 125,045.52	\$12,505	-0.64%
40143410 599000 04ACT FIN/ACCT ALLOCATION				\$ 17,741.80	17.5	\$ 190,294.80	\$19,029	7.26%
40143410 599000 04CC FINANCE - CITY CLERK				\$ 4,984.30	17.5	\$ 40,189.56	\$4,019	-19.37%
40143410 599000 04IT IT ALLOCATION				\$ 8,497.00	17.5	\$ 97,555.44	\$9,756	14.81%
40143410 599000 04TEL NEXTEL ALLOCATION				\$ 952.20	17.5	\$ 9,522.00	\$952	0.00%
40143410 599000 04UB UTILITY BILLING				\$ 54,234.51	17.4	\$ 402,295.00	\$132,757	144.78%
			TOTAL UTIL ADMIN	\$ 366,200.11		\$ 4,294,233.79	\$ 478,477.63	
436 ADMIN-EXECUTIVE								
40143610 511000 REGULAR PAY				\$ 3,589.80	FTE \$\$	\$ 33,075.00	\$3,308	-7.86%
40143610 512000 OVERTIME				\$ 270.90	FTE \$\$	Omitted	\$0	-100.00%
40143610 521000 SOCIAL SECURITY				\$ 40.60	FTE \$\$	\$ 1,687.00	\$169	315.52%
40143610 522000 RETIREMENT				\$ 100.00	FTE \$\$	\$ -	\$0	-100.00%
40143610 523000 HEALTH INSURANCE				\$ 100.00	FTE \$\$	\$ -	\$0	-100.00%
40143610 524000 WORKMAN'S COMP				\$ 50.00	FTE \$\$	\$ 602.00	\$60	20.40%
40143610 525000 UNEMPLOYMENT COMPENSATION				\$ 100.00	FTE \$\$	\$ -	\$0	-100.00%
40143610 531000 OFFICE & OPERATING SUPPLIE				\$ 50.00	17.1	\$ 500.00	\$50	0.00%
40143610 541000 PROFESSIONAL SERVICES				\$ 50.00	17.3	\$ 500.00	\$50	0.00%
40143610 542000 COMMUNICATION				\$ 50.00	17.5	\$ 500.00	\$50	0.00%
40143610 543000 TRAVEL				\$ 100.00	17.2	\$ 500.00	\$50	-50.00%
			TOTAL ADMIN-EXECU	\$ 4,501.30		\$ 37,364.00	\$ 3,736.40	
437 MAINT OF GENL PLANT								
40143780 511000 REGULAR PAY				\$ 12,050.39	FTE \$\$	\$ 59,288.00	\$13,636	13.16%
40143780 512000 OVERTIME				\$ 230.00	FTE \$\$	\$ 100.00	\$23	-90.00%
40143780 521000 SOCIAL SECURITY				\$ 902.75	FTE \$\$	\$ 4,417.00	\$1,016	12.54%
40143780 522000 RETIREMENT				\$ 870.55	FTE \$\$	\$ 4,648.00	\$1,069	22.80%
40143780 523000 HEALTH INSURANCE				\$ 3,194.70	FTE \$\$	\$ 15,488.00	\$3,562	11.50%
40143780 524000 WORKMAN'S COMP				\$ 225.86	FTE \$\$	\$ 1,472.00	\$339	49.90%
40143780 525000 UNEMPLOYMENT COMPENSATION				\$ 36.80	FTE \$\$	\$ 117.00	\$27	-26.88%
40143780 531000 OFFICE & OPERATING SUPPLIE				\$ 1,150.00	17.1	\$ 5,000.00	\$1,150	0.00%
40143780 535000 SMALL TOOLS				\$ 230.00	17.1	\$ 1,500.00	\$345	50.00%
40143780 541000 PROFESSIONAL SERVICES				\$ 6,799.95	17.3	\$ 29,565.00	\$6,800	0.00%
40143780 542000 COMMUNICATION				\$ 345.00	17.5	\$ 1,500.00	\$345	0.00%
40143780 547000 PUBLIC UTILITY SERVICES				\$ 14,950.00	17.4	\$ 70,000.00	\$16,100	7.69%
40143780 548000 REPAIRS & MAINTENANCE				\$ 2,300.00	6.2	\$ 10,000.00	\$2,300	0.00%
40143780 549000 MISCELLANEOUS				\$ 345.00	17.2	\$ 1,500.00	\$345	0.00%
40143780 598100 FACILITIES MAINTENANCE				\$ 23,460.92	6.2	\$ 102,004.22	\$23,461	0.00%
			TOTAL MAINT OF GEN	\$ 67,091.92		\$ 306,599.22	\$ 70,517.82	
438 MAINT OF EQUIPMENT								
40143880 532000 FUEL CONSUMED				\$ 18,400.00	17.1	\$ 80,000.00	\$18,400	0.00%
40143880 598000 INTERFUND REPAIRS & MAINT				\$ 20,586.38	5.2	\$ 132,653.28	\$30,510	48.21%
			TOTAL MAINT OF EQU	\$ 38,986.38		\$ 212,653.28	\$ 48,910.25	
439 CAPITAL OUTLAY								
40143900 500000 INTERFUND TRANSFER				\$ 27,862.43	16.3	\$ 0	\$0	-100.00%
			TOTAL CAPITAL OUTL	\$ 27,862.43		\$ -	\$ -	
450 STORM DRAINAGE								
40145040 511000 REGULAR PAY				\$ 374,577.00	FTE \$\$	\$ 407,426.60	\$407,427	8.77%
40145040 511100 SEASONAL REGULAR PAY				\$ 4,800.00	FTE \$\$	\$ 4,606.75	\$4,607	-4.03%
40145040 512000 OVERTIME				\$ 1,050.00	FTE \$\$	\$ 1,050.00	\$1,050	0.00%
40145040 521000 SOCIAL SECURITY				\$ 28,191.00	FTE \$\$	\$ 30,621.00	\$30,621	8.62%
40145040 522000 RETIREMENT				\$ 27,055.00	FTE \$\$	\$ 30,621.00	\$30,621	13.18%
40145040 523000 HEALTH INSURANCE				\$ 69,778.00	FTE \$\$	\$ 64,467.00	\$64,467	-7.61%
40145040 524000 WORKMEN'S COMPENSATION				\$ 3,642.00	FTE \$\$	\$ 4,991.00	\$4,991	37.04%
40145040 525000 UNEMPLOYMENT COMPENSATION				\$ 1,133.00	FTE \$\$	\$ 813.00	\$813	-28.24%
40145040 526000 UNIFORMS & CLOTHING				\$ 600.00	17.1	\$ 600.00	\$600	0.00%
40145040 531000 OFFICE & OPERATING SUPPLIE				\$ 22,000.00	17.1	\$ 22,000.00	\$22,000	0.00%
40145040 532000 FUEL CONSUMED				\$ 2,500.00	17.1	\$ 2,500.00	\$2,500	0.00%
40145040 535000 SMALL TOOLS				\$ 6,500.00	17.1	\$ 3,500.00	\$3,500	-46.15%
40145040 541000 PROFESSIONAL SERVICES				\$ 20,500.00	17.3	\$ 20,500.00	\$20,500	0.00%
40145040 541000 D0602 SMOKEY POINT MASTER PLAN				\$ 131,907.00	16.1	\$ -	\$0	-100.00%
40145040 541000 D0701 DOWNTOWN MASTER PLAN				\$ 70,000.00	16.1	\$ -	\$0	-100.00%
40145040 548000 D0720 SW COMP PLAN UPDATE				\$ 300,000.00	17.3	\$ 200,000.00	\$200,000	-33.33%
40145040 548000 REPAIRS & MAINTENANCE				\$ 102,000.00	6.2	\$ 115,000.00	\$115,000	12.75%
40145040 548000 M0519 STORM REPLACEMENT				\$ 50,000.00	16.2	\$ -	\$0	-100.00%
40145040 549000 MISCELLANEOUS				\$ 19,070.00	17.5	\$ 19,070.00	\$19,070	0.00%
40145040 553000 STATE TAXES				\$ 45,000.00	17.2	\$ 45,000.00	\$45,000	0.00%
40145040 553100 OPERATING PERMITS-WATER				\$ 85,000.00	Various	\$ 100,000.00	\$100,000	17.65%
40145040 554000 CITY TAXES				\$ 141,509.00	17.2	\$ 141,509.00	\$141,509	0.00%
			TOTAL STORM DRAIN	\$ 1,506,812.00		\$ 1,214,275.35	\$1,214,275	
DEBT PAYMENTS								
2005 WATER/SEWER/STORMWATER REVENUE BOND				\$ 537,100.00	17.7	\$ -	\$537,100	0.00%
			TOTAL DEBT PAYMEN	\$ 537,100.00		\$ 1,984,846.35	\$ 2,521,946.35	
CAPITAL								
D0401 REGIONAL DETENTION POND #2				\$ 6,250,000.00	16.1	\$ -	\$7,250,000	16.00%
D0501 152ND ST NE LIFT STATION				\$ 1,000,000.00	16.1	\$ -	\$750,000	-25.00%
			TOTAL CAPITAL	\$ 7,250,000.00		\$ -	\$ 8,000,000.00	
			GRAND TOTAL EXPEN	\$ 9,908,784.74		\$ 7,262,454.64	\$ 10,472,750.35	5.69%

Appendix 3.3.B

Otak Added			
2008 Total \$\$ to Elements		2009	2008 TOTAL EXPENSES \$ 9,207,643.09
3.1 \$	500.00	\$300	2009 TOTAL EXPENSES \$1,237,241
6.2 \$	150,127.30	\$172,271	2008 TOTAL FTE \$\$ \$ 701,141.65
6.7 \$	600.00	\$1,050	2009 TOTAL FTE \$\$ \$698,397
16.1 \$	7,451,907.00	\$8,000,000.00	Total SALARY \$ 513,688.89
16.2 \$	\$50,000.00	\$0.00	Total Benefits \$ 187,452.76
16.3 \$	\$27,862.43	\$0.00	2008 TOTAL HOURLY RATE \$37.17
17.1 \$	60,498.10	\$56,625	2009 TOTAL HOURLY RATE \$37.39
17.2 \$	304,770.90	\$385,705	
17.3 \$	362,849.95	\$262,850	
17.4 \$	90,934.51	\$170,607	
17.5 \$	85,492.90	\$87,833	
17.7 \$	537,100.00	\$537,100	
Permit Dollars			
Various Elements \$	85,000.00	\$100,000	
TOTAL Expenses \$	9,207,643.09	\$ 9,774,341.20	