City of Lynnwood

Surface Water Management

2020 Comprehensive Plan

LYNNWOOD
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ACKNOWLEDGEMENTS

This Surface Water Management Comprehensive Plan was produced through the combined efforts, ideas, contributions, and cooperation of the following City of Lynnwood staff, appointed and elected officials, and consultants. Photos in this plan are courtesy of City of Lynnwood and Herrera staff.

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ORDINANCE NO. 3375

AN ORDINANCE ADOPTING THE SURFACE WATER MANAGEMENT 2020 COMPREHENSIVE PLAN FOR THE CITY OF LYNNWOOD FOR THE PERIOD 2020 THROUGH 2025; AND PROVIDING FOR AN EFFECTIVE DATE, SEVERABILITY, AND SUMMARY PUBLICATION.

WHEREAS, under the authority granted by RCW 35A.80 and 35.67, and LMC 13.35.030 the City of Lynnwood has the responsibility for planning, design, construction, maintenance, administration and operation of all City surface water conveyances and facilities; and

WHEREAS reviewing and updating this plan is an identified as policy CF-1.3 of the City Comprehensive Plan adopted by Ordinance 3231 on November 28, 2016, as amended; and

WHEREAS this Plan will help the City to comply with various state and federal regulations, including the Endangered Species Act, the Swamp Creek Total Maximum Daily Load (TMDL) for fecal coliform bacteria, and the National Pollutant Discharge Elimination System (NPDES) Phase II municipal stormwater permit; and

WHEREAS it has been determined that there will be no probable significant adverse environmental impacts associated with adopting this Plan; and

WHEREAS the City Council of the City of Lynnwood has determined that the proposed Surface Water Management Comprehensive Plan establishes a solid framework to guide the City's Surface Water Utility over the ensuing five years;

NOW THEREFORE THE CITY COUNCIL OF THE CITY OF LYNNWOOD DO ORDAIN AS FOLLOWS:

SECTION 1. Adoption. That the attachment to this ordinance, along with the recommended edits and changes, is designated and adopted as the official: "Surface Water Management Comprehensive Plan" of the City of Lynnwood, Washington.

SECTION 2. Severability. If any section, subsection, sentence, clause, phrase or word of this ordinance shall be held to be invalid or unconstitutional by a court of competent jurisdiction, such invalidity or unconstitutionality thereof, shall not affect the validity or constitutionality of any other section, subsection, sentence, clause, phrase or word of this ordinance.

SECTION 3. Effective Date and Summary Publication. This Ordinance shall take effect and be in full force five (5) days after its passage, approval, and publication of an approved summary thereof consisting of the title.

PASSED BY THE CITY COUNCIL, the 12th day of October 2020.

APPROVED:

DocuSigned by:
nicola smith
281B3CE79E884DA...
Nicola Smith, Mayor

ATTEST/AUTHENTICATED:

DocuSigned by:
Karen Fitzthum
549561C7EC99433...
Karen Fitzthum, Acting City Clerk

APPROVED AS TO FORM:

DocuSigned by:
Rosemary A Larson
B23BAB973133428...
Rosemary Larson, City Attorney

PASSED BY THE CITY COUNCIL:	10-12-2020
PUBLISHED:	10-17-2020
EFFECTIVE DATE:	10-22-2020
ORDINANCE:	3375

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Stormwater Runoff and its Effects

The City of Lynnwood (City) uses an extensive system of drainage pipes and ditches to convey stormwater runoff to receiving waters, including streams, lakes, and Puget Sound, and to prevent and minimize damage to private properties, city streets, and other infrastructure. Due to extensive alteration of the natural landscape in most areas of Lynnwood, the amount of runoff that occurs during larger storm events is substantial, and runoff during all storm events carries a variety of pollutants to receiving waters. The City is faced with the challenge of conveying stormwater runoff safely and cost-effectively, while preventing or minimizing adverse high-flow impacts (erosion, flooding, and sediment deposition) and water quality degradation in receiving waters.

In 1991, the City established a Surface Water Utility to create a funding source to address stormwater and receiving water management issues citywide. The Surface Water Utility is funded by residential, commercial, and industrial ratepayers. State and federal regulations related to stormwater have evolved over the last 15 years, making it difficult to address all stormwater-related challenges while balancing the costs borne by utility ratepayers. The City must implement and continually improve upon a comprehensive plan for stormwater management to ensure that the program has the resources it needs to serve the community.

Purpose of this Plan

This plan is a major revision to the City's Surface Water Management Comprehensive Plan that was last updated in 2009. This plan sets a course for stormwater programs and capital projects for years to come and addresses current and anticipated regulatory requirements, future land use designations, emerging stormwater management technologies, existing flooding and water quality problems, and the resources needed for the City to fully implement this plan. This plan was adopted by City Council on October 12, 2020 through Ordinance 3375.

Information Used to Develop this Plan

Significant research was conducted to create this plan. In addition to the 2009 Surface Water Management Comprehensive Plan, past studies were reviewed for information on drainage and water quality problems and to evaluate the existing surface water management program. The following City staff provided important input throughout the development of this plan:

Bill Franz,
Public Works Director

Les Rubstello,
Deputy Public Works Deputy Director

Jared Bond,
Public Works Operations and Maintenance Manager

Derek Fada,
Environmental and Surface Water Supervisor

Ehsan Shirkhani,
Project Manager

Rus Kroshko,
Street and Storm Division Supervisor

Darlene Stokes,
Senior Stormwater Engineering Technician

Cameron Coronado,
Education and Outreach Stormwater Engineering Technician

Arnold Kay,
Former Development Services Supervisor

To supplement existing information on drainage and water quality problems and recent documentation of the status of the City's stormwater program, Herrera Environmental Consultants, Inc. (Herrera) met with City staff, as shown in Table 1:

Table 1.City of Lynnwood Stormwater Management Program Discussion Meetings.

Meeting Topic(s)	Meeting Date	Meeting Attendees
Kickoff Meeting	April 17, 2017	City Staff: Robert Victor, Jared Bond, Les Rubstello, Bill Franz, Jeff Elekes, Jesse Perrault
		Consultant Team: Matt Fontaine, Rebecca Dugopolski, Meghan Mullen, Jay Cammermeyer, Sergey Tarasov
Operations and Maintenance (O&M) Program current status	April 25, 2017	City Staff: Robert Victor, Jared Bond, Les Rubstello, Jesse Perrault, Paul McIntyre, Eric Peterson
		Consultant Team: Rebecca Dugopolski, Meghan Mullen, Jay Cammermeyer
Surface Water Management Program current status	May 2, 2017	City Staff: Robert Victor, Jared Bond, Les Rubstello, Arnold Kay, Darlene Stokes, Derek Fada
		Consultant Team: Rebecca Dugopolski, Meghan Mullen, Jay Cammermeyer
O&M Program goals and objectives	June 20, 2017	City Staff: Robert Victor, Jared Bond, Les Rubstello, Paul McIntyre, Jesse Perrault
		Consultant Team: Rebecca Dugopolski, Meghan Mullen
Surface Water Management Program goals and objectives	August 21, 2017	City Staff: Robert Victor, Jared Bond, Les Rubstello, Arnold Kay, Bill Franz
		Consultant Team: Rebecca Dugopolski, Meghan Mullen
Policy Development Meeting 1: City participation in O&M of private stormwater facilities	May 2, 2017	City Staff: Robert Victor, Jared Bond, Les Rubstello, Arnold Kay, Darlene Stokes, Bill Franz, Jeff Elekes
		Consultant Team: Rebecca Dugopolski, Jay Cammermeyer, Mike Giseburt, John Ghilarducci
Policy Development Meeting 2: policies, requirements, and procedures related to stormwater management implementation on public capital projects	May 31, 2017	City Staff: Robert Victor, Jared Bond, Les Rubstello, Jesse Perrault, Derek Fada, Bill Franz, Joellen Hwung
		Consultant Team: Rebecca Dugopolski, Jay Cammermeyer

Continued on following page...

Meeting Topic(s)	Meeting Date	Meeting Attendees
Policy Development Meeting 3: use of Surface Water Utility funds	June 14, 2017	City Staff: Robert Victor, Jared Bond, Les Rubstello, Bill Franz
		Consultant Team: Rebecca Dugopolski, Jay Cammermeyer, MikeGiseburt
Contingency Meeting 1: alternatives for public maintenance of privately-developed stormwater systems	September 18, 2017	City Staff: Robert Victor, Jared Bond, Les Rubstello, Bill Franz
		Consultant Team: Matt Fontaine, Jay Cammermeyer, Mike Giseburt
Private facility alternatives	December 5, 2017	City Staff: Robert Victor, Jared Bond, Les Rubstello, Jesse Perrault, Bill Franz
		Consultant Team: Matt Fontaine, Jay Cammermeyer
Private facility implementation	January 14, 2019	City Staff: Ehsan Shirkhani, Arnold Kay, Jared Bond, Les Rubstello, Rus Kroshko, Les Rubstello
		Consultant Team: Matt Fontaine, Jay Cammermeyer

A stormwater management program questionnaire was used to guide the meetings. A copy of the questionnaire is provided in Appendix D. In addition to gathering information from City staff, Herrera reviewed all pertinent documents identified and/or provided by the City, including City codes and policies, maps and geographic information system (GIS) data, planning documents, Surface Water Management Program (SWMP) documents, and Stormwater Utility fee documents.


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Public Involvement Conducted for this Plan

Public involvement was conducted during the development of this plan. The City followed a State Environmental Policy Act (SEPA) process to identify and analyze environmental impacts associated with implementation of this plan. The SEPA process included the following steps:

April 2020	Posting of the Public Review Draft plan on the City's website
	A five-week public comment period
	Providing public notice of an Open House
May 15 - June 15, 2020	Holding an online Open House to solicit and receive public comments on the draft plan
	Development of a SEPA checklist
August 13, 2020	Meeting and presentation before Planning Commission
	Planning Commission review period
	Planning Commission feedback
	Update of the draft plan based on public review and input from the Planning Commission
October 5, 2020	Meeting and presentation before Council to present the Final plan
October 12, 2020	Public Hearing to adopt the plan during a second Council meeting

Plan Organization

The remainder of this plan is presented in five sections:

2 Stormwater Goals and Policies
Identifies the guiding principles of the SWMP

3 Background
Characterizes the study area and includes a map of drainage basins within the City. Applicable policies, regulations, and planning environment are also summarized in the Background section. The contents of the Background section, along with the Stormwater Goals and Policies, inform the selection of future projects, programs, and policies for the SWMP.

4 Surface Water Management Program
Recommendations describes the programs, policies, and resource needs of the SWMP.

5 Capital Improvement Program
Identifies stormwater capital projects and their associated priorities.

6 Plan Implementation
Identifies a recommended suite of projects, programs, and policies, along with their associated resource needs, utility rate increase, and schedule.

STORMWATER GOALS AND POLICIES FOR THE CITY OF LYNNWOOD

2

Existing City Goals and Policies

City of Lynnwood Surface Water Utility Vision Statement

Reduced Flooding

Improve Water Quality

Improve Aquatic Habitat Conditions

Upgrade, Protect and Maintain Existing Infrastructure

Educate the Public on ways to protect Water Quality and the Environment and Collaborate on Multi-agency initiatives

Fund the Stormwater Program

Empower and Train Stormwater Program Staff

Existing City Goals and Policies

The existing goals, policies, and regulations were considered when developing the stormwater-specific goals and policies and can be found in Appendix A. The City of Lynnwood Comprehensive Plan describes the long-term direction and vision for the growth and development of the community. Key elements of the comprehensive plan related to stormwater are the Environmental Element and Capital Facilities Element. These elements are the basis for the regulations stated in the Lynnwood Municipal Code (LMC) and day-to-day planning and decision making.

City of Lynnwood Surface Water Utility Vision Statement

After reviewing the Comprehensive Plan's goals and policies, it was determined that an independent and comprehensive set of stormwater goals and policies should be developed as part of the Surface Water Management Comprehensive Plan (SWMCP) to effectively guide the City's Stormwater Management Plan (SWMP). The overarching mission of the Surface Water Utility is to manage surface water and stormwater in Lynnwood such that:

Flooding is reduced (F).

Water quality is improved (W).

Aquatic habitat conditions are improved (H).

Infrastructure is upgraded, protected, and maintained (I).

The public is educated on ways to protect water quality and the environment (E).

The stormwater program is adequately funded to comply with regulations and adequately and equitably address the needs of ratepayers ($).

The stormwater program staff are empowered and trained to thrive in their positions (S).

The City has identified the following goals and supporting policies to achieve these objectives cost effectively

Reduced Flooding

Short-Term Strategies

Goal F1
Construct new or improved stormwater facilities in accordance with the most current Capital Improvement Program (CIP).

Policy F1.1
Projects in the Scriber Creek Corridor that reduce chronic flooding are high priority.

Policy F1.2
Allocate an adequate portion of the surface water utility budget every year for capital facility projects that address flood reduction.

Policy F1.3
Establish a Stormwater Utility Reserve for Other City Capital Project budget category that is no more than 20 percent of the surface water utilities annual capital budget to help govern the Stormwater Utility's contributions to stormwater on projects that are led by other departments and ensure that an adequate portion of the capital budget is allocated towards flood reduction projects that are a priority for the surface water utility.

Goal F2
Ensure that new development, redevelopment, and City projects are built and maintained in conformance with the City's adopted stormwater requirements.

Policy F2.1
Develop, adopt, and implement a clear process for

review and approval of the stormwater elements of proposed projects to ensure that stormwater facilities are designed and built in accordance with adopted standards).

Policy F2.2
Participate in private stormwater facility operations and maintenance by offering education and outreach to non-single-family residential facility owners and incrementally assuming maintenance responsibility for facilities that serve single-family residential developments.

Policy F2.3
Require new or modified storm drain systems on private property to meet the same conveyance standard as the public storm drain system.

Policy F2.4
Analyze proposed projects for potential contribution to existing conveyance and flooding problems as part of the stormwater plan review process.

Goal F3
Maintain the stormwater system to minimize risks to people, property, and the environment posed by flood-hazard areas.

Goal F4
Comply with all applicable requirements from federal, state, Snohomish County, and the City of Lynnwood related to flood protection.

Long-Term Strategies

Goal F5
Develop new drainage projects for the CIP plan to address flooding problems when these problems cannot be addressed through maintenance of the existing infrastructure.

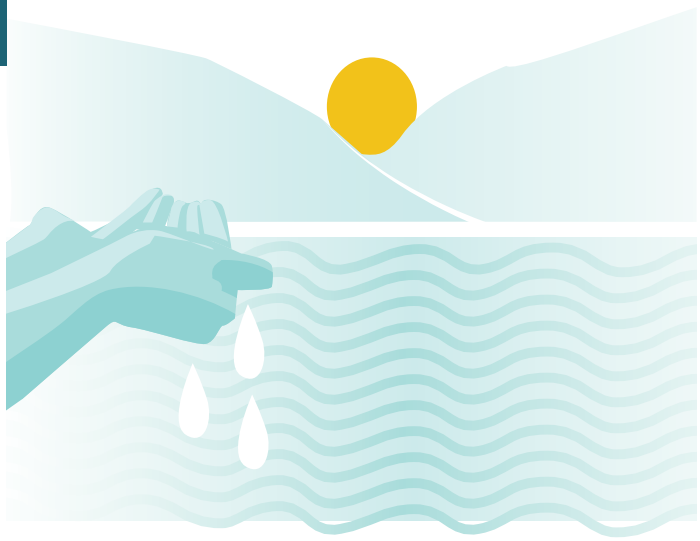
Goal F6
Continue to encourage and allow the use of Low Impact Development (LID) stormwater Best Management Practices for flow control for new development and redevelopment in accordance with current regulations.

Goal F7
Provide adequate stormwater conveyance in the public storm drain system as follows:

Policy F7.1
Accommodate the 25year 24hour event from existing development within the public storm drain system, except as noted in the two related policies that follow.

Policy F7.2
Accommodate the 100year 24hour event for culverts and bridges that convey natural channels.

Improve Water Quality



Short-Term Strategies

Goal W1
Implement water quality treatment CIP projects.

Policy W1.1
Scriber Creek, Scriber Lake, Golde Creek, Hall Lake, and Swamp Creek are the highest priority water bodies for water quality improvement CIP projects.

Policy W1.2
Coordinate with other departments throughout the stormwater plan review, permitting, and project approval process to proactively identify stormwater quality retrofit opportunities.

Goal W2
Comply with all applicable requirements from federal, state, and local governments related to water quality.

Goal W3
Ensure that new development, redevelopment, and City projects are in conformance with the City's adopted stormwater requirements.

Policy W3.1
Develop, adopt, and implement a clear process for review and approval of the stormwater elements of proposed projects to ensure that stormwater facilities are designed and built in accordance with adopted standards.

Long-Term Strategies

Policy W3.2
Participate in private stormwater facility operations and maintenance by offering education and outreach to non-single-family residential facility owners and incrementally assuming maintenance responsibility for facilities that serve single-family residential developments.

Policy W3.3
Analyze proposed projects for potential effects on water quality of receiving waters as part of the stormwater plan review process.

Goal W4
Continue to expand and implement proactive elements of the stormwater program, such as the Rain Garden Program, that improve water quality.

Goal W5
Develop new stormwater treatment projects for the CIP plan when these problems cannot be addressed through source control or maintenance of the existing infrastructure.

Goal W6
Continue to work cooperatively with other local governments through joint basin planning in shared drainage basins to provide regionally coordinated planning, construction, and maintenance for regional stormwater facilities.

Policy W6.1
Participate in the development and implementation of regional water quality management plans, groundwater management plans, stormwater management plans, lake management plans, drainage basin plans, watershed action plans, and wellhead protection plans at a level that is appropriate to protect Lynnwood's interests.

Improve Aquatic Habitat Conditions

Short-Term Strategies

Goal H1

Focus habitat restoration efforts on areas that will result in the greatest benefit to the resource, and that have been identified by the City as a priority for restoration.

Policy H1.1

The restoration of Scriber Creek, Scriber Lake, and Hall Lake are the highest priority water bodies for aquatic habitat projects.

Goal H2

Comply with all applicable requirements from federal, state, and local governments related to aquatic habitat.

Long-Term Strategies

Goal H3
Actively participate in regional species protection efforts, including salmon habitat protection and restoration.

Goal H4
Remove invasive species from surface water utility properties and participate in programs that support invasive species removal.

Goal H5
Protect critical wildlife habitat, such as wetlands, from the negative effects of uncontrolled stormwater runoff form development and redevelopment. This protection includes habitats or species that have been identified as priority species or priority habitats by the Washington Department of Fish and Wildlife (WDFW). Habitats and species of local importance will also be protected.

Policy H5.1
Solutions to stream habitat problems should first protect and preserve existing habitat, then enhance and expand habitat in areas where wild anadromous fish are present, and lastly enhance and expand habitat in areas where other wild fish are present.

Policy H5.2
If wetlands are used as part of a storm drainage system, ensure that water level fluctuations are similar to fluctuations in natural conditions, and that water quality standards are met for new development or redevelopment projects that discharge into a wetland.

Goal H6
Identify surface water features with restoration potential and attempt to involve citizens and obtain community consensus on any future attempt to restore altered features.

Upgrade, Protect, and Maintain Existing Infrastructure

Short-Term Strategies

Goal I1
Update and maintain a complete inventory of all public and private stormwater infrastructure.

Goal I2
Refine or develop maintenance schedules, procedures, and reporting and documentation methods.

Goal I3
Support improvements in utility services that support local businesses and economic development.

Long-Term Strategies

Goal I4
Encourage the use of new technologies that will enhance the quality of utility services, and that are financially feasible and consistent with community needs.

Goal I5
Coordinate with other departments throughout the stormwater plan review, permitting, and project approval process to ensure that the process results in a functional stormwater system.

Goal I6
Replace or rehabilitate existing facilities in accordance with the most current CIP plan.

Goal I7
Maintain and upgrade the citywide stormwater system to allow for growth.

Policy I7.1
Provide capital facilities to properly serve the community in a manner that enhances quality of life and economic opportunities, optimizes the use and protection of existing facilities, and provides for future needs.

Policy I7.2
Stormwater system improvements shall be designed and constructed to the size required to serve the City's projected capacity needs consistent with the Comprehensive Plan.

Policy I7.3
Development should be encouraged only when adequate storm drainage facilities are available or will be made available in conjunction with development.

Goal I8
Review the CIP list annually to identify new projects, remove completed projects, refine planned projects, and reevaluate project prioritization.

Goal I9
Enhance the Operations and Maintenance (O&M) program to move from a reactive state to a more proactive state (asset management).

Goal I10
Proactively maintain, repair, rehabilitate, and replace aging City stormwater facilities and minimize the need for costly and disruptive emergency repairs.

Goal I11
Actively participate in the planning, development, and operation of private stormwater projects.

Policy I11.1
Oversee construction and maintenance of privately owned stormwater facilities to ensure that they function as designed to protect private property, public property, and the environment.

Policy I11.2
Implement a program to ensure that private stormwater facilities are fully functional.

Educate the Public on Ways to Protect Water Quality and the Environment and Collaborate on Multi-Agency Initiatives

Short-Term Strategies

Goal E1
Comply with all applicable requirements from federal, state, and local governments related to public education, outreach, involvement, and participation.

Goal E2
Provide training programs and technical assistance materials for private individuals and businesses involved in the planning, development, and operation of private stormwater projects, to ensure those facilities provide the intended water quality and flow control benefits.

Policy E2.1
Provide education and outreach during inspections of private stormwater facilities.

Policy E2.2
Develop a program to assume maintenance responsibility for stormwater facilities that are owned by single-family-residential developments, such as homeowners' association (HOA)-owned stormwater facilities.

Long-Term Strategies

Goal E3
Increase awareness about LID practices and associated benefits through public education programs, such as the Rain Garden Program.

Goal E4
Use public education to increase understanding of sustainability and other environmental values to help protect surface water resources.

Goal E5
Encourage public education that reduces demand for utility services.

Policy E5.1
Focus on public education and training as first steps in addressing stormwater concerns and resort to enforcement as needed.

Goal E6
Encourage practices that reduce use of pesticides, fertilizers, and other contaminants and provide education to support proper disposal of wastes.

Policy E6.1
Develop guidance for use of chemicals (pesticides, herbicides, or fertilizers) in stormwater treatment facilities.

Goal E7
Improve public knowledge of stormwater runoff issues, encourage public involvement in stewardship activities, and encourage public support for the City's stormwater management program.

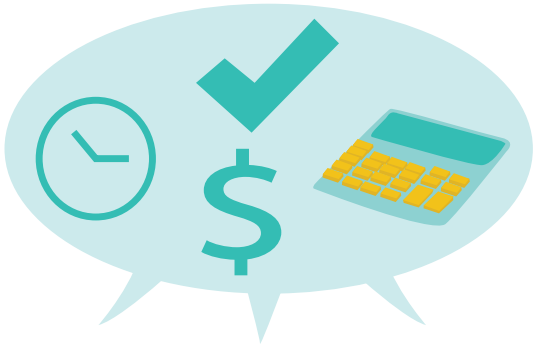
Policy E7.1
Increase public involvement at the Hall Lake Fish Hatchery.

Goal E8
Develop basin stewardship and education programs to prevent surface water impacts and identify opportunities for restoration.

Goal E9
Collaborate with the school district to enhance public awareness of water resources and the effects of stormwater on those resources.

Goal E10
Work with citizens and watershed interest groups and cooperate with Snohomish County and other local governments, regional governments, state agencies, and Indian tribes in developing and implementing watershed action plans and other types of basin plans for basins that include portions of the city.

Fund the Stormwater Program



Strategies

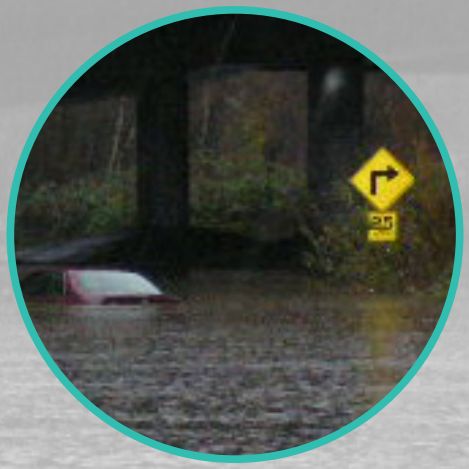
Goal $1
Implement an adequate, equitable, and logical stormwater utility rate structure.

Policy $1.1
Review the rate structure and projected future revenue and expenses on a regular basis to ensure that utility rates will adequately fund implementation of this plan.

Policy $1.2
Actively seek outside funding to leverage or complement utility funds.

Goal $2
Prioritize the most beneficial and cost-effective projects and programs to ensure that available resources are used efficiently.

Policy $2.1
Revise this Stormwater Comprehensive Plan every 6 years, or sooner if needed, to ensure that it provides for effective long-term stormwater project planning, system maintenance, response to mandates, and program funding.



Empower and Train Stormwater Program Staff

Strategies

Goal S1
Provide leadership development opportunities for staff.

Goal S2
Ensure efficient knowledge transfer between staff and between departments.

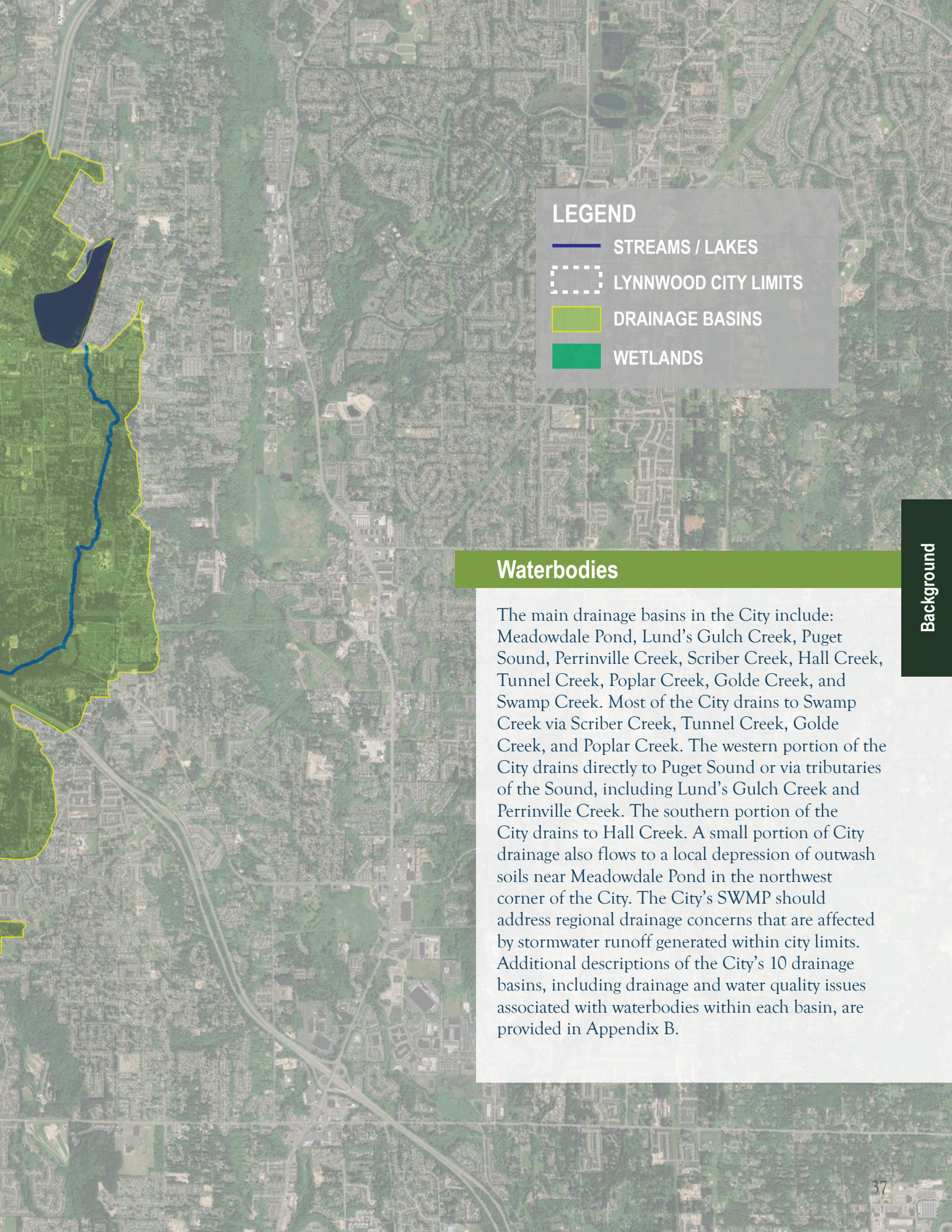
Goal S3
Provide resources and training needed to develop and retain quality staff.

3 BACKGROUND

Characteristics of the Study Area

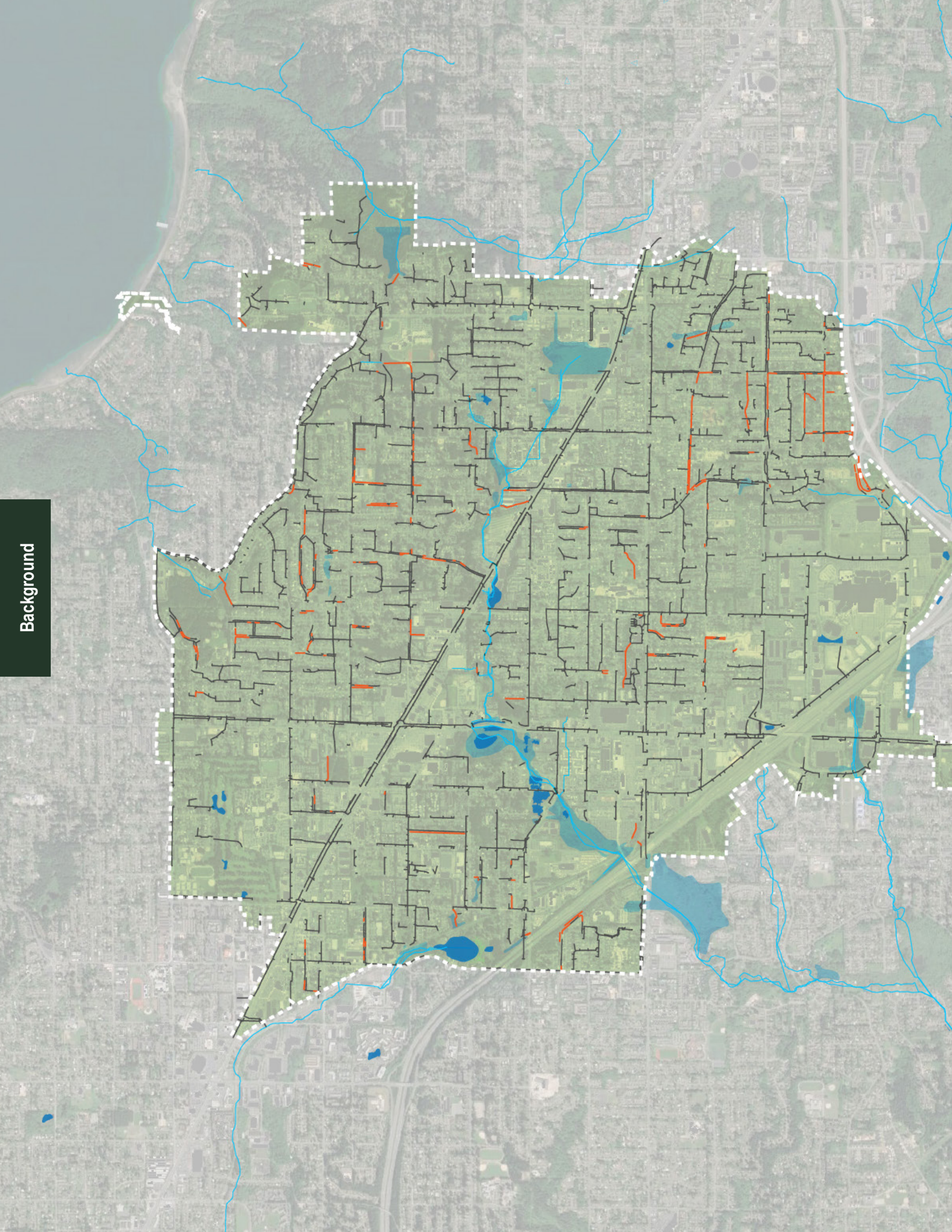
The City of Lynnwood, in southwest Snohomish County, covers approximately 7.9 square miles. Its 2017 population was 38,300. Since its founding in 1959 along the Interurban streetcar line between Seattle and Everett, the City has transformed from a quiet suburban community to a Regional Growth Center (Lynnwood 2015) composed of dense residential, commercial, and light industrial land uses.

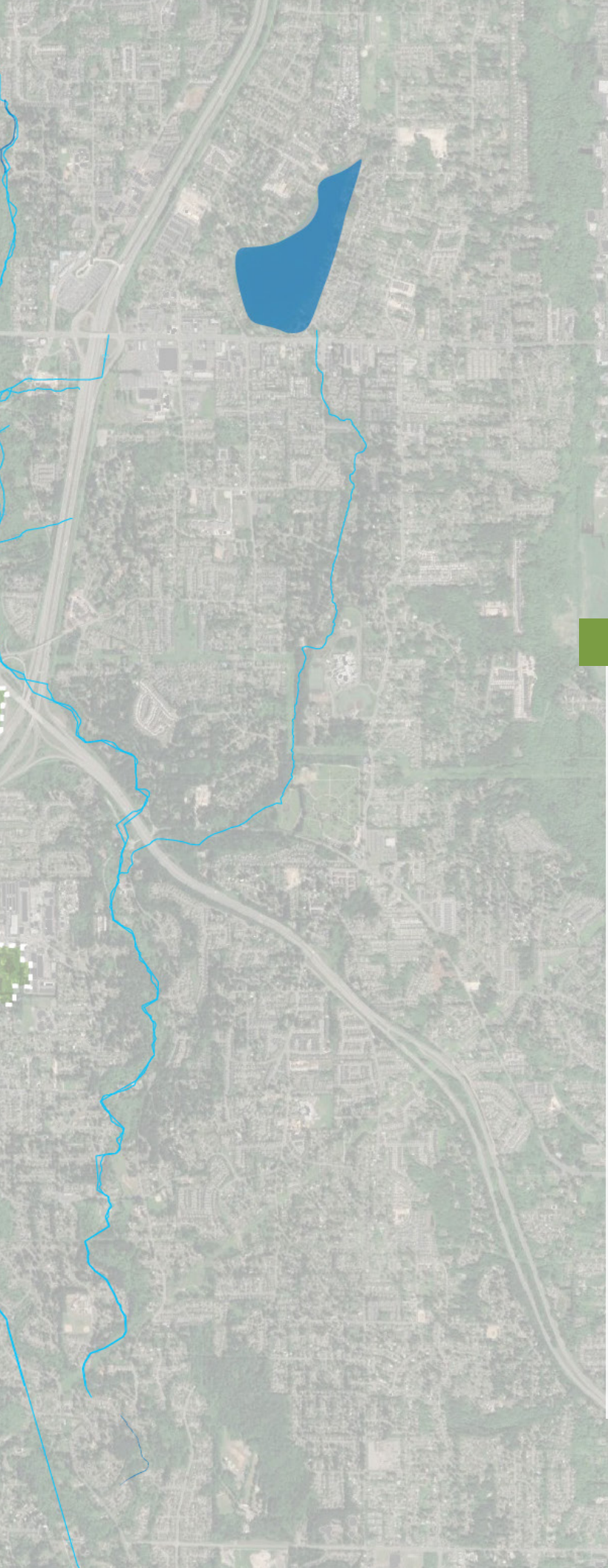

Lund's Gulch Creek Basin
Swamp Creek Basin
Meadowdale Pond Basin
Puget Sound Basin
Tunnel Creek Basin
Scriber Creek Basin
Perrinville Creek Basin
Scriber Lake
Poplar Creek Basin
Golde Creek Basin
Hall Creek Basin
Hall Lake
Lake Ballinger



Waterbodies

The main drainage basins in the City include: Meadowdale Pond, Lund's Gulch Creek, Puget Sound, Perrinville Creek, Scriber Creek, Hall Creek, Tunnel Creek, Poplar Creek, Golde Creek, and Swamp Creek. Most of the City drains to Swamp Creek via Scriber Creek, Tunnel Creek, Golde Creek, and Poplar Creek. The western portion of the City drains directly to Puget Sound or via tributaries of the Sound, including Lund's Gulch Creek and Perrinville Creek. The southern portion of the City drains to Hall Creek. A small portion of City drainage also flows to a local depression of outwash soils near Meadowdale Pond in the northwest corner of the City. The City's SWMP should address regional drainage concerns that are affected by stormwater runoff generated within city limits. Additional descriptions of the City's 10 drainage basins, including drainage and water quality issues associated with waterbodies within each basin, are provided in Appendix B.





Built Stormwater Infrastructure

The City's Stormwater Utility manages a large and complex storm drainage system that consists of underground pipes, open ditch conveyance, stormwater treatment features, Key features of the system are summarized in Table 3-1.

Table 3-1. Summary of Key Assets of the City of Lynnwood's Stormwater System.

ASSETS	QUANTITY
Pipe	509,808 LF
Ditch	49,970 LF
Catch Basins, manholes, and inlets	5,140
Vaults	58
Detention Ponds	12

Applicable Policies and Regulations

In addition to addressing drainage and water quality concerns impacted by stormwater runoff, the SWMP must also comply with several local, state, and federal regulatory requirements. They include:

Washington State Department of Ecology (Ecology) National Pollutant Discharge Elimination System (NPDES) Phase II Municipal Stormwater Permit

The NPDES Phase II Permit (Permit) (Ecology 2019) addresses a variety of issues associated with stormwater runoff and requires the City to develop several distinct SWMP components. Those regulatory components are included within the City's list of SWMP program elements. The NPDES Phase II Permit specifies requirements for the following:

- Stormwater planning
- Public education and outreach
- Public involvement and participation
- Municipal separate storm sewer system (MS4) permit mapping and documentation
- Illicit discharge detection and elimination (IDDE)
- Controlling runoff from new development, redevelopment, and construction sites
- Municipal operations and maintenance
- Source control
- Compliance with Total Maximum Daily Load (TMDL) requirements
- Monitoring and assessment
- Reporting requirements

The Underground Injection Control (UIC) Program (Chapter 173-218 WAC)

The UIC program is a federal program intended to ensure that underground sources of drinking water are protected from surface discharges to the ground. In Washington, the UIC program is administered by Ecology through Chapter 173-218 of the Washington Administrative Code (WAC). The Guidance for UIC Wells that Manage Stormwater (Ecology 2006) lays out the requirements for UIC wells, and Ecology is including additional guidance in the latest update of the Stormwater Management Manual for Western Washington, expected to be released in 2019.

The Washington State Growth Management Act (GMA)

The GMA includes requirements for the inventory and protection of environmentally critical areas, such as steep slopes, wetlands, and streams (Chapter 36.70A of the Revised Code of Washington). The GMA also requires cities to develop comprehensive plans to ensure environmentally responsible and economically sustainable development, including planning for stormwater related capital facilities. One of the goals of the GMA is to promote intensification of development inside the municipal Urban Growth Area to eliminate costly and environmentally damaging urban sprawl. The type of urban development supported by the GMA is also essential for creating high quality, sustainable urban areas that facilitate reductions in greenhouse gas emissions. Reductions in greenhouse gas emission are required by state and federal laws.

Ecology TMDL Implementation Plans

TMDL implementation plans, which stem from Section 303(d) of the federal Clean Water Act, specify required actions to reduce pollutant load in the associated waterbodies. The City is subject to the Swamp Creek TMDL (Ecology 2006) for fecal coliform bacteria.

The Federal Endangered Species Act (ESA)

The ESA is intended to protect threatened or endangered species from extinction. Among many species listed under the ESA, four of them are present in watersheds in and around Lynnwood. Puget Sound Chinook salmon, Coastal-Puget Sound bull trout, and Puget Sound steelhead are listed as threatened species, and the Southern Resident killer whale is listed as an endangered species under the ESA. The ESA prohibits the "take"1 of all listed species, including a take that could result from the City's stormwater facility operations or private development stormwater management activities that are permitted by the City.

Lynnwood Municipal Code (LMC)

Several sections of the LMC govern aspects of stormwater management on new development and redevelopment project sites (see Introduction section). Appendix A provides more detailed information on stormwater-related regulations and municipal code requirements.

Accomplishments of the Surface Water Management Program

Since the Surface Water Utility was founded in 1991, the City has made significant progress in reducing detrimental effects of stormwater runoff on receiving waters in and around Lynnwood. The City has built many capital projects to alleviate drainage problems and has analyzed other problems to better understand necessary actions. The City has also adopted ordinances, provided public education, and implemented a monitoring programs to address water quality problems. Since the 2009 update of the City's Surface Water Management Comprehensive Management Plan, the City has implemented the following significant projects, programs, and policies:

The City has **improved internal processes** related to incorporating stormwater management designs and costs into capital projects in all City departments.

2015

The 2015 **Perrinville Creek Stormwater Flow Reduction Retrofit study (Perrinville Creek Study)** identified retrofit opportunities in the Perrinville Creek drainage basin through hydrologic modeling of that basin. The study was conducted by the City of Edmonds in coordination with the City of Lynnwood. Implementing projects identified in the Perrinville Creek Study may reduce flooding and erosion and improve water quality and habitat.

The 2015 Street Edge Runoff Treatment Retrofits project in the Hall Lake Basin installed roadside swales to provide stormwater treatment to runoff entering Hall Lake along 53rd Avenue West between 208th Street SW and 206th Street SW
.

2016

The 2016 **Scriber Creek Corridor Management Plan** identified a suite of capital projects and programmatic activities to reduce flooding downstream of Scriber Lake. Phase 1 of the planning effort focused on public engagement, project planning, and project chartering. Phase 2 used results from Phase 1 to analyze existing flooding and sedimentation problems and to develop and evaluate flood reduction alternatives. As a result, 10 capital projects were selected and a schedule for project implementation was developed to reduce flood hazards within the Scriber Creek Corridor without worsening flooding conditions downstream.

In 2016, the City completed a **Low Impact Development (LID) code review** of documents

that guide development in the City to ensure that LID principles are allowed and encouraged.

The City completes a **Stormwater Management Program Annual Report** to meet NPDES Phase II Permit reporting requirements. The annual report describes the actions that the City plans for the following year to implement the SWMP. The reports are posted on the City website to make them available to the public.

2017

The City worked with a consultant to conduct a **Benchmarking Analysis** in 2017 to better understand the range of activities performed by other jurisdictions in western Washington. Results of the benchmarking analysis were used to guide recommendations for updating Lynnwood's SWMP (Appendix C). Benchmarking topics included:

- Stormwater facilities Operations and Maintenance
- Asset management
- Private facilities inspections, enforcement, and maintenance
- Surface water utility funding and spending
- Capital improvement projects review
- New development and redevelopment project review strategies

2018

The **NPDES Permit Compliance Gap Analysis and Needs Assessment** was completed in 2018. The City hired a consultant to review the City's current SWMP activities and identify gaps in the SWMP relative to the requirements of the NPDES Phase II Permit requirements. Results of the assessment were used to identify programs, policies, and projects needed to address the gaps (Appendix D).

The **Maple Road & Ash Way Intersection and Drainage Improvements project** was completed in 2018 through a partnership between the City of Lynnwood, Snohomish County, and the Washington State Department of Transportation (WSDOT). This project addressed flooding caused by flows in Swamp Creek that impacted multiple intersections and the Interurban Trail. In addition to raising the roadway to reduce flooding, the project modified the drainage system to reduce impacts on nearby wetlands and streams.

The **City of Lynnwood Hatchery and Environmental Education Center at Hall Lake** opened for school groups in 2018 to provide a public education about stormwater and aquatic habitat. The Center features a rain garden, rain barrels, planter boxes, native plants, and a boardwalk.

2019

In 2019, the City developed a **Private Facilities Operations and Maintenance Implementation Plan.** The plan included review of current policy and an analysis of alternatives related to City participation in private stormwater facility operations and maintenance, such as enforcement, maintenance support, and full take-over of facility ownership and maintenance. The resulting plan outlines recommended policies and requirements for a private stormwater facility program.

Future Development

At the time of this plan update, the City is nearly fully developed, with most parcels already occupied by existing development. However, the City expect to experience significant growth through redevelopment and intensification of development density. Such growth is consistent with the GMA and Lynnwood's designation as a Regional Growth Center by the Puget Sound Regional Council.

High-density urban development, often with multi-story buildings and structured parking, is planned to occur in the areas listed below. Traditional approaches to stormwater control, such as large ponds, are generally not consistent with high-density development. Urban land values are quite high, building footings are often far below grade, and there are fewer surface parking lots. Alternative approaches, such as LID stormwater management (e.g., bioretention swales, green roofs, pervious pavements) and creative methods for storing large amounts of stormwater, will be required in order to achieve water quality and flow control targets and enable development to occur as planned. Urban redevelopment also presents opportunities for the City to add water quality treatment and flow control in older parts of the City that lack modern stormwater management.

South Lynnwood Park Renovation Project Rendering

Lynnwood City Center

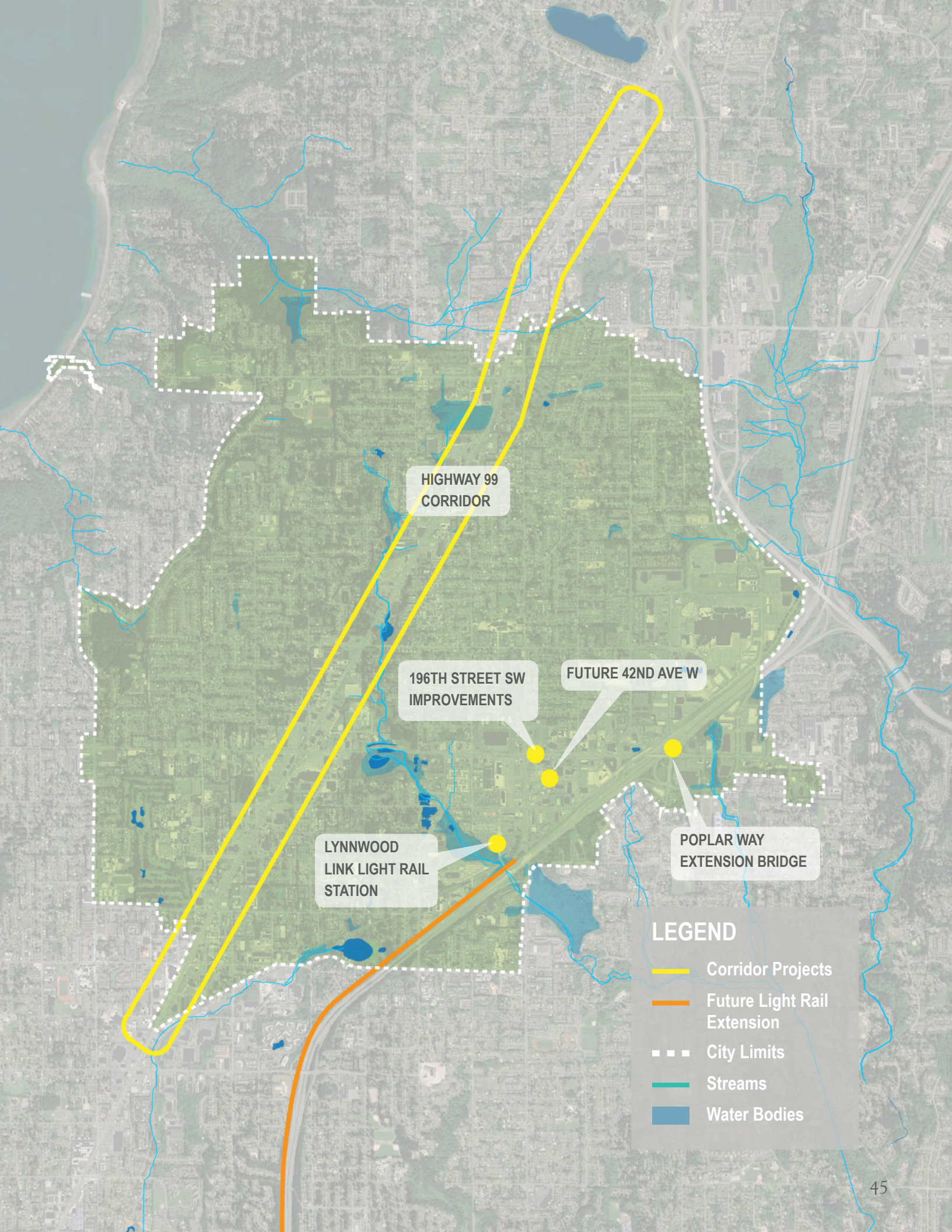
In 2005, the City adopted the City Center Plan to accommodate up to 9 million square feet of development. Since then, several plans have been developed, including transportation and parks plans, to prioritize projects in the City Center. Projects that are planned, underway, and completed will improve the City's transportation network, add new public spaces and parks, build housing, improve cultural attractions, and create a pedestrian-friendly environment.

Highway 99 Corridor

Prior to the construction of the I-5 freeway, the Highway 99 corridor was the commercial core of southwest Snohomish County. Today, the City is working to promote redevelopment of the Highway 99 corridor to accommodate projected population and economic growth. The City adopted the Highway 99 Subarea Plan in September 2011. One of the key features of that plan is the creation of high-intensity, mixed-use centers at major nodes along Highway 99.

Lynnwood Link Light Rail Extension

Extension of Sound Transit's Link Light Rail line to Lynnwood City Center at the Lynnwood Transit Center is expected in 2024. Redevelopment around the station area is expected to occur before then.


HIGHWAY 99 CORRIDOR
196TH STREET SW IMPROVEMENTS
FUTURE 42ND AVE W
LYNNWOOD LINK LIGHT RAIL STATION
POPLAR WAY EXTENSION BRIDGE
LEGEND
Corridor Projects
Future Light Rail Extension
City Limits
Streams
Water Bodies

Predicted Impacts of Climate Change

Potential hydrologic changes associated with climate change increase the importance of stormwater management practices that control flows, promote infiltration, and preserve and enhance water quality. Table 3-2 illustrates how climate change is expected to affect stream flows, flood risk, water quality, and habitat. Increased winter precipitation will increase flood risk. The summertime increases in air temperature will result in an increase in evaporation and transpiration, exacerbating summer water deficits. Cold water fish using streams may be threatened by increased temperatures and reduced dissolved oxygen and flow. Coastal habitats along Puget Sound are likely to be impacted by sea level rise, increased eroding effects of waves and surge, and harmful algal blooms caused by warmer water temperatures (Mauger 2017).

Table 3-2. Expected Responses to Stormwater Management Components from Predicted Climate Change Effects.

Stormwater Management Component	Predicted Response to Climate Change
Stream Flows	Increased winter flows Decreased summer flows Likely Increased magnitude and frequency of peak events
Groundwater Supply	Decreased recharge during summer months Increased use during summer months
Flood Risk	Increased flood risk from rivers, streams, and stormwater conveyance system Possible increase in groundwater induced flooding Increased flood risk from channel migration Increased flood risk along coastal areas due to sea level rise and increased surge height
Water Quality	58 Increased average and summer water temperature Increased erosion and suspended materials Lower dissolved oxygen Increased algal blooms
Habitat	Wetland conversion from perennial to seasonal Possible loss of streamside vegetation Decrease in cooler/oxygenated aquatic habitat

4

SURFACE WATER MANAGEMENT PROGRAM

Tiers of Service

The City has identified three tiers representing varied levels of service for the SWMP: Minimum, Moderate, and Enhanced.

Minimum (NPDES Compliant)

The Minimum (NPDES compliant) tier represents the required minimum level of service and addresses the gaps identified between existing service levels and the 2019–2023 NPDES Phase II Permit requirements.

Moderate

The Moderate tier is not explicitly tied to NPDES Phase II permit requirements. It represents a middle-ground between the Minimum (NPDES compliant) tier and the Enhanced tier. The Moderate tier is intended to be a measurable benchmark; achievement means that the City is on track to reach an Enhanced level of service. This tier also incorporates the first steps towards an Asset Management program.

Enhanced

The Enhanced tier represents a complete set of tools, staffing, and equipment to fully reach the goals of an ideal SWMP. This tier would require a larger stormwater utility rate increase than the other two tiers and would result in substantial benefits for the community and the environment. The Enhanced tier applies the data collected through an Asset Management program towards developing a set of City projects to start repairing and replacing all the City's existing stormwater assets over time.

Recommendations

This section is generally organized by NPDES Phase II Permit (Permit) components and includes summarized recommendations. Recommendations for an Asset Management program are included within the Asset Management and Mapping subsection, and the Private Facility Inspection Program is included within the Controlling Runoff from New Development, Redevelopment, and Construction Sites subsection. Unless noted otherwise, the staffing needs identified in this chapter are approximate and required on an ongoing basis. A detailed list of recommendations with associated funding and staffing requirements, support those requirements, and a proposed implementation schedule for each tier is provided in Appendix E. Additional actions related to building climate change resiliency are included at the end of this chapter.

Recommended Program

The financial impact of each of the three tiers has been analyzed. The City will be implementing the activities highlighted in orange over the six year planning period (2020-2025) to meet regulatory requirements and balance the stormwater program's level of service with increases in stormwater rates. See Chapter 6 for the implementation plan.

Stormwater Planning

- **Minimum:** tier includes the following programs to satisfy Permit requirements:

Convene an inter-disciplinary team to advise the SWMP (August 2020)

Develop a framework for annual LID compliance review (December 2023)

Summarize coordination with long-range planning efforts (March 2021 - January 2023)

Implement Stormwater Management Action Planning (March 2022 - March 2023)

These activities require 0.25 additional full-time equivalent staff (FTE) and $130,000 of outside support.

Public Education and Public Involvement

Minimum: tier includes the following programs to satisfy Permit requirements in 2020 and 2021:

- Identify a new trackable program to replace Natural Yard Care
- Evaluate behavior change resulting from an education program (July 2020)
- Conduct community-based social marketing (CBSM) (February 2021)

These activities activities will be addressed with existing staff and require $40,000 in outside support.

Moderate: tier requires 0.1 additional FTE to slightly expand the existing program.

Enhanced: tier adds 1.0 FTE to develop, expand, and implement a number of public education and public involvement programs, to increase use of social media, to develop a stream/wetland program, and to expand the rain garden program into an LID retrofit program that offers multiple LID BMPs. All activities are scheduled to begin in 2021.

Asset Management and Mapping

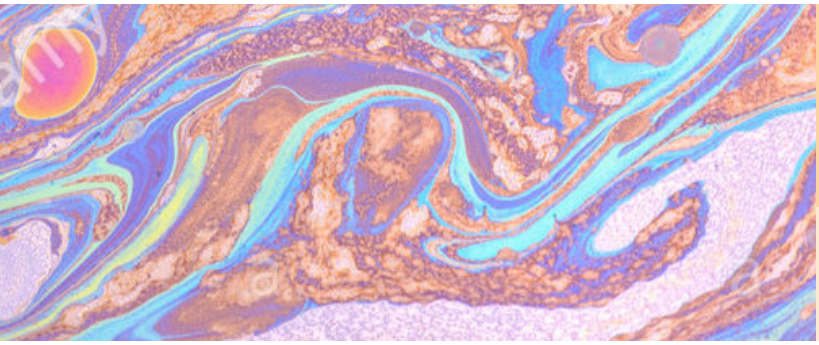
Minimum: tier includes developing and updating mapping of stormwater outfalls and known connections to the MS4 to satisfy Permit requirements. Outfall mapping started by January 2020.

These activities will require 0.25 additional FTE of staff time in 2020 and 2023.

Moderate: tier adds 1.25 FTE and a closed-circuit television (CCTV) contract during the data collection phase of the Asset Management program.

Enhanced: tier includes analysis of the collected data using 0.3 FTE to identify and prioritize stormwater infrastructure repair and replacement projects.

Illicit Discharge Detection and Elimination



Minimum: tier includes the following programs to satisfy Permit requirements in 2020:

- Modify catch basin inspection form to include illicit discharge checkbox (Due Immediately)
- Develop and implement ongoing IDDE training program for field staff (Due Immediately)

These activities will be addressed with existing staff and require $4,000 in outside support to develop training materials.

Moderate: tier adds 0.25 FTE of Operations and Maintenance (O&M) staff time to collect additional infrastructure data during inspections.

Enhanced: tier adds another 0.25 FTE in 2023 to review and use CCTV asset management data that will be collected as part of the Asset Management program.

Controlling Runoff from New Development, Redevelopment, and Construction Sites

Minimum: tier includes the following programs to satisfy Permit requirements, starting in 2020:

- Develop supplemental stormwater guidelines (Due Immediately)
- Expand training and tools for plan review and inspections
- Implement a City-led inspection and maintenance program for single-family residential (SFR) stormwater facilities that serve multiple properties.

These activities require approximately 1.25 additional FTEs, $123,000 of outside support for supplemental stormwater guidelines and related checklists, tools, and training, plus another $55,000 per year for stormwater facility maintenance.

Moderate: tier includes the development of LID-specific technical and improved internal processes for capital project collaboration, beginning in 2021.

Enhanced: tier includes additional stormwater manual tools: resources for modeling, manual training, and training videos.

Operations and Maintenance

Minimum: tier includes the following programs to satisfy Permit requirements:

- Increase inspection and maintenance frequency for City-owned stormwater facilities (0.33 FTE)
- Develop formal standard operating procedures (SOPs) and O&M manuals
- Update stormwater pollution prevention plans (SWPPPs) for City-owned O&M facilities (Due Immediately)
- Enhance the staff training program

These activities require approximately 0.4 additional FTEs; approximately $50,000 to develop stormwater facility O&M manuals, SWPPPs, and training programs, and approximately $8,000 per year for minor facility maintenance.

Moderate: tier adds 0.1 FTE for inspections and maintenance of LID facilities and optimization of the catch basin inspection and cleaning schedule. It also includes additional funding for updates to SWPPPs, SOPs, and staff training for LID BMPs and the use of tablets for field inspections.

Enhanced: tier adds equipment for maintaining permeable pavement.

Source Control

Minimum: tier includes implementing a source control program, starting in 2022, for existing development to meet Permit requirements. The program will include the following elements:

- Source control ordinance (August 2022)
- Enforcement policy (August 2022)
- Training program (January 2023)
- Inspection program (January 2023)

These activities require approximately 0.65 additional FTEs, starting in 2022, to implement a business inspection program and approximately $8,000 in 2022 to develop training program material.

Compliance with Total Maximum Daily Loads (TMDLs)

There are no recommendations associated with this component of the SWMP because the City is meeting Permit requirements with the existing program and no changes to permit requirements are expected.

Monitoring and Assessment

There are no recommendations associated with this component of the SWMP because the City is meeting Permit requirements with the existing program.

Reporting

The Moderate tier includes purchasing tablets and software for field work and 0.5 FTE to develop and implement consistent closeout, recordkeeping, and Quality Assurance / Quality Control (QA/QC) procedures.

Table 4-1. Summary of Outside Support and Equipment Cost

Program Area	Year 1 2020	Year 2 2021	Year 3 2022	Year 4 2023	Year 5 2024	Year 6 2025
MINIMUM (NPDES COMPLIANT)						
O&M	$134,000	$71,300	$63,300	$63,300	$63,300	$63,300
SWMP	$159.100	$33,000	$113,000	$0	$0	$0
MinimumTier Total	$293,100	$104,300	$176,300	$63,300	$63,300	$63,300
MODERATE						
O&M	$138,000	$371,300	$363,300	$363,300	$363,300	$363,300
SWMP	$167,100	$67,000	$116,000	$3,000	$3,000	$3,000
ModerateTier Total	$305,100	$438,300	$479,300	$366,300	$366,300	$366,300
ENHANCED						
O&M	$138,000	$371,300	$363,300	$363,300	$513,300	$363,300
SWMP	$187,100	$114,000	$147,000	$34,000	$34,000	$34,000
Enhanced Tier Total	$325,100	$485,300	$510,300	$397,300	$547,300	$397,300

Recommended Program:

The financial impact of each of the three tiers has been analyzed. The City will be implementing the minimum tier activities over the six year planning period (2020-2025) to meet regulatory requirements and balance the stormwater program's level of service with increases in stormwater rates. See Chapter 6 for the implementation plan.

Table 4-2. Summary of Staffing Needs (FTE)

Program Area	Year 1 2020	Year 2 2021	Year 3 2022	Year 4 2023	Year 5 2024	Year 6 2025
MINIMUM (NPDES COMPLIANT)						
O&M	0.65	0.51	0.63	0.88	0.63	0.63
SWMP	0.92	1.49	1.57	1.63	1.63	1.63
MinimumTier Total	1.57	2.00	2.20	2.52	2.27	2.27
MODERATE						
O&M	0.70	2.00	2.38	2.63	2.38	2.39
SWMP	1.49	2.34	2.40	2.47	2.47	2.47
ModerateTier Total	2.19	4.34	4.78	5.10	4.85	4.86
ENHANCED						
O&M	0.70	2.00	2.68	2.93	2.93	2.94
SWMP	1.72	3.60	3.66	4.02	4.02	4.02
Enhanced Tier Total	2.41	5.60	6.34	6.95	6.95	6.96

Building Climate Change Resilience Through Stormwater Management

Climate change is anticipated to have broad impacts on water resources in the City of Lynnwood (see Table 3-2). This section identifies which stormwater program activities have the greatest influence on building climate change resiliency. All of these activities are part of the existing stormwater program or are being addressed through program improvements over the next six years.

STORMWATER MANAGEMENT ACTIVITIES ADDRESSING CLIMATE CHANGE IMPACTS

CLIMATE CHANGE IMPACT	RESILIENCY-BUILDING ACTIVITY
STORMWATER PLANNING	
• Lower dissolved oxygen in receiving waters • Increased algal blooms in receiving waters	Reduce the amount of nutrients in stormwater through public education or regulations aimed at decreasing fertilizer use, particularly in Hall Lake and Scriber Lake watersheds.
• Increased flood risk from rivers, streams, and stormwater conveyance system • Possible increase in groundwater-induced flooding • Increased flood risk along coastal areas due to sea level rise and increased surge height • Possible loss of streamside vegetation	Purchase land for conservation purposes, which may offset loss of streamside vegetation and reduce flooding impacts by acquiring frequently-flooded properties such as strategic land acquisitions in the Scriber Creek corridor to reduce flood impacts and expand streamside vegetation
• Increased flood risk from rivers, streams, and stormwater conveyance system	Revisit flood reduction policies, design standards for new development, and priorities for retrofit projects
RETROFIT PROJECTS	
• Increased erosion and suspended materials in water bodies • Lower dissolved oxygen in receiving waters • Increased algal blooms in receiving waters • Increased average and summer water temperature	Continue to implement the Hall Lake retrofit program

CLIMATE CHANGE IMPACT	RESILIENCY-BUILDING ACTIVITY
CONTROLLING RUNOFF FROM NEW DEVELOPMENT, REDEVELOPMENT, AND CONSTRUCTION SITES	
• Increased winter stream flows • Decreased summer stream flows • Likely increased magnitude and frequency of peak events in streams • Decreased groundwater recharge during summer months • Increased groundwater use during summer months • Increased flood risk from rivers, streams, and the stormwater conveyance system • Increased average and summer water temperature • Increased erosion and suspended materials in water bodies • Lower dissolved oxygen in receiving waters • Increased algal blooms in receiving waters	Continue to require flow control on redevelopment projects and prioritize infiltrating stormwater facilities. Update stormwater regulations and supporting documents
PUBLIC EDUCATION AND PUBLIC INVOLVEMENT	
• Lower dissolved oxygen in receiving waters Increased algal blooms in receiving waters	Educational campaigns to encourage the public to decrease pollutant generation, such as by decreasing fertilizer use, particularly in Hall Lake and Scriber Lake watersheds
• Wetland conversion from perennial to seasonal • Possible loss of streamside vegetation • Decrease in cooler/oxygenated aquatic habitat	Form a stakeholder group for Scriber Lake and facilitate volunteer events to remove invasive species and restore habitat Continue to conduct educational programs at the Lynnwood Hatchery and Environmental Education Center at Hall Lake
OPERATIONS AND MAINTENANCE	
• Increased flood risk from rivers, streams, and stormwater conveyance system	Operations and maintenance activities including street sweeping and spot checks of inlets and other critical points in the stormwater conveyance system before storms

5 CAPITAL IMPROVEMENT PLAN

The purpose of the surface water capital improvement program (CIP) is to define capital projects that make progress towards the City's goals of flood reduction, water quality improvement, aquatic habitat improvement, asset management, and efficient use of utility funds.

Program Development Process

The City maintains and regularly updates a list of needed projects. The following section describes the process that was used to identify problems and develop and prioritize solutions. A summary of projects in different geographic areas of the City is included. Details related to project development are provided in Appendix F and detailed summary sheets for each project are provided in Appendix G.

Identify Problems

Previous stormwater plans and input from City staff were used to develop an initial list of problems to be addressed during work on this plan. Stormwater plans reviewed were the City's 2009 Surface Water Management Comprehensive Plan, City of Lynnwood 2017–2022 Capital Facilities Plan (CFP), Scriber Creek Corridor Management Plan, and Perrinville Creek Stormwater Flow Reduction Retrofit study (Perrinville Creek Study). Problems were evaluated using desktop methods and field evaluation to assess site-specific opportunities and constraints.

Prioritize Capital Projects

The stormwater CIP problems and solutions were prioritized using a qualitative process and considering input from City staff, review of background documents, and field reconnaissance of existing problems. The objective was to rank the proposed projects as priority capital improvement projects or long-term capital project needs and to develop a schedule for project implementation.

Priority Capital Improvement Projects include projects that address the most critical stormwater-related issues in the City. These critical projects represent the minimum level of service.

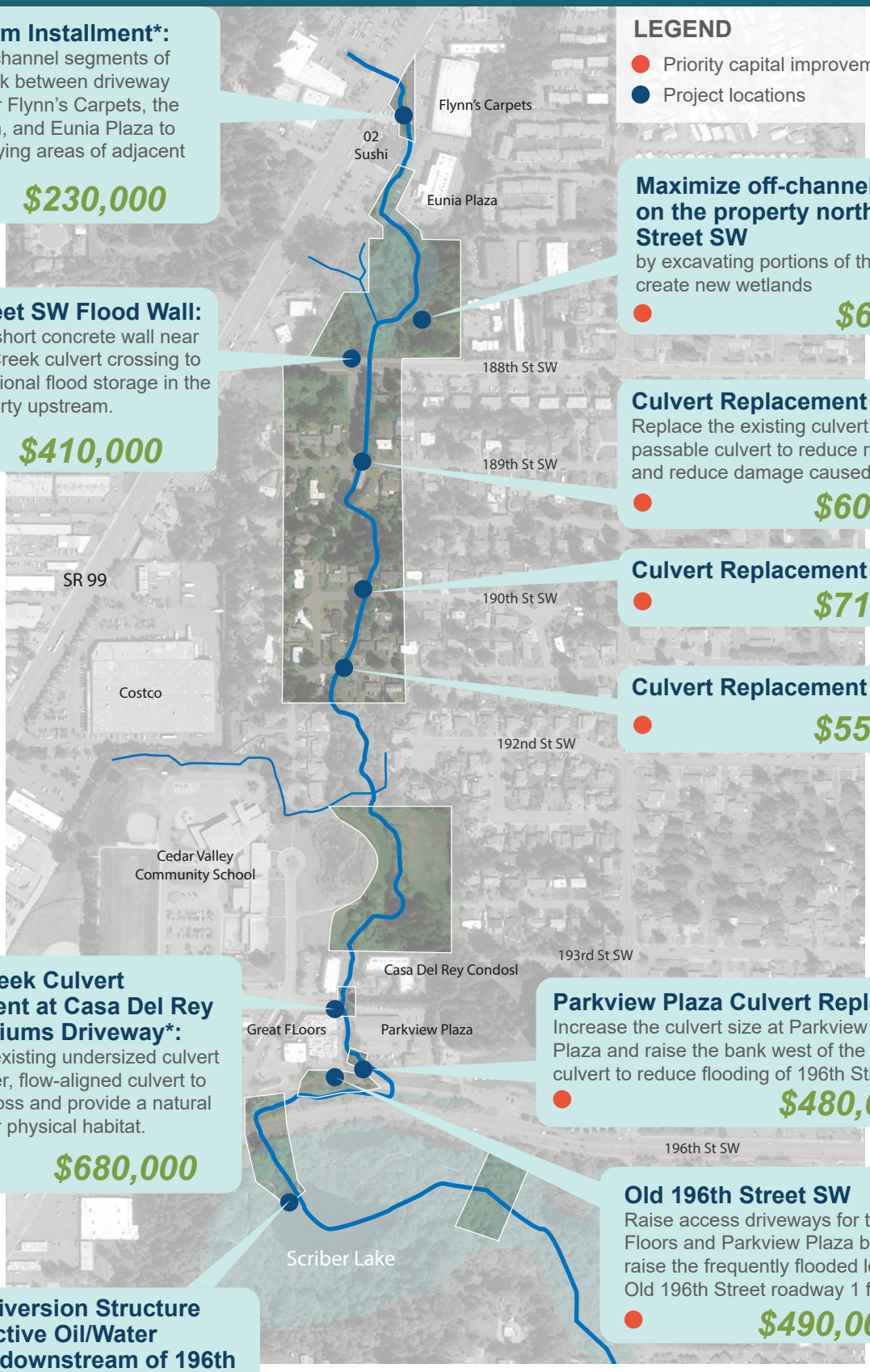
Long-term Capital Project Needs includes additional projects that address important stormwater-related issues, and align with the goals of an ideal SWMP, but would require higher rate increases than are currently planned or procurement of outside funding.

Scriber Creek Corridor Projects

The City of Lynnwood 2009 SWMCP identified several CIPs to reduce flooding, though without also providing additional flood storage, those conveyance improvements would potentially induce increased flows downstream of the planning corridor, worsening flooding problems downstream. The Scriber Creek Corridor Management Plan in 2016 resulted in an implementation schedule of 10 projects to reduce flood hazards within the Scriber Creek Corridor without worsening flooding conditions in downstream Scriber Lake. The projects are listed in their proposed implementation order in Figure 5-1. All of these projects are priority capital improvement projects

Flooding in the Scriber Creek Corridor

Figure 5-1. CIP Projects from the 2016 Scriber Creek Corridor Management Plan, Alternative B.[1]



Small Berm Installment*:
Berm open channel segments of Scriber Creek between driveway culverts near Flynn's Carpets, the Old Buzz Inn, and Eunia Plaza to protect low-lying areas of adjacent properties.
$230,000

Maximize off-channel Storage on the property north of 188th Street SW
by excavating portions of the property to create new wetlands
$690,000

188th Street SW Flood Wall:
Construct a short concrete wall near the Scriber Creek culvert crossing to provide additional flood storage in the vacant property upstream.
$410,000

Culvert Replacement 189th St SW:
Replace the existing culvert with a larger fish passable culvert to reduce road overtopping and reduce damage caused by flooding.
$600,000

Culvert Replacement 190th St SW
$710,000

Culvert Replacement 191st St SW
$550,000

Scriber Creek Culvert Replacement at Casa Del Rey Condominiums Driveway*:
Replace the existing undersized culvert with one larger, flow-aligned culvert to reduce headloss and provide a natural streambed for physical habitat.
$680,000

Parkview Plaza Culvert Replacement*:
Increase the culvert size at Parkview Plaza and raise the bank west of the culvert to reduce flooding of 196th Street.
$480,000

Old 196th Street SW
Raise access driveways for the Great Floors and Parkview Plaza buildings and raise the frequently flooded low portions of Old 196th Street roadway 1 foot.
$490,000

Remove Diversion Structure and ineffective Oil/Water Separator downstream of 196th Street SW
Incorporate necessary fish passage improvements to the existing culverts.
$350,000

[1] The Scriber Creek Corridor Management Plan includes a programmatic recommendation for property acquisition of frequently flooded properties between 188th Street SW and 191st Street SW. That recommendation is not included in the CIP during the 2020-2025 period but is anticipated in the longer term.

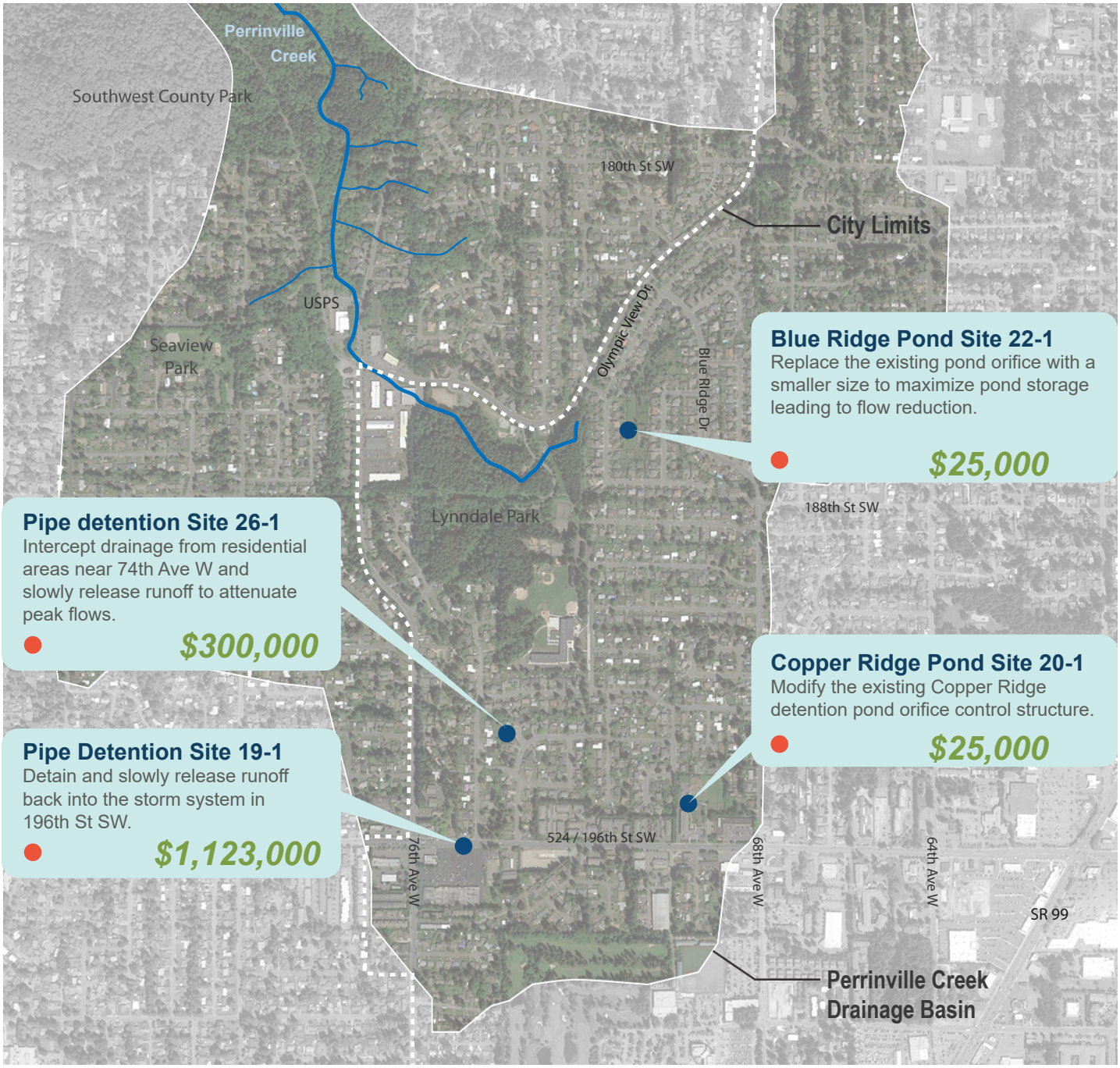
* These projects are on private property

Perrinville Creek Projects

The 2015 Perrinville Creek Study developed a hydrologic model of the watershed draining to the creek and identified several capital improvements in the public right-of-way (ROW) and on City-owned parcels, mostly within the City of Edmonds, with some cost-effective structural retrofit opportunities identified in Lynnwood. In addition to flood and erosion control, these projects have the potential to improve aquatic habitat and reduce pollutant load.

Four projects from the Perrinville Creek Study to reduce flooding in Lynnwood and improve habitat downstream are shown in Figure 5-2. These projects are priority capital improvement projects.

Figure 5-2. CIP Projects from the Perrinville Creek Stormwater Flow Reduction Retrofit study.

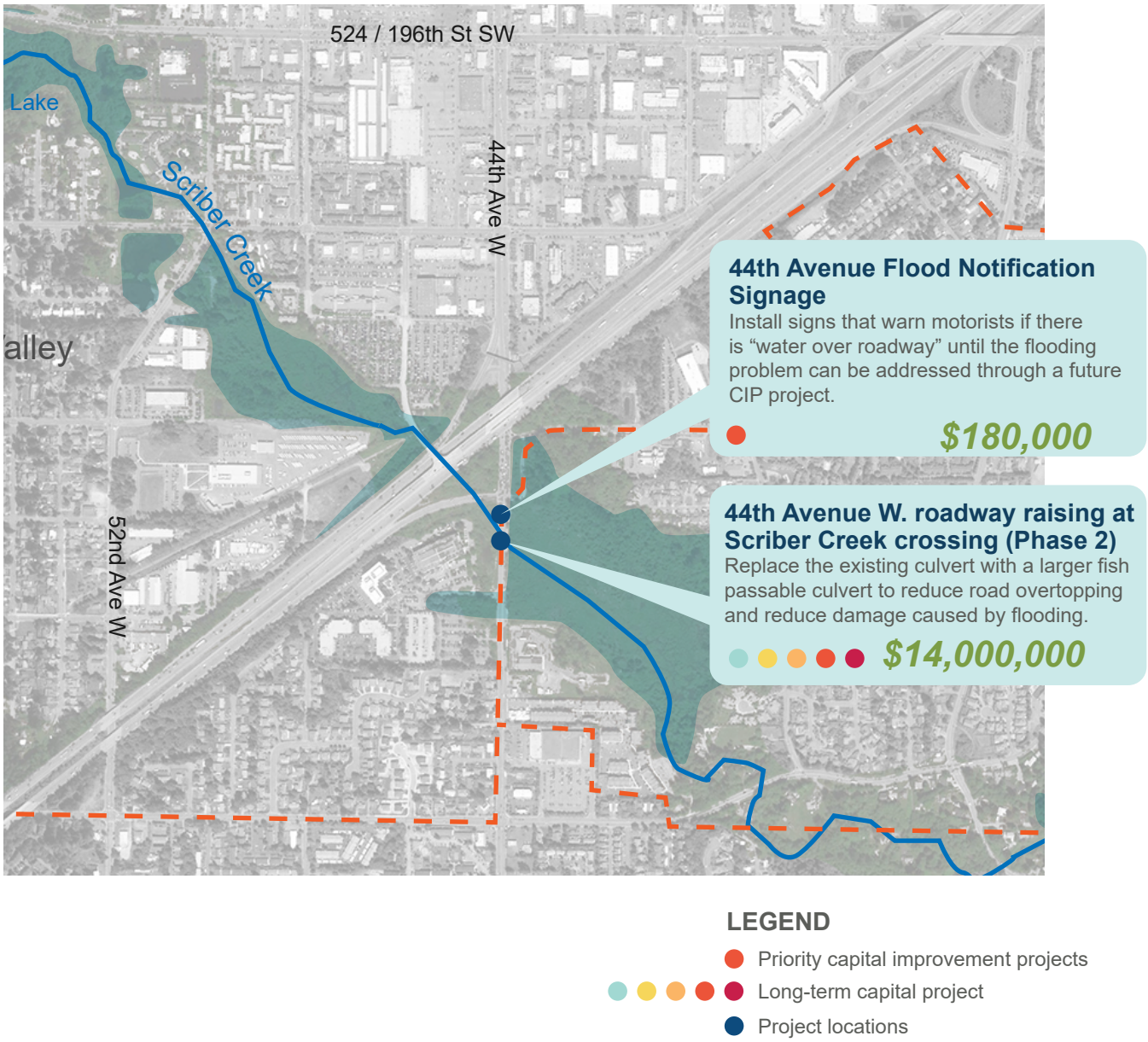


Flood Reduction Projects

Figure 5-3 shows the CIP project related to localized flooding along 44th Avenue W at the Scriber Creek crossing, where the roadway frequently floods and geological analysis indicates that the roadway is sinking. A recent project in this area replaced the old culvert with a larger, fish passable culvert to increase flow under the road, though flooding still occurs. Temporary and long-term projects are needed to address this issue. While the road raising project is a long-term capital project need, the temporary signage project is a priority capital improvement project.

Culvert at 44th Avenue W

Figure 5-3. CIP Projects Related to Flood Reduction.



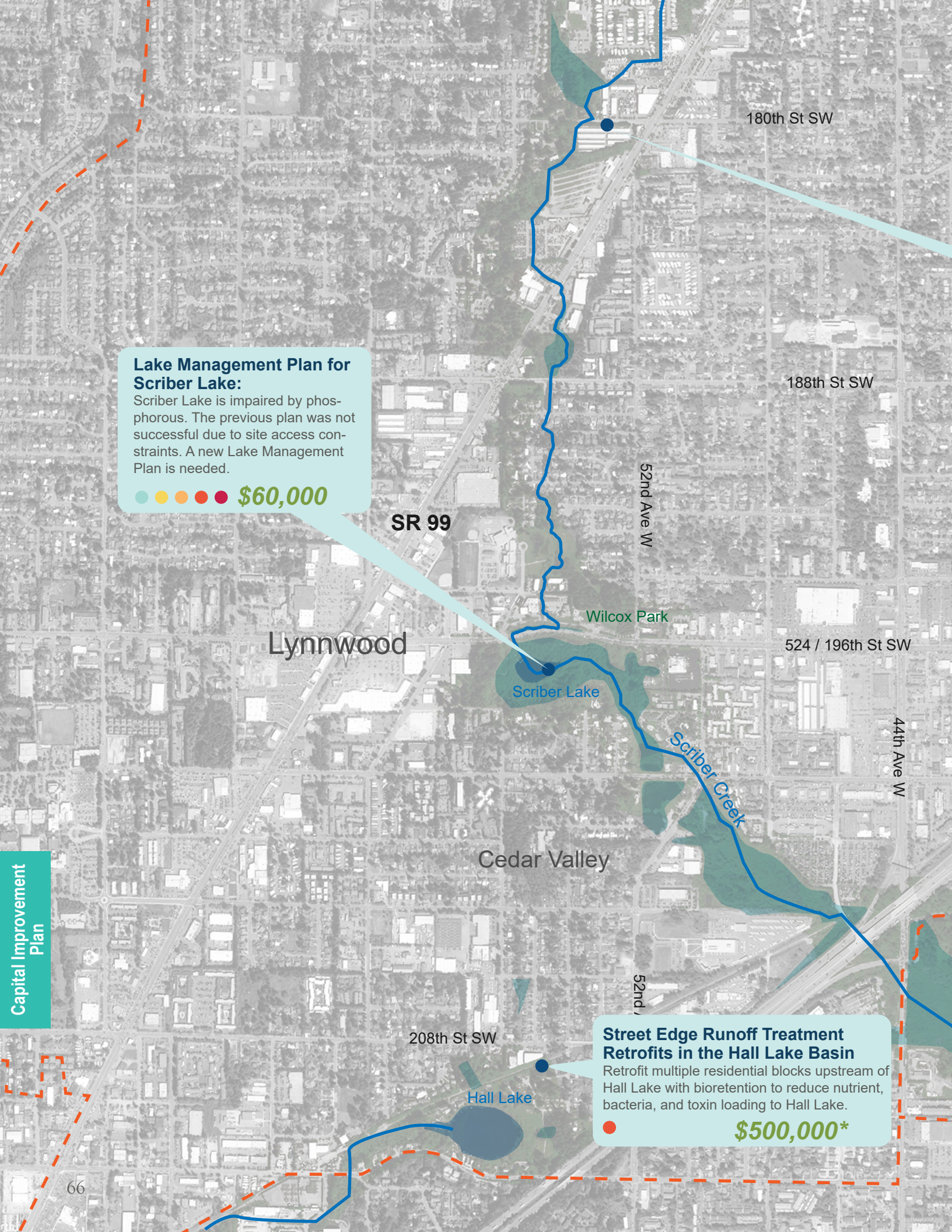
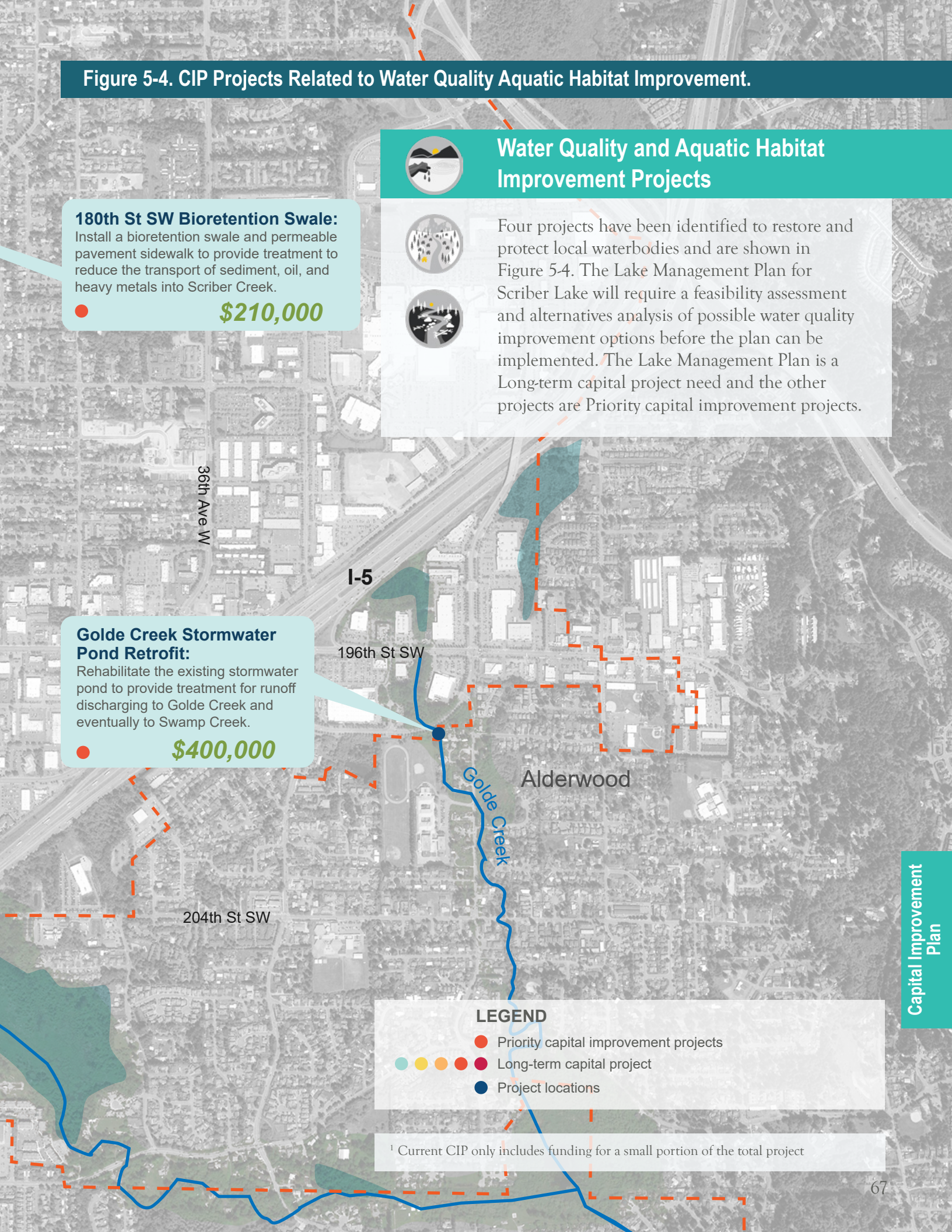

180th St SW
188th St SW
52nd Ave W
SR 99
Lynnwood
Wilcox Park
524 / 196th St SW
Scriber Lake
Scriber Creek
44th Ave W
Cedar Valley
208th St SW
Hall Lake
Lake Management Plan for Scriber Lake:
Scriber Lake is impaired by phosphorous. The previous plan was not successful due to site access constraints. A new Lake Management Plan is needed.
$60,000
Street Edge Runoff Treatment Retrofits in the Hall Lake Basin
Retrofit multiple residential blocks upstream of Hall Lake with bioretention to reduce nutrient, bacteria, and toxin loading to Hall Lake.
$500,000*

Figure 5-4. CIP Projects Related to Water Quality Aquatic Habitat Improvement.



Infrastructure Protection, Maintenance, and Upgrade Projects

Four new CIP projects have been identified to upgrade, protect, and maintain existing infrastructure. These projects are listed in Table 5-1 and are a combination of studies and funds to ensure that resources are used effectively and provide flexibility for the utility to address known infrastructure issues without the need for independent CIP projects. All of these projects are priority capital improvement projects.

Table 5-1. CIP Projects Related to Infrastructure Protection, Maintenance, and Upgrades.

Project Title	Summary	Cost	Related Goals or Policies
Stormwater Infrastructure Management Plan ●	Develop an infrastructure management plan starting with a gap analysis to determine critical data needs and identify a new schema.	$200,000	
Annual System Rehabilitation and Replacement ●	Annual funding up to $30,000 per project will be provided for routine infrastructure replacement projects too small for independent CIP projects.	$100,000 (annual cost)	
Funding for Strategic Opportunities to Improve the Stormwater System ●	Annual funding will be set aside for adding stormwater improvements to projects driven by other agencies, jurisdictions, or private development.	$100,000 (annual cost)	

● Priority capital improvement projects

Program Review and Updates

Stormwater program capital project priorities and needs are continually changing. The following provides a list of steps that should be scheduled to occur routinely to ensure efficiency of the City's overall stormwater program.

Recommendations

- Develop and maintain a list of known drainage problems and encourage field staff to contribute to the list on a quarterly basis, especially after storm events when they may have noted problems in the field.
- Annually review CIP projects planned by other divisions or departments to make more efficient use of limited resources by combining projects from multiple departments.
- Consider flow control and water quality retrofits through modification of existing facilities or LID development practices as part of projects programmed through other divisions or departments.
- Add flow control and water quality retrofit CIP projects or neighborhood drainage improvement CIP projects to the site-specific problems list.
- Revise this Comprehensive Stormwater Plan at least every 6 years to ensure that it provides for effective long-term stormwater project planning, system maintenance, response to mandates, and program funding.

6 IMPLEMENTATION

This section presents detailed information on implementing the Minimum tier of programs and activities described in Chapter 4 and the Priority Capital Improvement Projects described in Chapter 5 of this plan. The major components of plan implementation include utility rate implementation, staffing needs, additional resource needs, completion of CIP projects that address existing stormwater issues, interdepartmental collaboration, and interagency collaboration.

Stormwater Utility Rates

The activities and projects listed in this section would be funded by revenue from the stormwater utility. A financial analysis was conducted to define utility rate adjustments that are necessary to implement this plan. During the financial analysis, the City evaluated the regulatory needs and stormwater-related issues facing the City to find a balance between level of service and increased utility rates. In October 2019, the City approved the following stormwater rates for 2020 through 2025 to support the implementation of the Minimum tier of SWMP activities and the Priority CIPs.

Bi-Monthly Stormwater Utility Rates

Customer Classification	2020	2021	2022	2023	2024	2025
Residential Singe / Duplex Unit	$27.03	$27.84	$28.68	$29.54	$30.43	$31.34
Residential Multifamily and Mobile	$27.03	$27.84	$28.68	$29.54	$30.43	$31.34
Commercial Industrial Sites	$27.03	$27.84	$28.68	$29.54	$30.43	$31.34
Special Surface Water Rate, Income Level Status A*	$10.82	$11.14	$11.47	$11.81	$12.16	$12.52
Special Surface Water Rate, Income Level Status B*	$12.16	$12.52	$12.90	$13.29	$13.69	$14.10
Special Surface Water Rate, Income Level Status C*	$13.51	$13.92	$14.34	$14.77	$15.21	$15.67

* Income Label Status pursuant to the Snohomish County assessor's office real property taxes exemption process

The following sections explain the key surface water program activities that will be implemented and the schedule for completing priority CIPs.

Addressing Staffing Needs

Under the current level of staffing, City staff are not able to meet all the current requirements of the NPDES permit and will not be able to address the new activities listed in this table. Current staffing levels will not be adequate to meet the new and expanded requirements of the 2019–2024 Phase II Permit and defined SWMP goals during future years. The activities listed in the table on these pages will require additional staffing shown on page 70. Refer to Appendix E for a detailed estimate of staffing needs.

In addition to the staffing requirements discussed in this chapter, the City will need staff to manage the construction management and project management aspects of proposed CIP projects. These costs are included in Appendix G.

KEY

- One-time activities
- Ongoing activities
- Annual updates or training activities
- **DATE** Permit due dates marked when applicable
- * note that some activities are scheduled to begin before Permit deadlines

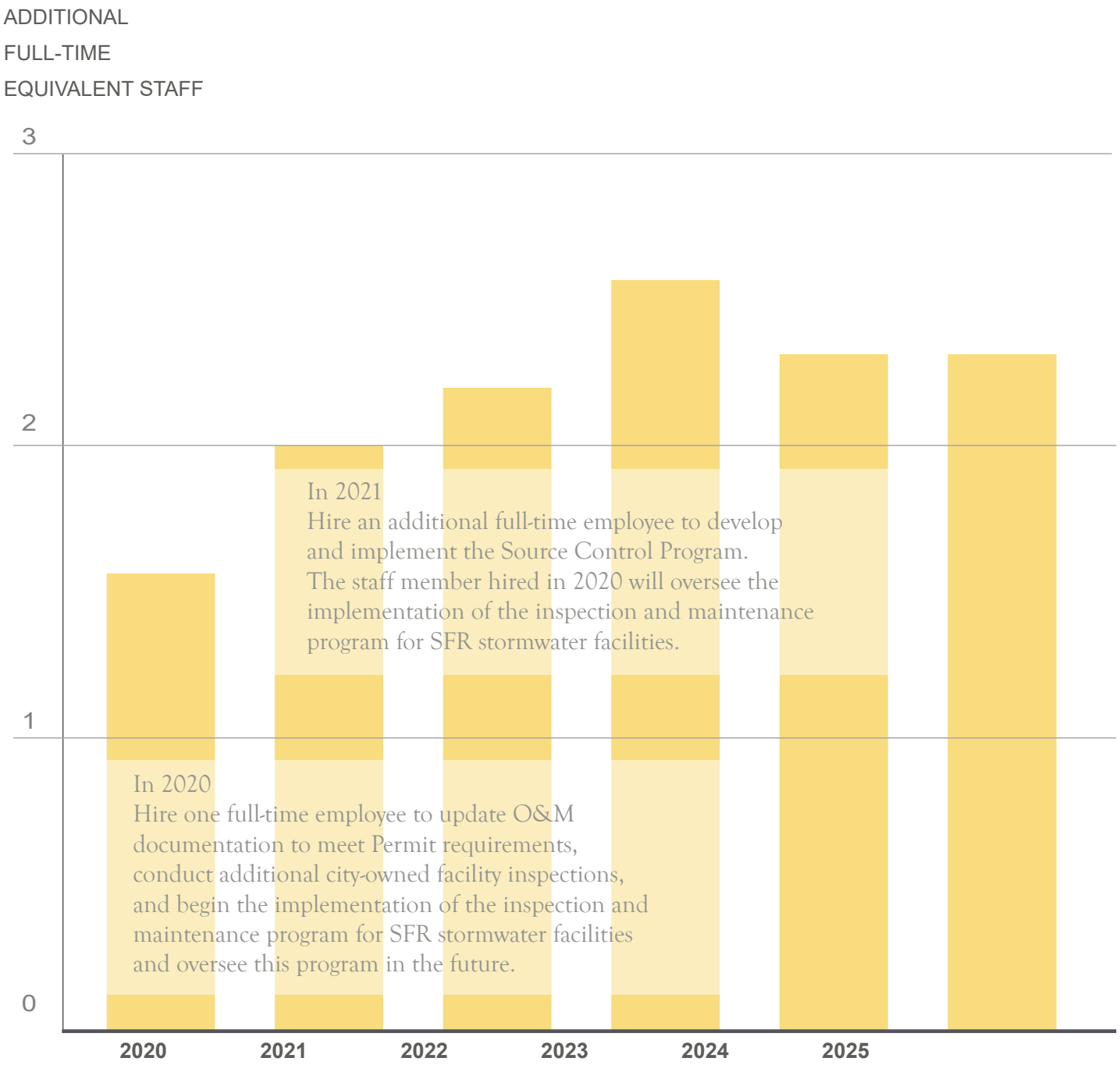
Activities that will require additional staff time	2020	2021	2022	2023	2024	2025
Controlling Runoff from New Development, Redevelopment, and Construction Sites						
Develop Supplemental Stormwater Guidelines with annual updates	IMMEDIATELY					
Expand training and tools for plan review and inspections (following completion of the Supplemental Stormwater Guidelines) and conduct annual training						
Develop the inspection and maintenance program for single-family residential (SFR) stormwater facilities that serve multiple properties and implement the program in subsequent years						
Operations and Maintenance						
Increase inspection and maintenance frequency for City-owned stormwater facilities						
Develop formal standard operating procedures (SOPs) and O&M manuals			DEC 31			
Update stormwater pollution prevention plans (SWPPPs) for City-owned O&M facilities and update annually			DEC 31			
Enhance the staff training program and conduct annual training						

Continued...

Activities that will require additional staff time	2020	2021	2022	2023	2024	2025
Source Control						
Develop a business inventory			AUG 1			
Implement the Source Control Program for Existing Development with annual inspections, an enforcement policy, and annual training for staff				JAN 1		
Stormwater Planning						
Develop a framework for annual LID compliance review, provide a summary in the annual report, and review guidelines and policies annually				DEC 31		
Summarize coordination with long-range planning efforts	MAR 31			JAN 1		
Implement Stormwater Management Action Planning						
- Receiving Water Assessment			MAR 31			
- Document watershed prioritization			JUN 31			
- Develop a SMAP for one high priority watershed				MAR 31		
Convene an interdisciplinary team to advise the SWMP	AUG 1					
Asset Management and Mapping						
Map all MS4 outfalls and connections to the MS4	JAN 1			AUG 1		
Public Education and Public Involvement						
Identify a new trackable program to replace Natural Yard Care	IMMEDIATELY					
Evaluate behavior change resulting from an education program	JULY 1					
Conduct community-based social marketing (CBSM) and implement the strategy		FEB 1				
Illicit Discharge Detection and Elimination						
Develop and implement ongoing IDDE training program for field staff	IMMEDIATELY					

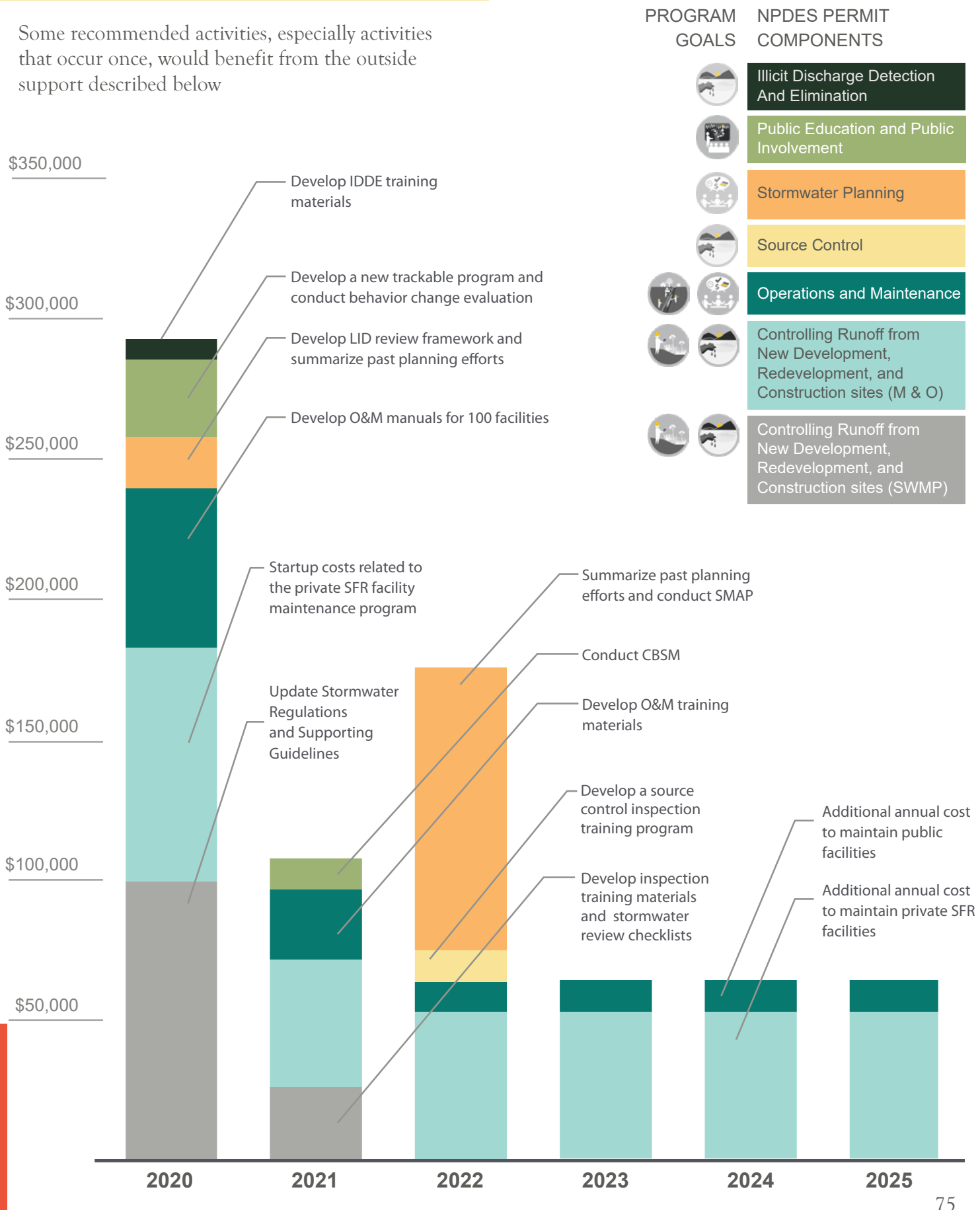
Anticipated Staffing Need for the Minimum Tier

Given this list of new activities that staff will have to take on during the planning period, the City's stormwater program would benefit from the following additional staff positions.



Outside Support

Some recommended activities, especially activities that occur once, would benefit from the outside support described below



CIP projects were developed for known problems that include issues such as neighborhood-scale flooding, poor water quality, and failing infrastructure.

The City will implement stormwater CIP projects in the order shown in Table 6-1. In addition to implementation of the CIP projects listed in Table 6-1, the City should take the steps described in the Program Review and Updates section of Chapter 5.

There are several projects that are not included in this plan due to high costs and low relative priority. These projects include additional flood reduction projects in the Scriber Creek Corridor, including the eventual raising of 44th Avenue West where the temporary flood notification signage is planned.

Table 6-1. Capital Improvement Program Implementation Schedule.

Project Name	2020	2021	2022	2023	2024	2025	out years*
Stormwater Infrastructure Management Plan	$100,000	$100,000					
Raise Old 196th Street SW	$250,000		$370,000				
Remove Diversion Structure and Oil/Water Separator downstream of 196th Street SW	$250,000		$300,000				
Scriber Creek Culverts (1): Parkview Plaza Culvert Replacement - *a.*		$250,000		$500,000			
Scriber Creek Culverts (2): Parkview Plaza Culvert Replacement at Casa Del Ray Condominiums Driveway - *a.*		$250,000			$500,000		
Scriber Creek Culverts (3): Replace 191st Street SW Culvert							$550,000
Scriber Creek Culverts (4): Replace 190th Street SW Culvert							$710,000
Scriber Creek Culverts (5): Replace 189th Street SW Culvert							$600,000
188th Street SW Flood Wall	$250,000	$500,000					
Install small berms near Eunia Plaza and Flynn's Carpets - *a.*					$100,000	$200,000	
Maximize off-channel storage on the property north of 188th Street SW - *b.*		$115,000	$450,000				
Annual System Rehabilitation and Replacement		$100,000	$100,000	$100,000	$100,000	$100,000	
Street Edge Runoff Treatment Retrofits in the Hall Lake Basin - *c.*	$50,000	$200,000					
Golde Creek Stormwater Pond Retrofit - *d.*		$200,000					
180th Street SW Bioretention Swale - *b.*		$200,000					
44th Avenue Flood Notification Signage - *d.*	$50,000						
Funding for Strategic Opportunities to Improve the Stormwater Management Program		$100,000				$100,000	
Pipe Detention Site 19-1 - *e, f.*				$850,000			
Copper Ridge Site 20-1 - *f.*					$25,000		
Blue Ridge Pond Site 22-1 - *f.*					$25,000		
Pipe Detention Site 26-1 - *f.*					$300,000		
TOTAL	$950,000	$2,015,000	$1,220,000	$1,450,000	$1,050,000	$400,000	$1,860,000

All costs in 2020 dollars

*The projects listed in the 'out years' column have not been scheduled during the planning period and are not accounted for in the financial analysis

a. Project is on private property.

b. Project cost rounded down to accommodate financial analysis.

c. Funding is for a feasibility and alternatives analysis phase of the overall retrofit project.

d. Funding is for a reduced scope relative to the project concept in the CIP appendix.

e. Funding assumes a grant or cost sharing with other agencies.

f. Project is from the Perrinville Creek Stormwater Flow Reduction Retrofit Study (Edmonds 2015).

Internal Collaboration

The Surface Water Management Program is led by staff in the Public Works Department and successful implementation of this plan will require contributions from the Operations and Maintenance Division and the Engineering and Project Management Division, including the subdivisions listed below:

Operations and Maintenance Division

- Environmental and Surface Water
- Streets and Storm

Engineering and Project Management Division

- Environmental Engineering and Development Services
- Construction Management
- Project Management

During this SWMCP update, the City developed or is currently developing three key policies related to surface water management within the City.

- Finalize and implement the process for determining stormwater requirements of City projects and successfully constructing the necessary stormwater infrastructure. A preliminary project delivery flowchart has been developed and needs to be finalized by City staff. Before the flowchart can be finalized, the City needs to complete the Supplemental Stormwater Guidelines and supporting checklists for City project managers to use when implementing the guidelines (Louis Berger 2018a).

- Guiding principles for use of surface water funds on capital projects. A draft policy for stormwater management partnering contribution has been developed and needs to be finalized and implemented (Louis Berger 2018b).

- Develop and implement a program to conduct more thorough inspections of private stormwater facilities that serve multiple SFR parcels and assume operations and maintenance responsibilities for certain facilities. Development of this program is one of the primary new activities funded by the utility rate increase described in this plan. Program development will require updating the mapping of private facilities, developing internal processes and procedures, and execution (Louis Berger 2019).

Interagency Collaboration

To address ongoing regional coordination needs, the City should continue to work with regional stakeholder groups and other local governments in shared drainage basins to protect groundwater and surface water quality and to manage and treat stormwater effectively. The list below indicates agencies and regional programs related to Lynnwood's stormwater program elements.

Stormwater Program Element	Regional Program
Comprehensive Stormwater Planning	Sound Transit Stormwater Management Action Planning required by the NPDES Phase II Permit may require coordination with jurisdictions that share drainage basins with the City including the Cities of Everett, Edmonds, Mountlake Terrace, Shoreline, Bothell, Lake Forest Park, Kenmore, and Brier as well as Snohomish County and King County
Public Education and Public Involvement	Edmonds School District Stormwater Outreach for Regional Municipalities (STORM) Parks Advisory Board, Lake Ballinger Forum, and other groups
Capital Improvement Projects and Programs	Projects that occur in streams such as several of the Scriber Creek corridor projects will require coordination with the Washington Department of Fish and Wildlife, applicable tribes, and other agencies depending on the nature of the project.. Projects that extend beyond city limits or affect Washington State Department of Transportation Right of Way will require coordination with the affected agencies. The 44th Avenue West Roadway Raising and Flood Notification Signage projects will require this type of coordination.

7

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