



CITY OF **LACEY**

STORMWATER COMPREHENSIVE PLAN 2020

ABBREVIATIONS & ACRONYMS

BMP	Best management practice
CBSM	Community-based social marketing
CIP	Capital improvement program
COVID-19	Coronavirus disease 2019
ECOLOGY	Washington State Department of Ecology
ESA	Federal Endangered Species Act
FTE	Full Time Equivalent
GMA	Washington State Growth Management Act
GREEN	Global Rivers Environmental Education Network
IDDE	Illicit discharge detection and elimination
LID	Low Impact Development
LMC	Lacey Municipal Code
MS4	Municipal separate storm sewer system
NPDES	National Pollutant Discharge Elimination System
O&M	Operations and Maintenance
PHASE II PERMIT	Western Washington NPDES Phase II Municipal Stormwater Permit

PSP	Puget Sound Partnership
REEP	Regional Environmental Education Program
SCP	Stormwater Comprehensive Plan
SDM	Stormwater Design Manual
SMAP	Stormwater Management Action Planning
SOP	Standard operating procedure
STORM	Stormwater Outreach for Regional Municipalities Group
SWMP	Stormwater Management Program
SWPPP	Stormwater Pollution Prevention Plan
TMDL	Total maximum daily load
UGA	Urban growth area
UIC	Underground Injection Control
WSDOT	Washington State Department of Transportation

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1 INTRODUCTION



COLLEGE STORM FACILITY AERIAL

This update of the City of Lacey's Stormwater Comprehensive Plan (SCP) is intended to guide the City's Stormwater Utility programs and projects for the next 6 years. This plan is the first major revision of the City's Stormwater Comprehensive Plan since the original 2013 plan (Lacey 2013). In addition to detailing Stormwater Management Program (SWMP) activities and projects for the 6-year planning horizon (2020 through 2025), this plan describes SWMP goals and accomplishments; the development and organization of this plan; background information including descriptions of water bodies, stormwater infrastructure, climate change considerations, and regulatory environment; and proposed programs, policies, and activities to meet the SWMP goals.

1.1

PURPOSE OF THIS PLAN

The purpose of this plan is to guide the City's SWMP in a manner consistent with applicable local, state, and federal regulations while charging consumers an equitable stormwater utility rate and supporting the goals and policies expressed in The City of Lacey and Thurston County Land Use Plan for the Lacey Urban Growth Area. This plan includes:

- Long-term goals of the SWMP
- Summary of background information relevant to the SWMP
- Identification of and proposed solutions to flooding and water quality issues
- Actions necessary to ensure compliance with applicable federal, state, and local requirements, especially the Western Washington National Pollutant Discharge Elimination System (NPDES) Phase II Municipal Stormwater Permit (Phase II Permit) issued by the Washington State Department of Ecology (Ecology)
- A financial plan to address the two items above

Since most land within Lacey is developed, most of the identified issues are a result of:

- Uncontrolled runoff from development that occurred prior to the implementation of modern stormwater requirements
- Aging infrastructure
- Regulatory mandates



1.2

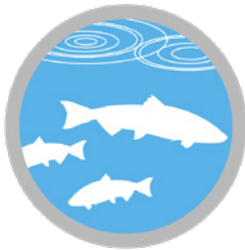
LONG-TERM GOALS

All functions performed or influenced by the SWMP can be divided into nine major program elements, which are listed in bold below. City staff developed long-term goals for each program element of the SWMP, which are listed under the applicable program element. Policies related to these long-term goals are provided in Appendix A.



Flood Reduction:

There is no flooding of the public stormwater system due to large storm events.



Surface Water Quality Improvement (retrofitting):

All surface water bodies in Lacey meet water quality criteria for designated recreation and fish uses.



Groundwater Quality Protection:

Groundwater quality is not negatively affected (quantity or quality) by stormwater practices.



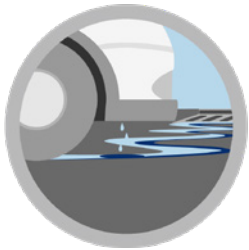
Habitat Improvement:

Aquatic species thrive in surface water bodies in Lacey.



Public Participation (education, outreach, and involvement):

City residents understand how their actions and choices affect stormwater, and they act in ways that reduce stormwater flow rates and improve water quality and aquatic habitat.



Pollutant Source Control:

Pollutants do not enter stormwater.



Infrastructure Operations and Maintenance:

All stormwater infrastructure functions as intended.



Development Practices:

Runoff from developed areas mimics forested hydrology and water quality. Prompt service is provided to applicants for development projects.



Stormwater Planning, Administration, and Funding:

Revenue is wisely invested and produces measurable positive outcomes, including regulatory compliance. Utility rates are fair and equitable.

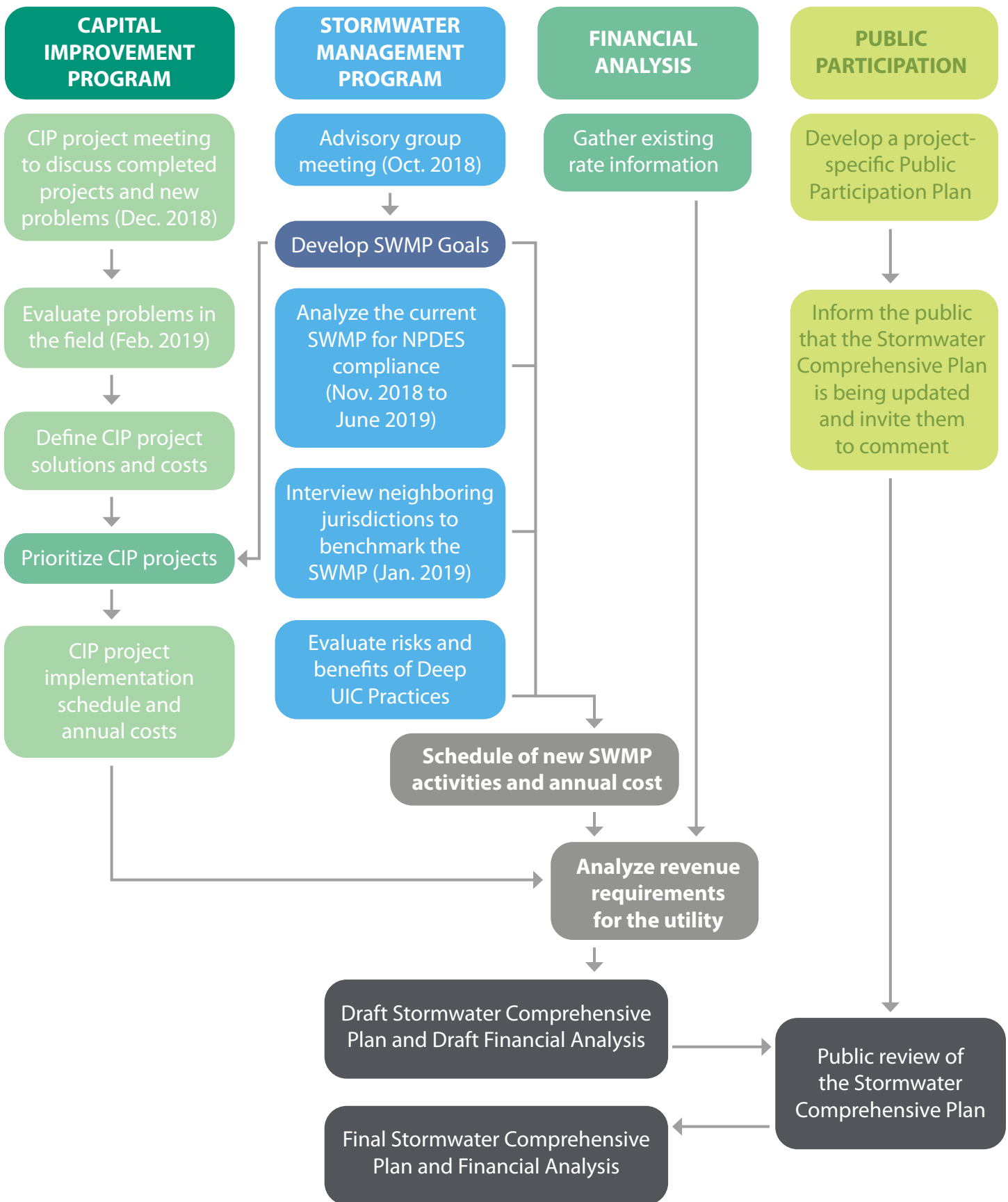
1.3

STORMWATER COMPREHENSIVE PLAN DEVELOPMENT

City staff and consultants conducted detailed analyses to support the conclusions and recommendations in later chapters of this plan. The analyses included interviews with City staff, a staffing needs evaluation, field review of problem sites, hydrologic modeling, development of construction projects to solve stormwater programs (i.e. Capital Improvement Program {CIP} projects), and calculation of funding needs to implement this plan.

Past studies and plans were reviewed to gather information on drainage and water quality issues and to evaluate the existing SWMP. To supplement existing drainage and water quality information and recent documentation of the status of the City's SWMP, City staff participated in an advisory group meeting and workshop and provided input throughout the development of this plan.

The figure below illustrates the process that was used to develop this plan.



1.4

STORMWATER MANAGEMENT PROGRAM ACCOMPLISHMENTS

Since the Stormwater Utility was founded in 1985, the City of Lacey has made significant progress in reducing detrimental effects of stormwater runoff on receiving waters in and around Lacey. The City has built many capital projects to alleviate drainage problems and has analyzed other problems to identify future activities. The City has also adopted ordinances, provided public education, and implemented monitoring programs to address water quality concerns. Since the creation of the City's original Stormwater Comprehensive Plan in 2013, the City has implemented the following significant projects, programs, and policies:

2016



In 2016, the newly constructed Chambers Lake Stormwater Treatment Wetlands project won a Silver Award from the American Council of Engineering Companies for social and economic sustainability. The Chambers Lake Stormwater Treatment Wetlands treat 187 acres of previously untreated stormwater entering Chambers Lake and was partly funded by a \$1M grant from Ecology.

The City completed construction of the Vector Waste Decant Facility for efficient handling and disposal of debris removed from the storm drainage system.

The City updated its Stormwater Design Manual (SDM) to assist developers in identifying, selecting, and designing best management practices (BMPs) for controlling stormwater flows and for preparing drainage plans, reports, and related documents for submittal to the City and compliance with regulations.

2017



In 2017, the City completed a Low Impact Development (LID) Code Review of documents that guide development in Lacey to ensure that LID principles are allowed and encouraged. The City was awarded a Green Star by Puget Soundkeeper and the Washington Environmental Council in 2017 for this effort.

The City completed the Brentwood Stormwater Installation project to relieve chronic flooding by adding runoff collection and conveyance infrastructure.

The City created LMC 14.27 – Stormwater Management, and LMC 14.29 – Illicit Discharges

The City conducted predesign work and soils analysis to replace the failing stormwater system in 25th Loop SE.



In 2018, the City completed the design for the 22nd Avenue SE System project. The project will convey stormwater to the College Street stormwater system while preserving existing parking.

The City began work on the 33rd and Stikes Conveyance Improvements project. The project, located at Stikes Drive and the eastern portion of 32nd Avenue SE, includes revision and expansion of the storm drainage system to improve stormwater conveyance and reduce local flooding.

The City completed the Ulery Drainage System Improvements project. The project included installing new catch basins and connecting drainage to the existing stormwater system.

The City acquired parcels in the Woodland Creek corridor to protect buffers and to improve water quality and aquatic habitat in the stream.

In addition to providing educational materials and outreach events, the City offered many public participation opportunities for the community. Specific programs from 2018 included:

- Puget Sound Starts Here campaign through participation in the Stormwater Outreach for Regional Municipalities (STORM) Group Stream Team Program

1,006 HOURS VOLUNTEERED

442 TREES AND SHRUBS PLANTED



- South Sound GREEN (Global Rivers Environmental Education Network): place-based learning program to engage students through field and classroom studies focused on stormwater and non-point source pollution

2,229 STUDENTS REACHED

378.25 VOLUNTEER HOURS

- Pet Waste Awareness program

8 NEW STATIONS INSTALLED

3,000 EDUCATIONAL PET WASTE BROCHURES DISTRIBUTED





Photo Courtesy of The Inn at Mallard Cove



- “No Dumping, Flows to Waterways” markers

210 MARKERS INSTALLED

- Clean Cars, Clean Streams program

344 CHARITY CAR WASH TICKETS SOLD

- 3-Day Stormwater Lesson taught by City of Lacey staff at multiple Lacey schools

RECEIVED BY 1,526 STUDENTS

- Facilitate Lacey school fieldtrips to Billy Frank Jr. Nisqually National Wildlife Refuge

WORKSHOPS FOR 30 STUDENTS

- Hosting and facilitating volunteer opportunities within the riparian buffer at Woodland Creek Community Park including:

MARTIN LUTHER KING, JR. DAY MEMORIAL TREE PLANTING, PLANT MAINTENANCE, AND INVASIVE SPECIES REMOVAL

ARBOR DAY TREE PLANTING WITH CITY OF LACEY PARKS AND RECREATION CAMPERS

CHINOOK DAY OF CARING WITH CHINOOK MIDDLE SCHOOL STUDENTS TO PERFORM PLANT MAINTENANCE

KOMACHIN DAY OF CARING WITH KOMACHIN MIDDLE SCHOOL STUDENTS TO PERFORM PLANT MAINTENANCE

JBLM* DAY OF SERVICE WITH ENLISTED AIR FORCE MEMBERS TO REMOVE INVASIVE SPECIES

THANKSGIVING WEEKEND PLANTING EVENT

* JOINT BASE LEWIS MCCHORD



- Share hands-on stormwater education at large community events including:

CITY OF LACEY FUN FAIR

CITY OF LACEY STEM FAIR

THURSTON CONSERVATION DISTRICT NATIVE PLANT FESTIVAL

CITY OF LACEY ARBOR DAY SEEDLING GIVEAWAY

SOUTH SOUND GREEN STUDENT GREEN CONGRESS

Each year, the City's Stormwater Operations and Maintenance (O&M) team works to maintain and improve the stormwater system. Accomplishments from 2018 are listed below:



REPLACED A FAILING INFILTRATION GALLERY THAT WAS CAUSING FLOODING AT 1502 HOMANN DRIVE.

UPGRADED THE STORM SYSTEM AT 5518 34TH AVENUE SE BY INSTALLING A CATCH BASIN AND 100 FEET OF PIPE TO INTERCEPT RUNOFF.

FIXED A FLOODING PROBLEM AT 2610 GREENLAWN BY INSTALLING 250 FEET OF PIPE, TWO CATCH BASINS, AND CONNECTION TO THE RUDDELL ROAD STORMWATER MAIN.

REMOVED 74.5 CUBIC YARDS OF DEBRIS FROM CATCH BASINS.

COMPLETED 340 PRIVATE STORMWATER FACILITY INSPECTIONS.

MORE THAN DOUBLED THE PRIVATE FACILITIES MAINTENANCE AND ANNUAL REPORTING PROGRAM COMPLIANCE.

AWARDED A GRANT FROM ECOLOGY FOR PURCHASE OF A SECOND HIGH-EFFICIENCY RECIRCULATING-AIR STREET SWEEPER.



1.5 PUBLIC INVOLVEMENT AND PARTICIPATION CONDUCTED FOR THIS PLAN

The City encourages the public to contribute to the Stormwater Comprehensive Plan Update. The City has developed and is implementing a Public Participation Plan to create multiple opportunities for the public to get involved. The first few steps in the public involvement process included briefing the planning commission on June 18, 2019 and the City Council Utilities Committee on August 5, 2019. Multiple opportunities are being provided for public input prior to plan adoption, including:

- Draft SCP posted for public review (March-June 2020)
- Utilities Committee briefing (March 2, 2020)
- “Virtual Open House” Webinar (May 20, 2020)
- Planning Commission briefing (July 21, 2020)
- Planning Commission public hearing (October 6, 2020)
- City Council meeting - adoption of updated SCP with annual City Comprehensive Plan amendments (Nov-Dec 2020)

The final Stormwater Comprehensive Plan will be provided on the City’s website following approval by City Council.



A CITY OF LACEY STORMWATER WORKSHOP

1.6

PLAN ORGANIZATION

This plan is organized into five chapters:

- 1** AN INTRODUCTION TO THIS PLAN AND THE SWMP
- 2** A DISCUSSION OF BACKGROUND MATERIAL THAT IS RELEVANT TO THE SWMP
- 3** A DESCRIPTION OF THE SWMP AND ACTIVITIES REQUIRED TO COMPLY WITH REGULATIONS AND MAKE PROGRESS TOWARDS DEFINED PROGRAM GOALS
- 4** A DESCRIPTION OF STORMWATER CIP PROJECTS DEVELOPED TO ADDRESS CITYWIDE AND SITE-SPECIFIC STORMWATER PROBLEMS
- 5** INSTRUCTIONS FOR IMPLEMENTING THIS PLAN AND SWMP ACTIVITIES AND PROJECTS, INCLUDING ADJUSTMENTS TO THE STORMWATER UTILITY RATES

Appendices to this plan provide more detailed background information, calculations, and data related to this plan's recommendations.



2 BACKGROUND

This chapter describes the environment in Lacey that affects stormwater management, water bodies within the city limits and the urban growth area (UGA) that receive surface water or stormwater from within the city limits, climate change considerations, applicable regulations, and a brief history of the stormwater utility fund.

Lacey is located at the southern tip of Puget Sound and is bordered to the west by the city of Olympia. Unincorporated areas of Thurston County border the city limits to the north, east, and south. The city limits encompass approximately 17 square miles, and the current population is 50,170 (Lacey 2019a). Since the 1960s, Lacey has experienced one of the highest growth rates in the county (Lacey and Thurston County 2008). Population growth is accompanied by increased land development and stormwater runoff, resulting in a greater burden on the City's stormwater infrastructure and SWMP. The relationship between land use and stormwater is discussed further in Section 2.1 below.



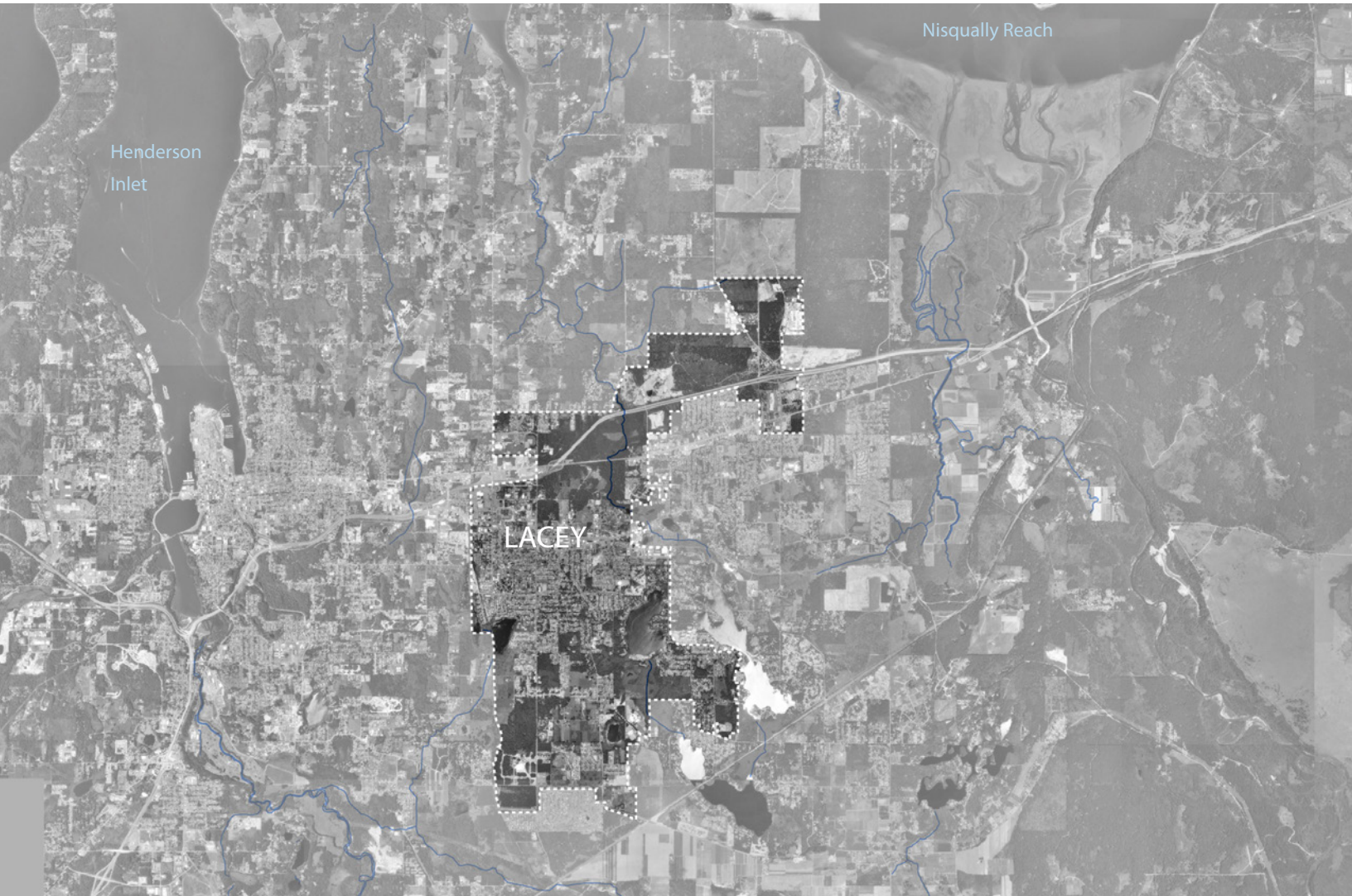
CENTRAL LACEY CIRCA 1963, PRIOR TO INCORPORATION AS A CITY

2.1

LAND USE IN LACEY

Land uses in Lacey reflect a small-town heritage modified by more recent residential and commercial development. City growth and changes in land use are guided by the City of Lacey Comprehensive Plan (Lacey 2016), which was developed to comply with the requirements of the Growth Management Act (GMA), though Lacey has been doing non-mandated planning since 1983. One of the goals of the GMA is to promote development inside the municipal Urban Growth Area (UGA), which was designated as part of the City's land use plan that was adopted in 1994, to eliminate costly and environmentally damaging urban sprawl. This means that within the city limits the focus will be on redevelopment and infill. Prime areas for redevelopment include the Woodland District (west of city hall), the Depot District (south of Saint Martin's University), and the area south of Pacific Avenue and west of College Street.

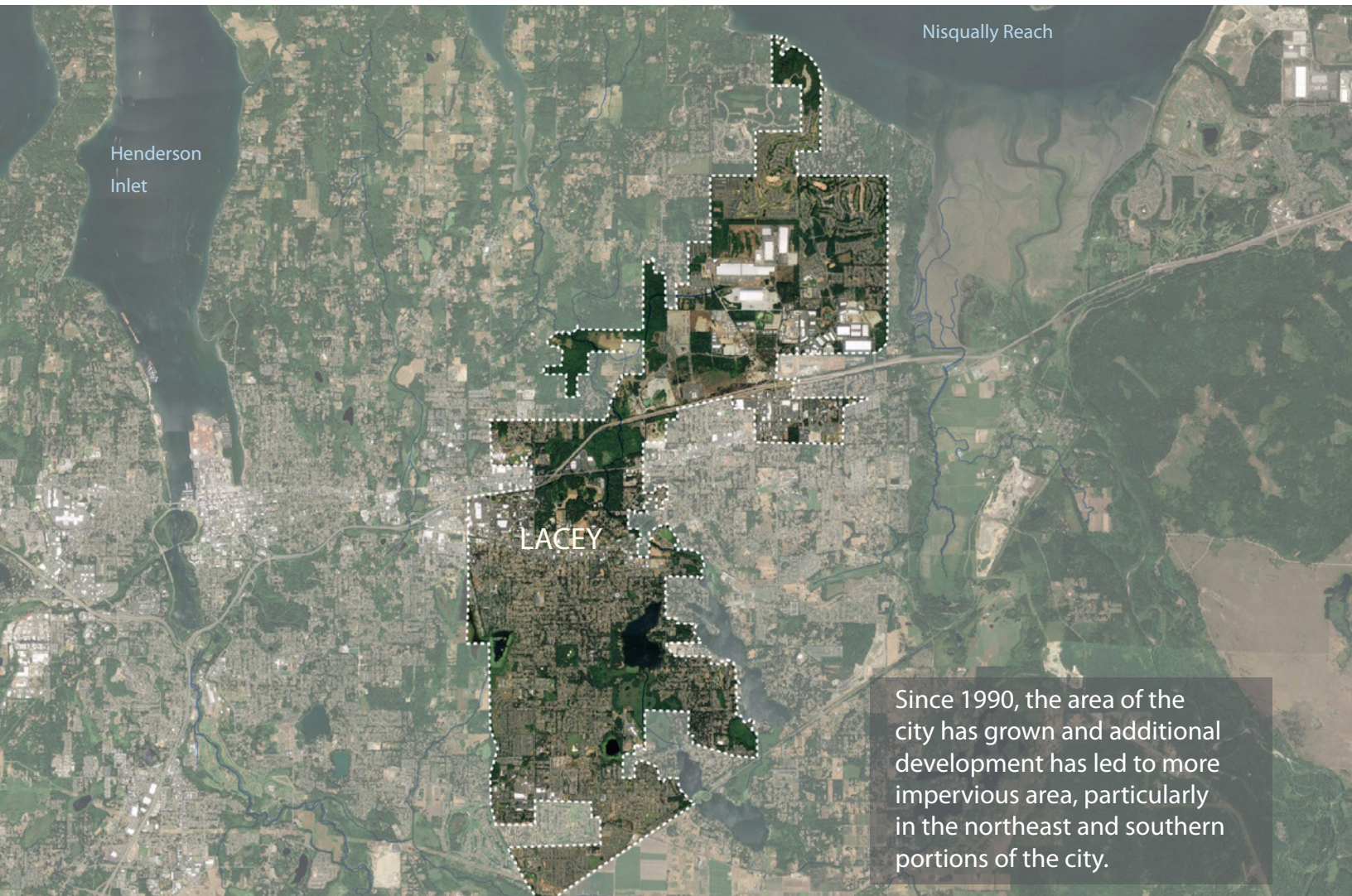
AERIAL SHOWING LACEY CITY LIMITS,
CIRCA 1990



As these development and redevelopment projects occur, they will be required to comply with the Lacey Municipal Code and Stormwater Design Manual (SDM), which include increasingly stringent standards for low impact development (LID) practices, on-site infiltration, stormwater treatment, and flow control. Therefore, it is expected that, over time, these new projects are likely to have a net benefit on stormwater management as more of the city is brought under the umbrella of contemporary stormwater management strategies.

Likewise, as the City annexes area inside the UGA, stormwater management services will need to be expanded to the new area to remain in compliance with the NPDES Phase II Permit. This, too, will result in more stormwater control, but will also increase the need for maintenance staff and equipment. Within the unincorporated UGA, development of undeveloped land will continue because the UGA still has large areas of undeveloped land (Lacey 2016). These greenfield developments will also be required to manage stormwater in accordance with City Code and the SDM. Since 2016, many of these greenfield properties have been developed, and the greenfield areas remaining typically have poor drainage which requires more technical expertise in hydrology during development review.

AERIAL SHOWING LACEY CITY LIMITS,
CIRCA 2019



2.2

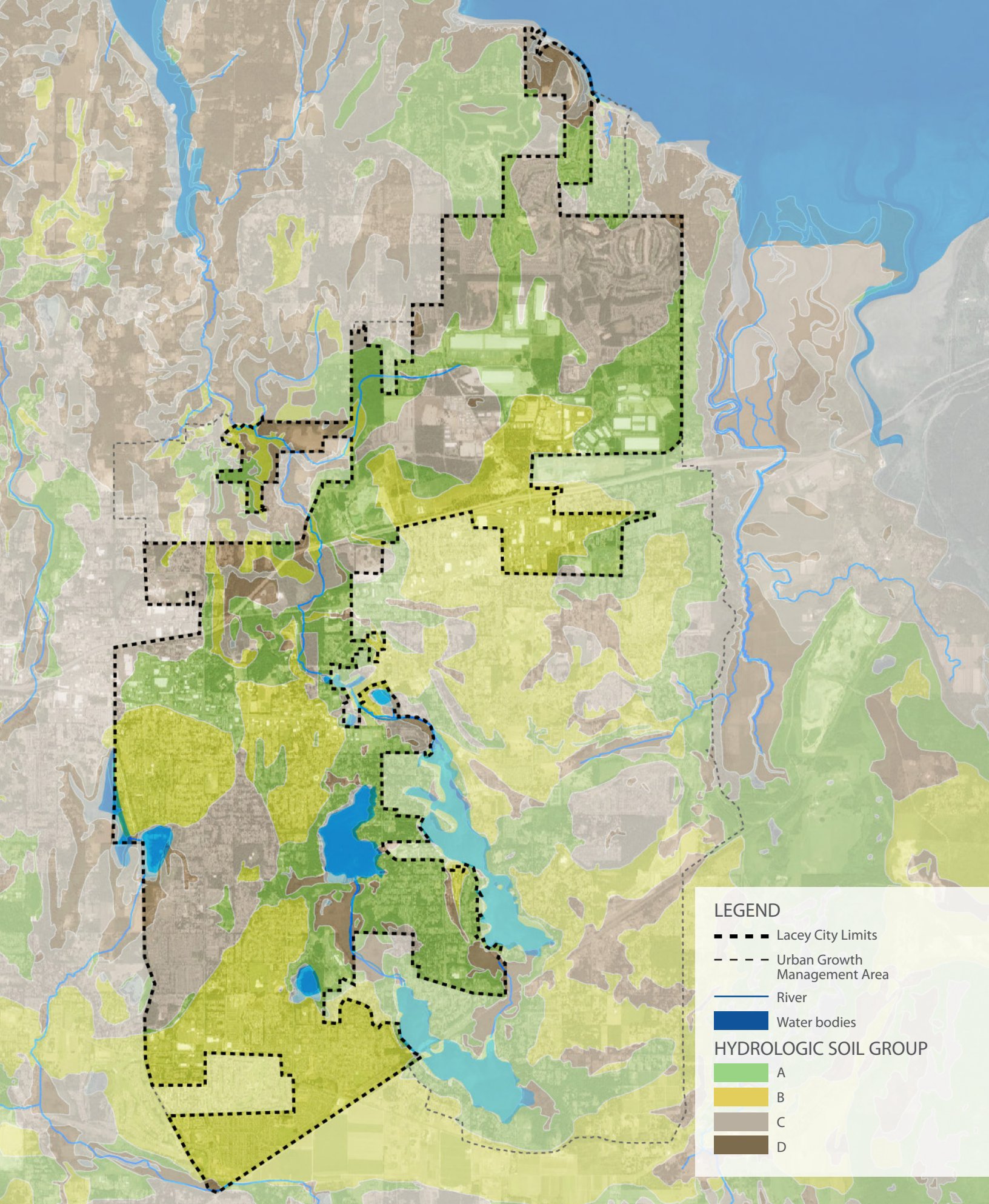
SOILS AND GROUNDWATER

Soils within Lacey are typical for the south Puget Sound Region, consisting of well-drained glacial outwash, intermixed with zones of glacial till and wetland peat bogs. The majority of the city is dominated by Hydrologic Soil Groups A and B, soils that generally have high infiltration capacities. These soils are generally most suitable for stormwater infiltration applications and constitute the following percentage of area in the city:

- Group A soils – 30 percent
- Group B soils – 37 percent

Hydrologic Soil Groups C and D are sandy or silty soils characterized by low permeability and relatively high runoff potential, making them less suitable for stormwater infiltration applications. A portion of the city is also occupied by wetlands and lakes. These soil groups constitute the following percentage of area in the city:

- Group C soils – 12 percent
- Group D soils – 15 percent
- Wetlands and lakes – 6 percent



LEGEND

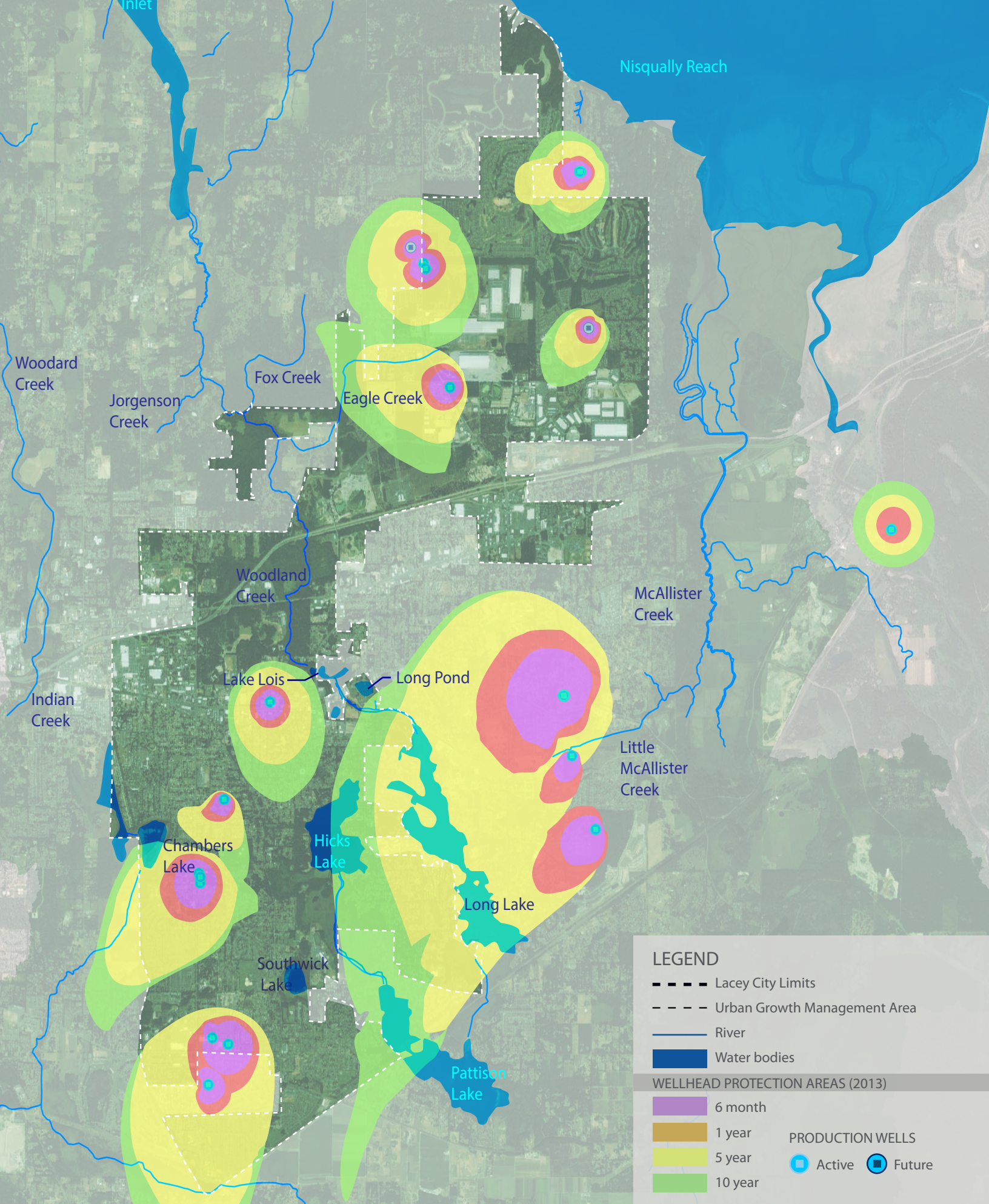
- Lacey City Limits
- - - Urban Growth Management Area
- River
- Water bodies

HYDROLOGIC SOIL GROUP

- A
- B
- C
- D

Sensitive groundwater areas in the city include Wellhead Protection Areas (WHPAs) and Critical Aquifer Recharge Areas (CARAs). WHPAs consist of a sanitary control area and time-based capture zones that are used to identify the area of influence around each drinking water well, and where land use management can help to reduce the risk of contamination (Lacey 2013). CARAs are defined as “areas with a critical recharging effect on aquifers used for potable water, including areas where an aquifer that is a source of drinking water is vulnerable to contamination that would affect the potability of the water, or is susceptible to reduced recharge” (WAC 365190030). Because WHPAs identify areas where land use is carefully regulated to avoid contamination of drinking water, groundwater in these areas should be protected. Heightened land use and infiltration regulations in these areas are governed through the City’s wellhead protection program (Environmental Element of the City of Lacey Water Comprehensive Plan) and the SDM to prevent contamination of drinking water. Future development in wellhead protection areas through land use and activity regulation is defined and enforced through the Lacey Municipal Code (LMC 14.36). These protected areas constitute the following percentage of the city:

- Wellhead Protection Areas (WHPAs) – 38 percent
- Critical Aquifer Recharge Areas (CARAs) – 100 percent



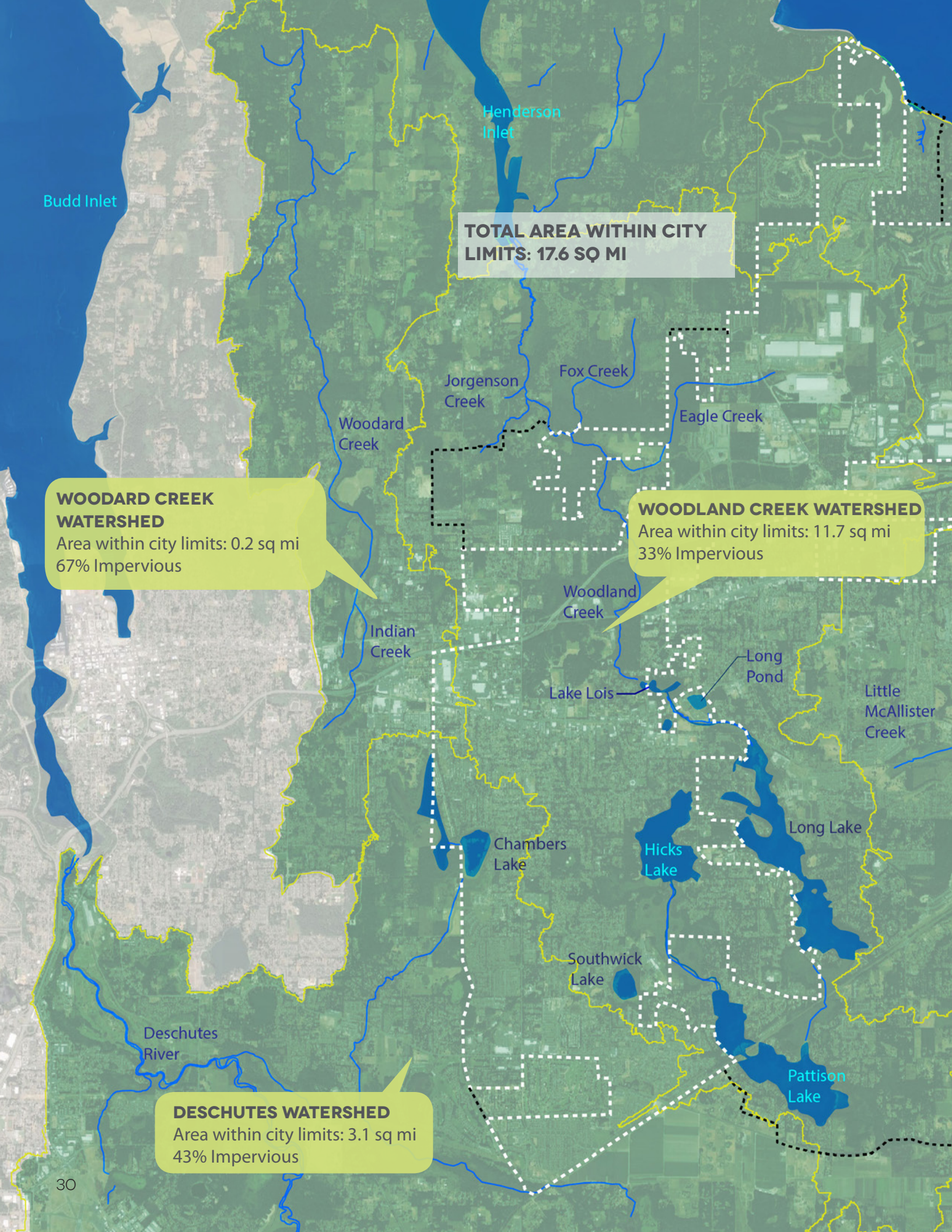
LEGEND

- Lacey City Limits
- - - Urban Growth Management Area
- River
- Water bodies

WELLHEAD PROTECTION AREAS (2013)

- 6 month
- 1 year
- 5 year
- 10 year

- PRODUCTION WELLS**
- Active
 - Future



TOTAL AREA WITHIN CITY LIMITS: 17.6 SQ MI

WOODARD CREEK WATERSHED
Area within city limits: 0.2 sq mi
67% Impervious

WOODLAND CREEK WATERSHED
Area within city limits: 11.7 sq mi
33% Impervious

DESCHUTES WATERSHED
Area within city limits: 3.1 sq mi
43% Impervious

Nisqually Reach

2.3

WATER BODIES AND INFRASTRUCTURE

Stormwater runoff within the city limits and the UGA drains to three watersheds along the Puget Sound: Henderson Inlet, the Deschutes River to Budd Inlet, and McAllister Creek to the Nisqually Reach. The Department of Ecology assesses the quality of all water bodies in the state to determine whether they are impaired by pollutants and require a water improvement project, or Total Maximum Daily Load (TMDL).

HENDERSON INLET

Tributaries to Henderson Inlet include Woodard Creek and Woodland Creek, which flows out of a chain of connected lakes: Hicks Lake, Pattison Lake, Long Lake, and Lake Lois. Other tributaries to Woodland Creek within the UGA include College Creek, Palm Creek, Eagle Creek, Fox Creek, and Jorgenson Creek. Henderson Inlet and its tributaries are subject to a TMDL for impairment due to fecal coliform bacteria and dissolved oxygen. Other concerns include high temperature and high peak flows in Woodland Creek and phosphorus and invasive vegetation in the four lakes.

NISQUALLY REACH

Runoff from the city flows east to the Nisqually Reach from Little McAllister Creek, which is a tributary of McAllister Creek. The Nisqually Reach and its tributaries are subject to a TMDL to address fecal coliform bacterial and dissolved oxygen impairment, though Little McAllister Creek and the City of Lacey are not specifically identified in this plan.

BUDD INLET

Runoff from the city flows northwest to Budd Inlet from Chambers Lake through the Deschutes River. Budd Inlet and its tributaries are subject to a TMDL for temperature impairment. In 2015, the City constructed the Chambers Lake Stormwater Treatment Facility to provide stormwater treatment for 187 acres that drain into Little Chambers Lake, and ultimately to the Deschutes River and Budd Inlet.

Additional information related to water bodies in the city and the specific activities required by the TMDLs can be found in Appendix B.

NISQUALLY REACH WATERSHED

Area within city limits:
2.6 sq mi
41% Impervious

LEGEND

- City Limits
- Watershed Boundary

The City's Stormwater Utility manages a large and complex storm drainage system in the public right-of-way (Table 2-1). This storm drainage system is important to protecting public and private property, ensuring public safety, and providing flow control and water quality treatment to stormwater runoff before it discharges to receiving waters. A list of the City's stormwater facilities including information related to drainage area, function, and discharge waterbody is available in Appendix C.

TABLE 2-1. SUMMARY OF THE CITY OF LACEY STORMWATER SYSTEM.

ITEM	QUANTITY	UNITS
Catch basins and storm drains ^a	6,150	each
City Storm System pipe ^a	135	miles
Outfalls (discharging to surface water) ^a	83	each
Drywells (discharge via infiltration to groundwater) ^a	144	each
Water quality treatment facilities: Constructed Wetlands ^{a,b}	4	each
Water quality treatment facilities: Wet Ponds ^{a,b}	14	each
Water quality treatment facilities: Biofiltration Swales ^a	10	each
Retention/Detention Ponds and Infiltration Basins ^{a,c,d}	35	each
Regional Facilities primarily discharging to Groundwater ^{a,e}	44	each
Regional Facilities primarily discharging to Surface Water ^{a,e}	10	each
Municipal streets, centerline miles ^a	166.2	CL miles
Municipal streets, lane miles ^a	384	lane miles
Impervious surface area coverage in the City ^f	35	percent

^aBased on input from City staff and review of GIS data and files provided by the City.

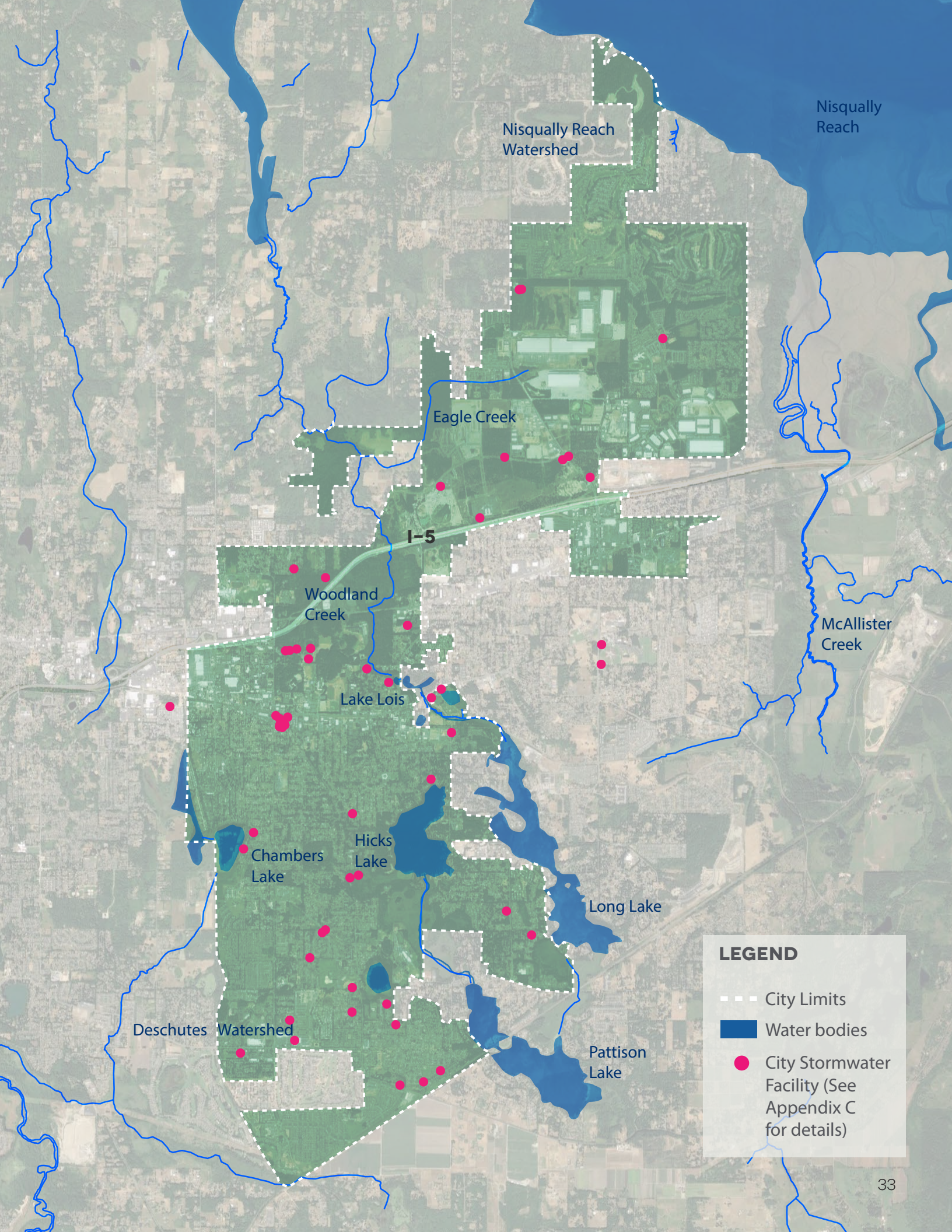
^bWater quality treatment facilities include wet ponds and constructed wetlands that are designed to remove pollutants from stormwater runoff.

^cDetention facilities include detention ponds that temporarily store stormwater runoff, reducing peak flows but eventually discharging the same volume. Detention facilities provide little or no infiltration of stored stormwater.

^dRetention facilities include retention ponds, swales and infiltration basins that are designed to hold stormwater runoff and release it by evaporation, plant transpiration, and/or infiltration into the ground, reducing peak flows and the volume discharged.

^eRegional facilities are large stormwater facilities (typically detention or retention ponds) that are designed to detain stormwater runoff from a number of new developments or areas within a drainage basin.

^fImpervious area calculated in 2020 using 2018 aerial imagery



Nisqually Reach Watershed

Nisqually Reach

Eagle Creek

I-5

Woodland Creek

McAllister Creek

Lake Lois

Chambers Lake

Hicks Lake

Long Lake

Deschutes Watershed

Pattison Lake

LEGEND

- City Limits
- Water bodies
- City Stormwater Facility (See Appendix C for details)

2.4 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 2-2 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 are likely to be affected by sea level rise, increased eroding effects of waves and surge, and harmful algal blooms caused by warmer water temperatures. Specific climate change adaptation activities are discussed in Section 3.3.

TABLE 2-2. EXPECTED RESPONSES TO STORMWATER MANAGEMENT COMPONENTS FROM PREDICTED CLIMATE CHANGE EFFECTS. ^a

STORMWATER MANAGEMENT COMPONENT	PREDICTED RESPONSE TO CLIMATE CHANGE IN THE PUGET SOUND BASIN
Stream Flows	<ul style="list-style-type: none"> Increased winter flows Decreased summer flows Likely increased magnitude and frequency of peak events
Groundwater Supply	<ul style="list-style-type: none"> Decreased recharge during summer months Increased use during summer months
Flood Risk	<ul style="list-style-type: none"> 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
Water Quality	<ul style="list-style-type: none"> Increased average and summer water temperature Increased erosion and suspended materials Lower dissolved oxygen Increased algal blooms
Habitat	<ul style="list-style-type: none"> Wetland conversion from perennial to seasonal Possible loss of streamside vegetation Decrease in cooler/oxygenated aquatic habitat Increased forest fire intensity

^aMauger 2017 and TRPC 2018.

2.5

STORMWATER UTILITY FUND

To meet the growing needs for stormwater management, the City created its Stormwater Utility Fund on January 24, 1985 under Ordinance No. 712. This new fund was established as an enterprise fund, similar to the City's sewer and water enterprise funds, with dedicated revenues and expenditures which made the stormwater utility self-supporting. The following year, Ordinance No. 794 established interim stormwater utility fees, which became effective on January 1, 1987. These were flat fees assessed to property owners on a per-parcel basis, which enabled the City to collect storm and surface water utility charges to provide services to residents, including operation of the stormwater utility, drainage basin analysis, and construction of facilities.

On April 26, 1990, LMC Chapter 13.70 was amended under Ordinance No. 886 to establish a more permanent rate structure, with a flat rate for single-family and two-family residential parcels and a seven-step sliding rate for commercial parcels. The new rate structure became effective on July 1, 1990, and is still in use today.

Funds received by the stormwater utility are used in the management and control of stormwater, operation and maintenance of the drainage system, and construction of stormwater facilities. Over the years, stormwater utility fees collected by the City have been used for an increasing number of purposes as stormwater issues and regulatory requirements have grown.

2.6

APPLICABLE REGULATIONS

The City's SWMP supports efforts to comply with the following local, state, and federal regulations and other requirements:



UIC in Seattle, WA

UNDERGROUND INJECTION CONTROL PROGRAM

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. The Guidance for UIC Wells that Manage Stormwater (Ecology 2006) lays out the requirements for UIC wells, and Ecology has included additional guidance in the latest update of the Stormwater Management Manual for Western Washington, released in 2019.



ECOLOGY TMDL IMPLEMENTATION PLANS

TMDL cleanup action is required for water bodies that have been identified as impaired on Ecology's Section 303(d) list due to poor water quality.



Photo Credit John Marshall

ACTION AGENDA FOR THE PUGET SOUND

The Puget Sound Partnership (PSP) is the regional organization that the Washington State Legislature established to coordinate and lead the effort to recover the Puget Sound (PSP 2018). The current action agenda implementation plan does not list any specific actions for Lacey at this time.



Photo Credit AP Images

FEDERAL ENDANGERED SPECIES ACT

The Federal Endangered Species Act (ESA) prohibits the take 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.



WASHINGTON STATE GROWTH MANAGEMENT ACT

The GMA requires the City to inventory and protect environmentally critical areas (such as steep slopes, wetlands, and streams) (Chapter 36.70A of the Revised Code of Washington). The GMA also requires the City to develop comprehensive plans in order to ensure environmentally responsible and economically sustainable development, including planning for stormwater-related capital facilities.



LACEY MUNICIPAL CODE

Several sections of the Lacey Municipal Code (LMC), including LMC 14.27 – Stormwater Management, govern aspects of stormwater management on new development and redevelopment project sites, as well as inspection and maintenance requirements for private stormwater facilities.



NPDES PHASE II MUNICIPAL STORMWATER PERMIT

The Phase II Permit (Ecology 2019b) has broad requirements associated with stormwater runoff and requires the City to develop several distinct SWMP components. The first Phase II Permit was issued by Ecology in 2007, reissued in 2012, and again in 2019. The requirements for the City's stormwater program have become more stringent with each new permit issuance. The permit requires that the City's SWMP meet requirements in 11 primary areas:

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

See the [Permit](#) online for a complete list of requirements.



NPDES PHASE II MUNICIPAL STORMWATER PERMIT NEW REQUIREMENTS

The latest Phase II Permit requires the City to take on several new activities between 2020 and 2024 in addition to the many ongoing requirements that carry over from the 2013-2019 Permit. The new activities listed below will have the greatest demand on staff time. Chapter 3 provides more detail on changes that will be needed to keep the City's SWMP in compliance with the evolving Phase II Permit requirements.

PUBLIC EDUCATION AND OUTREACH

Create a behavior change program that targets a local water quality issue using Community-Based Social Marketing (CBSM) by February 2021.



STORMWATER PLANNING

Convene an interdisciplinary team by August 2020.

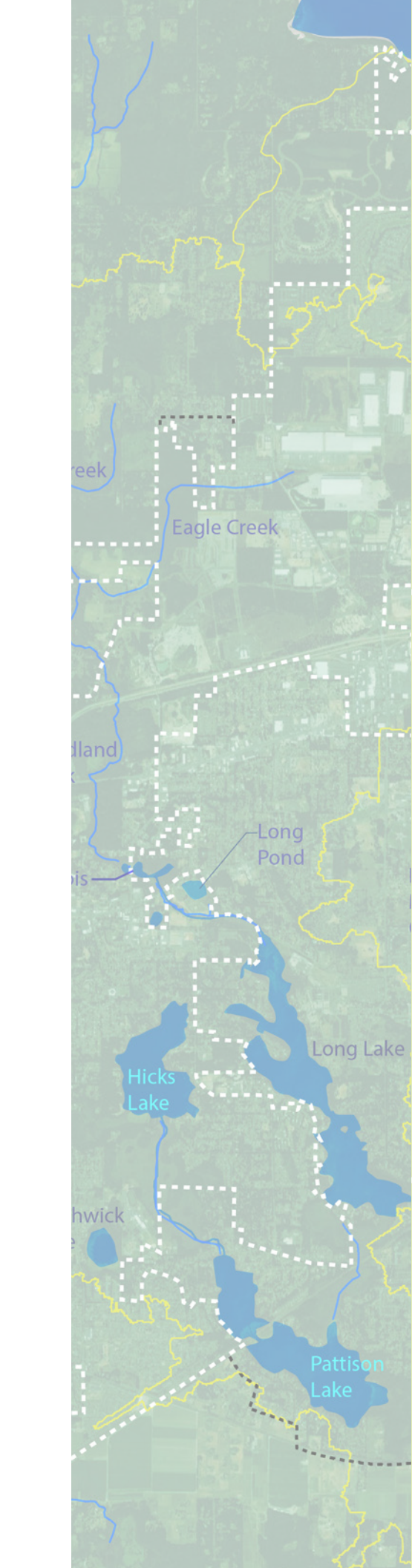
Describe how stormwater management and protection of receiving waters are informing the planning process and influencing policies and strategies.

- Describe past actions in the Annual Report due March 2021
- Describe future actions by January 2023

Continue requiring LID principles and practices and assess and address barriers to LID implementation.

Complete Stormwater Management Action Planning (SMAP).

- Inventory and assess receiving waters by March 2022
- Prioritize watersheds in the city by June 2022
- Plan retrofits and actions for the highest-priority watershed by March 2023.



MUNICIPAL SEPARATE STORM SEWER SYSTEM MAPPING AND DOCUMENTATION

Document size and material of storm system outfalls starting January 2020.

Complete mapping of all connections to privately-owned storm systems by August 2023.

Ensure that all stormwater mapping data is stored electronically with fully described mapping standards by August 2021.

Make storm system mapping available to Ecology, tribes, municipalities, and other permittees upon request.

SOURCE CONTROL PROGRAM FOR EXISTING DEVELOPMENT

Develop and implement a business inspection program with the following components:

- Adopt an ordinance requiring application of source control BMPs for pollutant-generating sources at existing land uses by August 2022.
- Develop an inventory of sites with the potential to generate pollutants by August 2022.
- Implement a business inspection program by January 2023.
- Implement a progressive enforcement policy by January 2023.
- Provide a training program for staff involved in these activities by January 2023.

CONTROLLING RUNOFF FROM NEW DEVELOPMENT, REDEVELOPMENT, AND CONSTRUCTION SITES

- Update local regulations and permitting processes to meet criteria specified in the Permit by June 2022.
- Update Lacey's 2016 Stormwater Design Manual

3 STORMWATER MANAGEMENT PROGRAM EVALUATION AND RECOMMENDATIONS

Chapter 3 of this plan summarizes the key SWMP recommendations for 2019–2024 Phase II Permit requirements. The recommendations were developed based on a gap analysis (comparison of the City’s present SWMP to the 2019–2024 Phase II Permit requirements) and a needs assessment conducted in 2018 and 2019 to evaluate specific components of the City’s SWMP with respect to Phase II Permit requirements. In addition to meeting permit requirements, Section 3.3 identifies climate change adaptation strategies and ways that the existing stormwater program builds climate change resiliency.



MAINTENANCE AT COLLEGE REGIONAL STORM FACILITY

3.1

LEVEL OF SERVICE

The City has identified activities to meet NPDES requirements and make cost-effective improvements in line with SWMP goals.



Recommended activities that address gaps between the existing program and the 2019 - 2024 Phase II Permit requirements are indicated with a blue and green circle and include due dates.

Other recommended activities will improve protection of critical groundwater resources, create a more effective stormwater submittal review process, and enable more proactive maintenance of the growing stormwater system.



PLANTING EVENT FOR MARTIN LUTHER KING JR. DAY, JANUARY 2020

3.2

RECOMMENDATIONS

This section is generally organized by Phase II Permit components and includes summarized recommendations for the City’s 2021 budget. A detailed list of recommendations with associated funding and staffing requirements, support for those requirements, and a proposed implementation schedule is provided in Appendix E.

SURFACE WATER QUALITY IMPROVEMENT: (SEE TABLE E-2)



Develop a Regional Water Quality Facility Program:

This purpose of this program will be to locate, design, and construct stormwater treatment facilities for existing untreated discharges. The first step will be conducting a study to map and prioritize areas without stormwater treatment so that water quality treatment facilities can be designed and constructed at the highest priority locations first.

GROUNDWATER QUALITY PROTECTION: (SEE TABLE E-3)



Develop stormwater infiltration policies.

These policies and regulations will aim to protect groundwater and specifically address UIC wells as part of the 2020 Stormwater Comprehensive Plan (SCP) update and 2022 SDM update.

Allocate 2 weeks of staff time each year to implement the Water Quality and Infiltration Retrofit Program of the CIP and hiring 1 Full Time Equivalent (FTE) staff person to enhance the regional groundwater monitoring program and an additional \$40,000 per year and 2 staff days per month to monitor groundwater in areas where deep UIC wells are proposed or existing.

PUBLIC PARTICIPATION: (SEE TABLE E-5)



Develop the following programs to satisfy Permit requirements in 2020 and 2021:

- Evaluate a behavior change resulting from an education program (July 2020)
- Community-based social marketing (CBSM) (February 2021)



POLLUTANT SOURCE CONTROL: (SEE TABLE E-6)

- Increase staffing by 0.9 additional FTE to improve the commercial and residential facility inspection program and to satisfy permit requirements, starting in 2020:

Add auto accident tracking to the spill response plan (Expedite Implementation).

Map all MS4 outfalls (January 2020) and connections to the MS4 (August 2023).

Implement a source control program for existing development.

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

Increase staffing by 0.25 FTE to enhance the Stormwater Outfall Illicit Discharge screening program



INFRASTRUCTURE OPERATIONS AND MAINTENANCE: (SEE TABLE E-7)

- Contract approximately 200 hours of one-time outside support and add about 3 weeks of staff time each year to update Stormwater Pollution Prevention Plans (SWPPPs) to reflect changes at multiple City-owned facilities and record monitoring and inspections at these facilities.

Increase staffing by 200 hours per year to develop SOPs for facility operations and maintenance and other activities, as well as additional staff to account for the growing needs of the expanding system.



DEVELOPMENT PRACTICES: (SEE TABLE E-8)

- Hire one FTE to develop a framework and annually review new policies for LID principles, contribute to the SDM update in 2022 (included in the CIP), and improve site plan review, site inspections, and plan review checklists.

Contract approximately 430 hours of one-time outside support and add about 0.5 additional FTE to develop and implement policies for self-reporting from contractors and tenant improvements at non-residential sites, enhance inspector training and developer tools, and decrease stormwater submittal review time to 10 business days.



STORMWATER PLANNING, ADMINISTRATION, AND FUNDING: (SEE TABLE E-9)

- Contract approximately 1,100 hours of one-time outside support and staff support to update the Stormwater Comprehensive Plan 2026 and satisfy permit requirements, starting in 2020:
 - Summarize past coordination with long-range planning efforts.
 - Summarize planned coordination with long-range planning efforts.
 - Implement Stormwater Management Action Planning (SMAP) (March 2022 - March 2023).
 - Form an inter-disciplinary team to inform and assist with the development of the SWMP (starting by August 2020).

Contract approximately 80 hours of one-time outside support and add about 20 staff hours per year to update the stormwater rate structure to an impervious-area based structure and more efficiently integrate multiple types of software used by SWMP staff.



STORMWATER POND IN LACEY

3.3

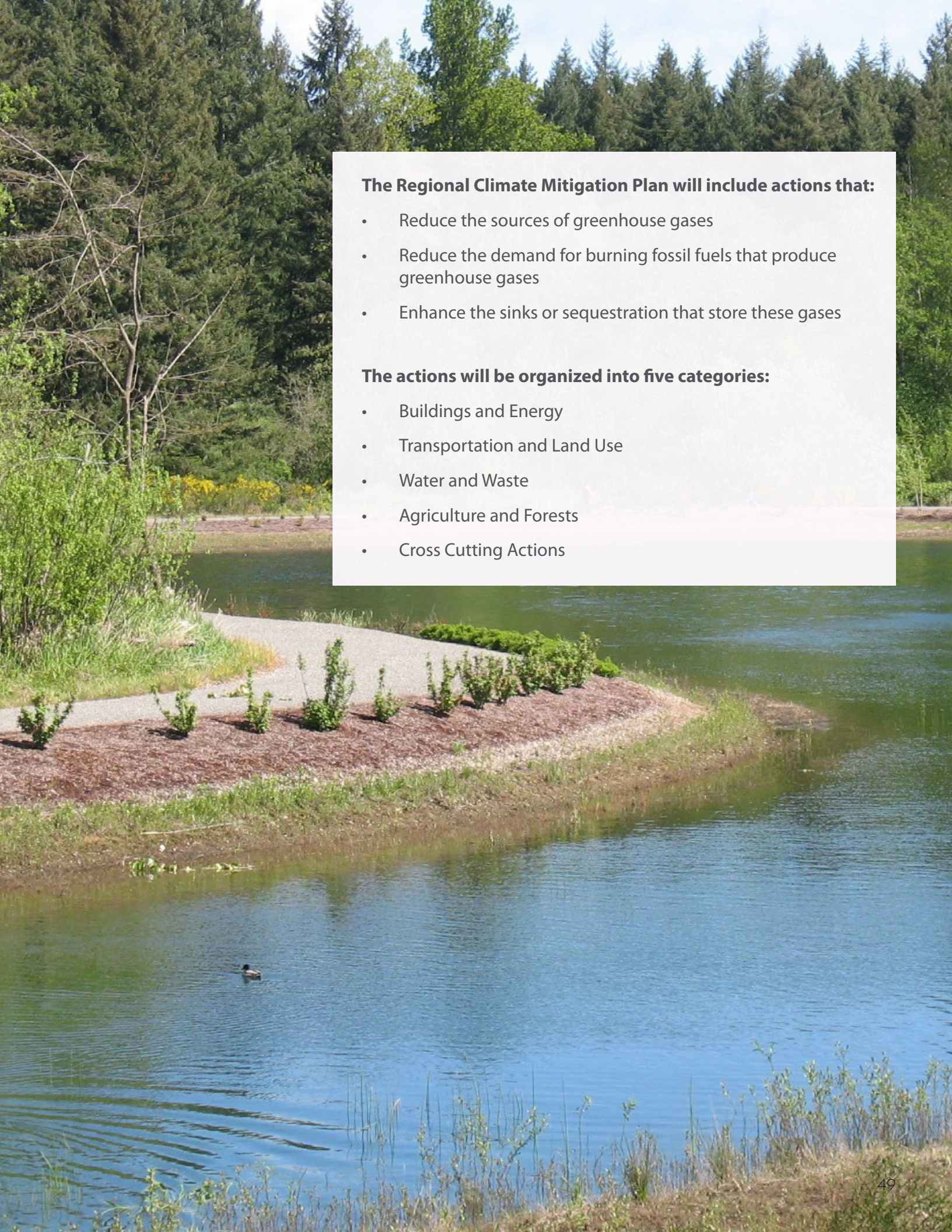
BUILDING CLIMATE CHANGE RESILIENCE THROUGH STORMWATER MANAGEMENT

Climate change is anticipated to have broad impacts on water resources in the City of Lacey (see Section 2.4). This section identifies which stormwater program activities have the greatest influence on building climate change resiliency. Many of these activities are part of the existing stormwater program. Activities that are not part of the program are identified with an asterisk.

STORMWATER MANAGEMENT ACTIVITIES ADDRESSING CLIMATE CHANGE IMPACTS	
CLIMATE CHANGE IMPACT	RESILIENCY-BUILDING ACTIVITY
PROGRAM ELEMENT: SURFACE WATER QUALITY IMPROVEMENT	
<ul style="list-style-type: none"> 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 	Constructing stormwater quality retrofit projects and protecting and restoring riparian areas
PROGRAM ELEMENT: PUBLIC PARTICIPATION	
<ul style="list-style-type: none"> 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 lake watersheds
<ul style="list-style-type: none"> Wetland conversion from perennial to seasonal Possible loss of streamside vegetation Decrease in cooler/oxygenated aquatic habitat 	Public involvement in the stream team and other stewardship programs
PROGRAM ELEMENT: INFRASTRUCTURE OPERATIONS AND MAINTENANCE	
<ul style="list-style-type: none"> 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

CLIMATE CHANGE IMPACT	RESILIENCY-BUILDING ACTIVITY
PROGRAM ELEMENT: DEVELOPMENT PRACTICES	
<ul style="list-style-type: none"> • 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 	<p>Continuing to require flow control on redevelopment projects and prioritizing infiltrating stormwater facilities; LID was the preferred approach.</p>
PROGRAM ELEMENT: STORMWATER PLANNING, ADMINISTRATION, AND FUNDING	
<ul style="list-style-type: none"> • Lower dissolved oxygen in receiving waters • Increased algal blooms in receiving waters 	<p>Reducing the amount of nutrients in stormwater through public education or regulations aimed at decreasing fertilizer use, particularly in lake watersheds.</p>
<ul style="list-style-type: none"> • 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 	<p>Purchasing land for conservation purposes may offset loss of streamside vegetation and reduce flooding impacts by acquiring frequently-flooded properties *</p>
<ul style="list-style-type: none"> • Increased forest fire intensity 	<p>Developing a forest management plan with fire management strategies for vegetation in the City by coordinating with the Fire Department *</p>
<ul style="list-style-type: none"> • Increased flood risk from rivers, streams, and stormwater conveyance system 	<p>Revisiting flood reduction policies, design standards for new development, and priorities for retrofit projects</p>

In addition to adaptation measures listed on the prior pages, the City is taking planning actions that will mitigate climate change by reducing emissions and increasing sequestration of greenhouse gases. The Lacey City Council signed an interlocal agreement with Thurston County, Olympia, and Tumwater in April 2018 to complete Phase 1 of a Regional Climate Mitigation Plan. Phase 1 focused on assessing existing policies and targets of each jurisdiction for gaps and consistencies, recommending a regional emissions target, identifying each jurisdiction's implemented mitigation actions to date, and recommending a regional emissions reduction target. In addition, Phase 1 produced a recommended scope of work for Phase 2, with the ultimate deliverable being a Regional Climate Mitigation Plan and Implementation Strategy. The goal is to avoid significant human disruptions to the climate system to stabilize greenhouse gas levels in a timeframe sufficient to allow ecosystems to adapt naturally to climate change.

A scenic view of a lake with a forested background and a white text box overlay. The lake is in the foreground, with a small duck swimming. The background is a dense forest of evergreen trees. The text box is white with a light blue border and contains text about climate mitigation actions.

The Regional Climate Mitigation Plan will include actions that:

- Reduce the sources of greenhouse gases
- Reduce the demand for burning fossil fuels that produce greenhouse gases
- Enhance the sinks or sequestration that store these gases

The actions will be organized into five categories:

- Buildings and Energy
- Transportation and Land Use
- Water and Waste
- Agriculture and Forests
- Cross Cutting Actions

4 CAPITAL IMPROVEMENT PROGRAM

This chapter summarizes the stormwater CIP. The purpose of the CIP is to define capital projects that make progress towards the City's long-term goals related to the following elements of the SWMP:



HOGUM BAY POND EXCAVATION



Flood Reduction



Surface Water Quality Improvement (retrofitting)



Ground Water Quality Protection



Public Participation



Habitat Improvement



Development Practices



Infrastructure Operations and Maintenance



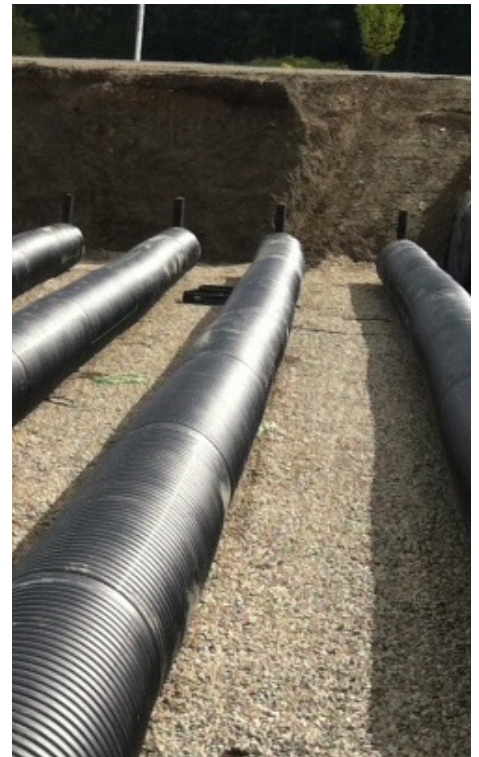
Stormwater Planning, Administration, and Funding

The City maintains and regularly updates a list of needed projects. The following section describes the process used to identify problems and develop and prioritize solutions. A map of stormwater CIP projects is included.

4.1

PROBLEM IDENTIFICATION AND SOLUTION DEVELOPMENT

The stormwater CIP from the 2013 SCP (Lacey 2013) was updated using input from City staff on completed projects and new problems. Problems were evaluated using desktop methods and field evaluation to assess site-specific opportunities and constraints. New project concepts were developed using desktop methods and an estimated cost was defined for each project. See Appendix D for more detailed information on CIP project design development.

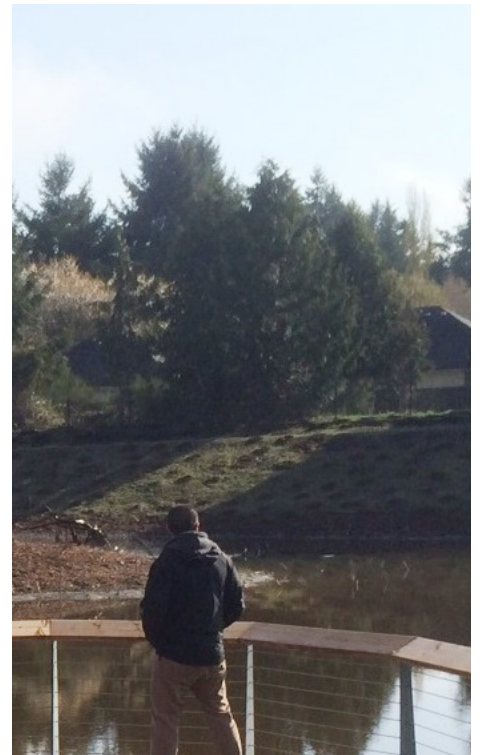


INFILTRATION GALLERY

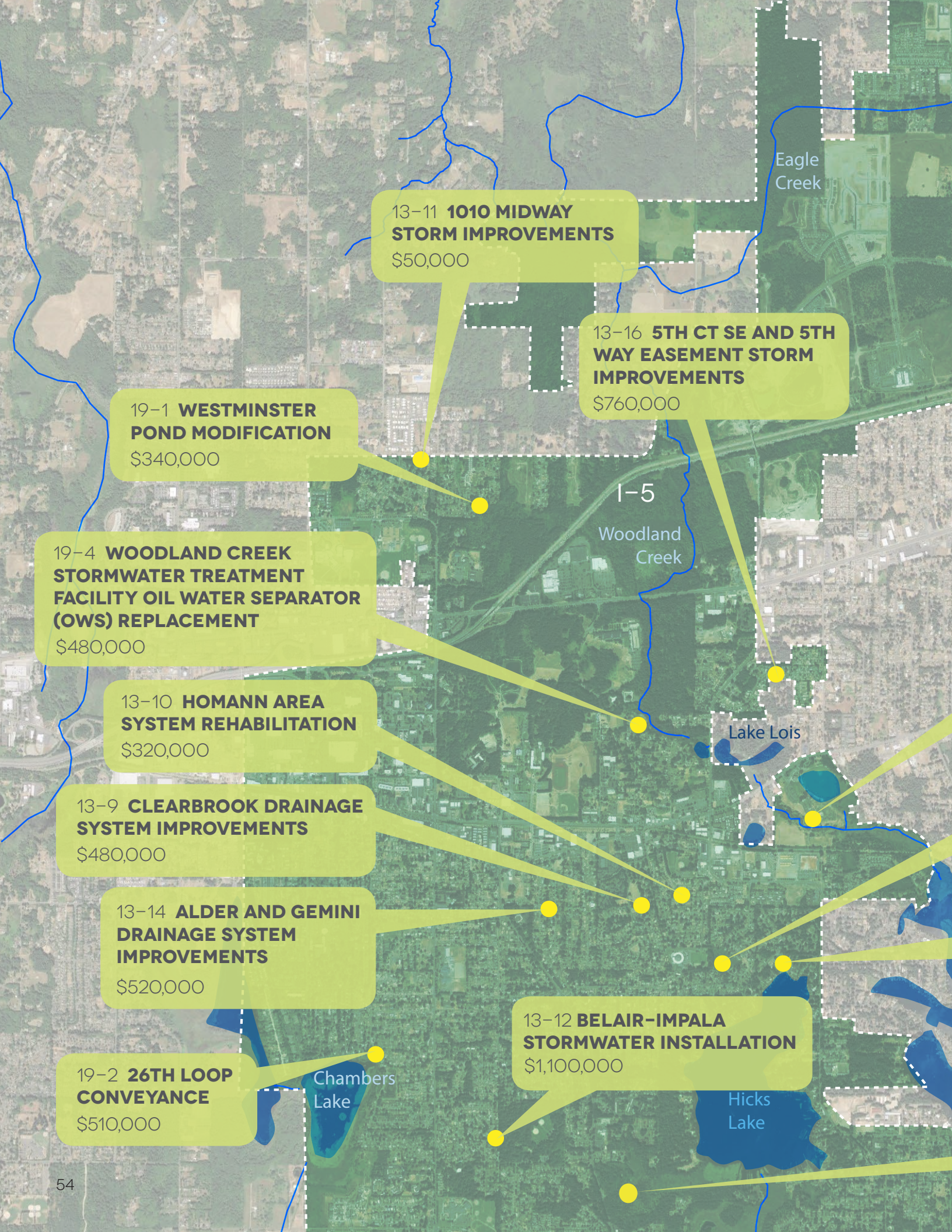
4.2

CIP PROJECT PRIORITIZATION

Stormwater problems and solutions were evaluated using a qualitative process, which considered input from City staff, review of background documents, and field reconnaissance of existing problems to prioritize a subset of CIP projects. This prioritization was then used to develop an implementation schedule that emphasized early completion of the projects providing the greatest benefit. Detailed prioritization results and project summary sheets are provided in Appendix D. The project implementation schedule is included in Chapter 5, Plan Implementation.



CHAMBERS LAKE STORMWATER TREATMENT WETLANDS



13-11 **1010 MIDWAY
STORM IMPROVEMENTS**
\$50,000

13-16 **5TH CT SE AND 5TH
WAY EASEMENT STORM
IMPROVEMENTS**
\$760,000

19-1 **WESTMINSTER
POND MODIFICATION**
\$340,000

19-4 **WOODLAND CREEK
STORMWATER TREATMENT
FACILITY OIL WATER SEPARATOR
(OWS) REPLACEMENT**
\$480,000

13-10 **HOMANN AREA
SYSTEM REHABILITATION**
\$320,000

13-9 **CLEARBROOK DRAINAGE
SYSTEM IMPROVEMENTS**
\$480,000

13-14 **ALDER AND GEMINI
DRAINAGE SYSTEM
IMPROVEMENTS**
\$520,000

13-12 **BELAIR-IMPALA
STORMWATER INSTALLATION**
\$1,100,000

19-2 **26TH LOOP
CONVEYANCE**
\$510,000

Eagle
Creek

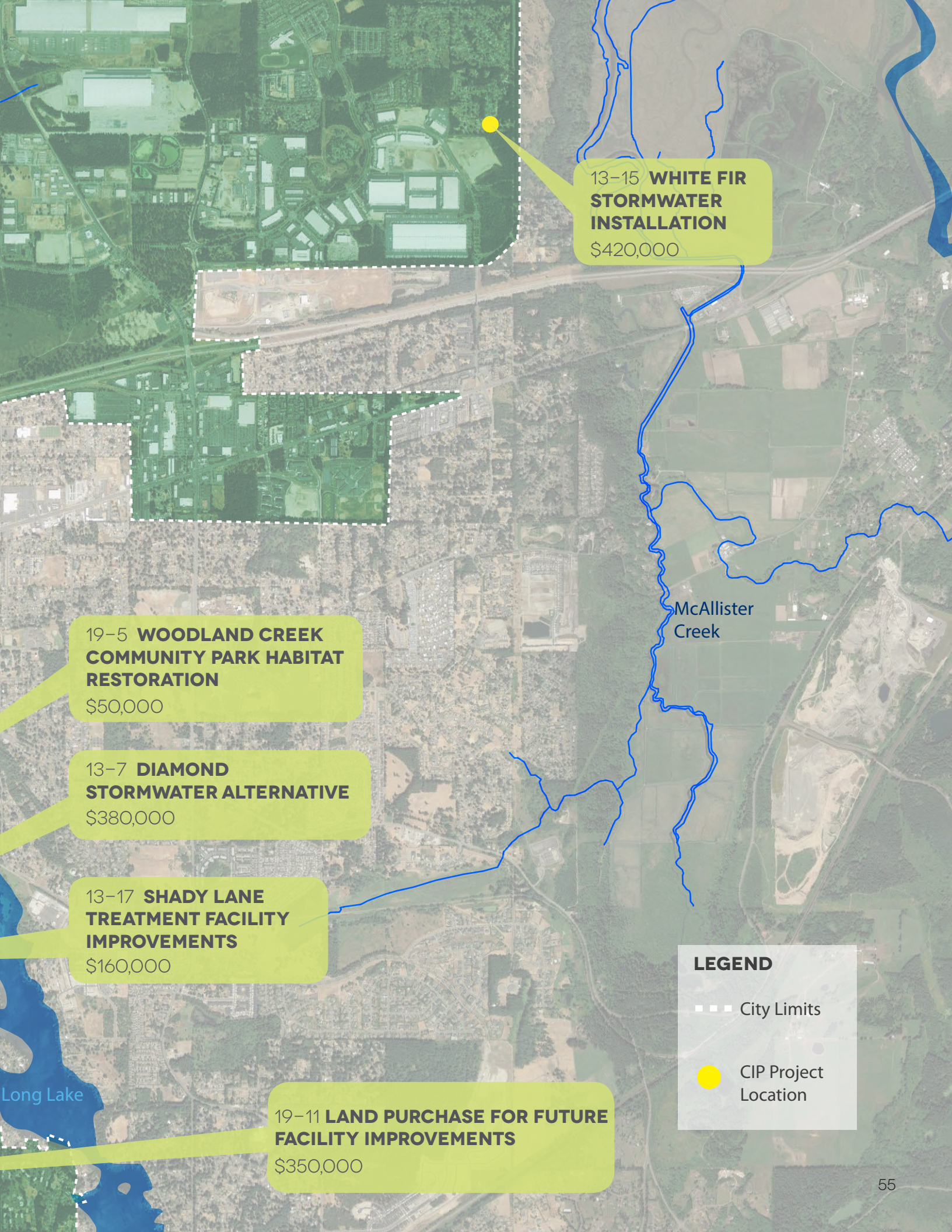
I-5

Woodland
Creek

Lake Lois

Chambers
Lake

Hicks
Lake



**13-15 WHITE FIR
STORMWATER
INSTALLATION**
\$420,000

**19-5 WOODLAND CREEK
COMMUNITY PARK HABITAT
RESTORATION**
\$50,000

**13-7 DIAMOND
STORMWATER ALTERNATIVE**
\$380,000



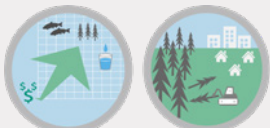
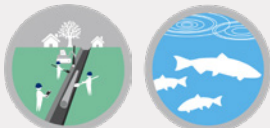




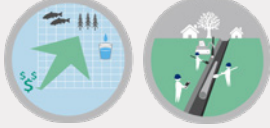


**13-17 SHADY LANE
TREATMENT FACILITY
IMPROVEMENTS**
\$160,000










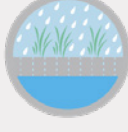

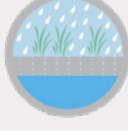



**19-11 LAND PURCHASE FOR FUTURE
FACILITY IMPROVEMENTS**
\$350,000

LEGEND

- City Limits
- CIP Project Location

TABLE 4-1. CIP PROJECT TABLE.

#	ITEM	COST	GOALS ADDRESSED (BY PRIORITY)
19-1	Westminster Pond Modification	\$340,000	
19-2	26th Loop Conveyance	\$510,000	
19-3*	Stormwater Design Manual Update (Mandated by NPDES Permit)	\$180,000	
19-4	Woodland Creek Stormwater Treatment Facility Oil Water Separator Replacement	\$480,000	
19-5	Woodland Creek Community Park Habitat Restoration	\$50,000	
19-6*	Stormwater Management Action Planning (Mandated by NPDES Permit)	\$100,000	
19-7*	Regional Water Quality Facility Program	\$200,000	
19-8*	Infiltration Retrofit Program	\$200,000	
19-9*	Miscellaneous Storm System Improvements	\$900,000	
19-10*	Stormwater Comprehensive Plan Update	\$250,000	
19-11	Land Purchase for Future Facility Improvements	\$350,000	

#	ITEM	COST	GOALS ADDRESSED (BY PRIORITY)
13-7	Diamond Stormwater Alternative	\$380,000	
13-9	Clearbrook Drainage System Improvements	\$480,000	  
13-10	Homann Area System Rehabilitation (Analysis/Design)	\$320,000	 
13-11	1010 Midway Storm Improvements	\$50,000	
13-12	Belair-Impala Stormwater Installation	\$1,100,000	
13-14	Alder and Gemini Drainage System Improvements	\$520,000	 
13-15	White Fir Stormwater Installation	\$420,000	 
13-16	5th Ct SE and 5th Way Easement Storm Improvements	\$760,000	
13-17	Shady Lane Treatment Facility Improvements	\$160,000	 

ICON KEY

-  PUBLIC PARTICIPATION
-  INFRASTRUCTURE OPERATIONS AND MAINTENANCE
-  SURFACE WATER QUALITY IMPROVEMENT (RETROFITTING)
-  STORMWATER PLANNING, ADMINISTRATION, AND FUNDING
-  DEVELOPMENT PRACTICES
-  GROUNDWATER QUALITY PROTECTION
-  HABITAT IMPROVEMENT
-  FLOOD REDUCTION

Notes.
 * = Projects are not location-specific and therefore not shown on the map.
 19-x = New CIP Projects for 2019 SCP.
 13-x ("Carryover" status) = Unaddressed Projects from 2013 CIP List.



5 PLAN IMPLEMENTATION

This chapter presents detailed information on implementing the recommended stormwater program activities presented in Chapter 3 and the capital projects described in Chapter 4. The major components of plan implementation include staffing needs, additional resource needs, completion of CIP projects that address existing stormwater issues, interdepartmental collaboration, interagency collaboration, and utility finances.










CIP PROJECT MANAGEMENT COLLABORATION

5.1

STORMWATER MANAGEMENT PROGRAM

ADDRESSING STAFFING NEEDS

Under the current level of staffing, City stormwater management personnel are able to address stormwater problems that arise on a daily basis and troubleshoot specific issues that arise with development project reviews, but they are not fully able to perform activities that would enable continual improvement of the City's stormwater system. Current staffing levels will not be adequate to meet the requirements of the 2019–2024 Phase II Permit and defined SWMP goals during future years. The activities listed in the table opposite will require additional staffing shown on page 62. Refer to Appendix E for a detailed estimate of staffing needs.

ACTIVITIES THAT WILL REQUIRE ADDITIONAL STAFF TIME	
 <p>Development Practices</p>	<p>Review new policies for LID principles</p> <p>Update the SDM</p> <p>Improve site plan review and site inspections</p> <p>Develop policies for self-reporting from contractors and tenant improvements</p>
 <p>Pollution Source Control</p>	<p>Improve the commercial and residential facility inspection program</p> <p>Map all MS4 outfalls (due January 2020) and connections (due August 2023) to the MS4</p> <p>Implement the Source Control Program for existing Development to begin by January 2023</p> <p>Enhance the Stormwater Outfall Illicit Discharge Screening Program</p>
 <p>Infrastructure Operations and Maintenance</p>	<p>Update SWPPPs</p> <p>Develop SOPs for facility operations and maintenance and other activities</p> <p>Expand the O&M program to account for the growing needs of the program</p>
 <p>Groundwater Quality Protection</p>	<p>Develop stormwater infiltration policies</p> <p>Implement the Enhanced Regional Groundwater Monitoring Program</p> <p>Monitor groundwater in areas where UICs are proposed or existing</p>
 <p>Surface Water Quality Improvement (retrofitting)</p>	<p>Implement the Regional Water Quality Facility Program</p>
 <p>Public Participation</p>	<p>Evaluate behavior change resulting from an education program</p> <p>Conduct CBSM by February 2021</p>
 <p>Stormwater Planning, Administration, and Funding</p>	<p>Summarize past and planned coordination with long-range planning efforts by January 2023</p> <p>Implement SMAP starting in March 2022</p> <p>Form an inter-disciplinary team to inform and assist with the development of the SWMP</p> <p>Update the stormwater rate structure</p> <p>Integrate multiple types of software used by SWMP staff</p>

In addition to the staffing requirements discussed in Chapter 3, the City will need staff to manage the construction management and project management aspects of proposed CIP projects. These costs are included in Appendix D. Additional staffing needs for the CIP will not be determined until the Water Utility has developed their CIP implementation schedule.

Given this list of new activities that staff will have to take on during the planning period (see page 61), the City's stormwater program would benefit from the following additional staff positions:

[A] 2021

- Hire 1 full-time Engineering Technician III to support private facility inspections, illicit discharge response, and site plan review while resolving field issues and assisting with new permit requirements
- Replace one of the half-time O&M staff with a full-time Journeyman to account for growing O&M needs of the City's stormwater system
- Hire one full-time hydrogeologist to implement the Groundwater Monitoring Program, the UIC monitoring program, and the Regional Water Quality Facility Program. Funding for this position will be shared with the Water Utility.

[B] 2022

- Hire 1 full-time Stormwater Planner to implement the source control program for existing development and support coordinating and planning city-wide permit-compliance activities and regional collaboration.

[C] 2023

- Hire 1 half-time journeyman to support the growing O&M needs of the City's stormwater system

■ ANTICIPATED ADDITIONAL STAFFING NEED FOR RECOMMENDED ACTIVITIES

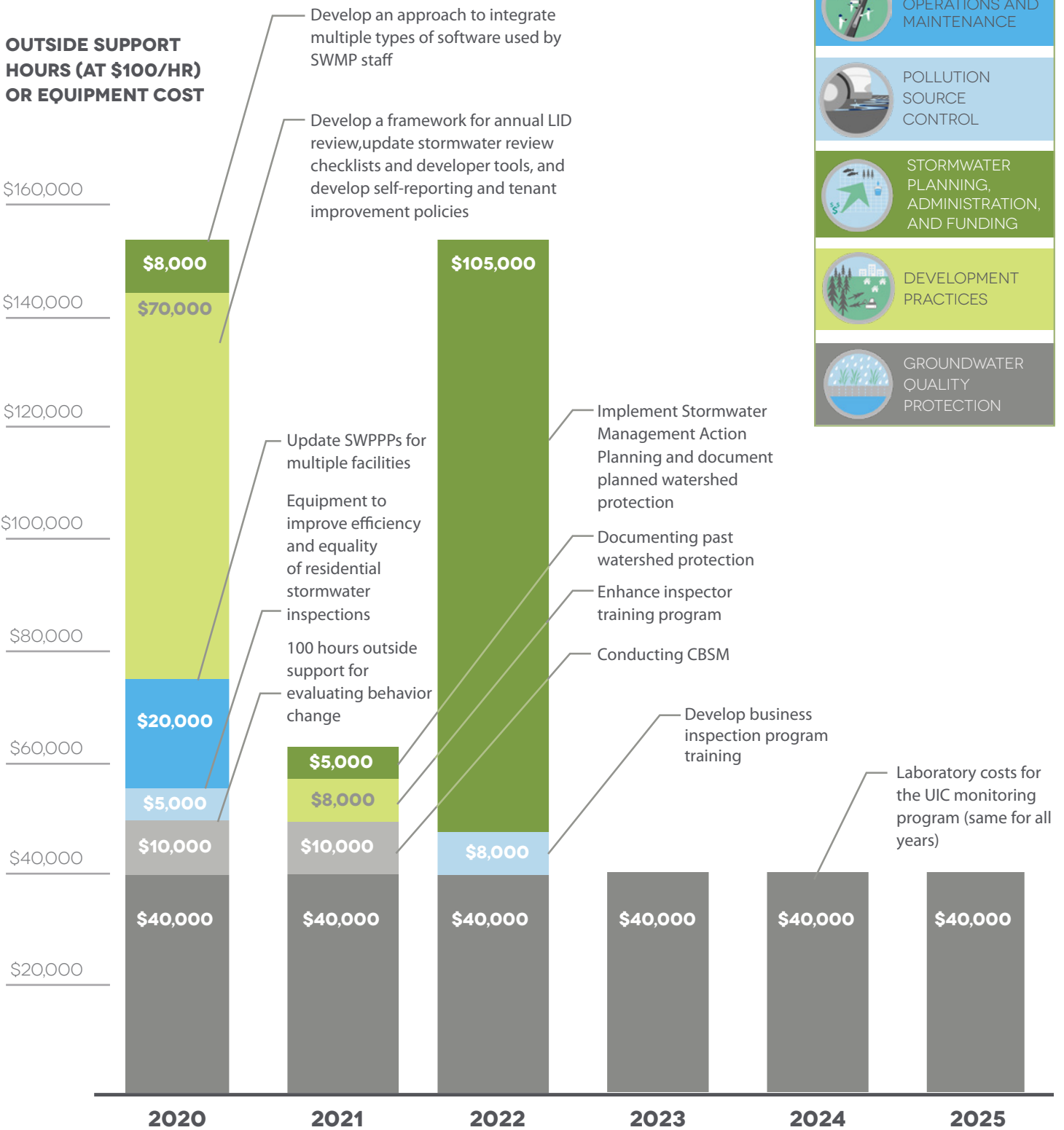
■ PROPOSED STAFFING STRATEGY

FULL-TIME EQUIVALENT STAFF



OUTSIDE SUPPORT

Refer to Chapter 3 for more details on these recommendations.



5.2

CAPITAL IMPROVEMENT PROGRAM

TABLE 5-1. CAPITAL IMPROVEMENT PROGRAM IMPLEMENTATION SCHEDULE.

#	PROJECT NAME	2020	2021	2022	2023	2024	2025	OUT YEARS**
19-1	Westminster Pond Modification			\$60,000	\$280,000			
19-2	26th Loop Conveyance				\$100,000	\$410,000		
19-3	Stormwater Design Manual Update (Mandated by NPDES Permit)	\$50,000	\$60,000	\$70,000				
19-4	Woodland Creek Stormwater Treatment Facility Oil-Water Separator Replacement		\$50,000	\$430,000				
19-5	Woodland Creek Community Park Habitat Restoration		\$50,000					
19-6	Stormwater Management Action Planning (Mandated by NPDES Permit)			\$100,000				
19-7	Regional Water Quality Facility Program				\$100,000	\$100,000		
19-8	Infiltration Retrofit Program					\$100,000	\$100,000	
19-9	Miscellaneous Storm System Improvements	\$150,000	\$150,000	\$150,000	\$150,000	\$150,000	\$150,000	
19-10	Stormwater Comprehensive Plan Update					\$80,000	\$170,000	
19-11	Land Purchase for Future Facility Improvements		\$350,000					
CARRYOVER CAPITAL PROJECTS FROM 2013 CIP								
13-7	Diamond Stormwater Alternative						\$80,000	\$300,000
13-9	Clearbrook Drainage System Improvements						\$80,000	\$400,000
13-10	Homann Area System Rehabilitation (analysis/design)					\$120,000	\$200,000	
13-11	1010 Midway Storm Improvements							\$50,000
13-12	Belair-Impala Stormwater Installation	\$100,000	\$1,000,000					
13-14	Alder and Gemini Drainage System Improvements					\$70,000	\$450,000	
13-15	White Fir Stormwater Installation							\$420,000
13-16	5th Ct SE and 5th Way Easement Storm Improvements							\$760,000
13-17	Shady Lane Treatment Facility Improvements					\$160,000		
TOTAL		\$300,000	\$1,660,000	\$810,000	\$630,000	\$1,190,000	\$1,230,000	\$1,930,000

**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

19-x = New CIP Projects for 2019 SCP. 13-x ("Carryover" status) = Unaddressed Projects from 2013 CIP List; cost estimate from 2013 projected at +4% per annum. All costs in 2019 dollars.



CIP projects were developed for known problems that include issues like neighborhood-scale flooding, poor water quality, failing infrastructure, and projects that address NPDES permit requirements.

The City will implement stormwater CIP projects in the order shown in Table 5-1. In addition to implementation of the CIP projects listed in Table 5-1, the City should take the following steps to ensure an effective stormwater CIP:

- Annually meet with all Public Works Operations staff to evaluate the risk of known problems and identify new problems
- Annually review the data contained in CIP and Non-CIP related tables contained in this plan and add any new information that is collected regarding each problem and solution
- Annually add new potential projects to the CIP and Non-CIP project lists during the development of the SWMP Annual Report in March
- Maintain a stormwater problem and CIP project file with all information that will be useful for updating the CIP
- Review the CIP chapter when the City's Stormwater Comprehensive Plan is updated

There are some known issues that are not being addressed by the CIP due to lack of public support, political barriers, or coordination with other projects with uncertain timing; however, these problems are expected to persist and potentially worsen during the planning period. As the City revisits its CIP priorities, several such issues should be considered:

- Nuisance flooding caused by ditches that have been filled in by adjacent property owners
- Corrosion of the Hicks-Pattison culvert just outside the city limits
- Corrosion of pipes along Martin Way and untreated discharge to Woodland Creek near the city limits
- Future need to upsize the College Regional Storm Facility outfall pipe under I-5

5.3

INTERDEPARTMENTAL COLLABORATION

The stormwater management program is led by stormwater staff in the Water Resources Division of the Public Works Department. The Water Resources Division works closely with other City departments and divisions, including the Public Works Operations Division, Parks and Recreation, and Community and Economic Development. The list below indicates Departments in the City which work closely with Water Resources on various program elements.



Flood Reduction

- ENGINEERING DIVISION (PUBLIC WORKS DEPARTMENT)



Habitat Improvement

- PARKS MAINTENANCE DIVISION (PUBLIC WORKS DEPARTMENT)



Public Participation

- PUBLIC AFFAIRS DEPARTMENT
- PARKS MAINTENANCE DIVISION (PUBLIC WORKS DEPARTMENT)



Development Practices

- ENGINEERING DIVISION (PUBLIC WORKS DEPARTMENT)
- COMMUNITY AND ECONOMIC DEVELOPMENT DEPARTMENT



Infrastructure Operations and Maintenance

- PARKS MAINTENANCE DIVISION (PUBLIC WORKS DEPARTMENT)
- OPERATIONS DIVISION (PUBLIC WORKS DEPARTMENT)



Stormwater Planning, Administration, and Funding

- COMMUNITY AND ECONOMIC DEVELOPMENT DEPARTMENT
- FINANCE DEPARTMENT
- PUBLIC WORKS DEPARTMENT

5.4

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 Lacey's stormwater program elements.



Flood Reduction

- THE FUTURE HICKS LAKE TO PATTISON LAKE CONVEYANCE REPLACEMENT PROJECT AND THE FUTURE MARTIN WAY PIPE REPLACEMENT PROJECT WILL REQUIRE COORDINATION WITH THURSTON COUNTY



Surface Water Quality Improvement (Retrofitting)

- THE FUTURE COLLEGE REGIONAL STORM FACILITY OUTFLOW SYSTEM PROJECT WILL REQUIRE COORDINATION WITH WASHINGTON STATE DEPARTMENT OF TRANSPORTATION (WSDOT)
- THE FUTURE WOODLAND CREEK/MARTIN WAY WQ RETROFIT MAY REQUIRE COORDINATION WITH THURSTON COUNTY



Ground Water Quality Protection

- THURSTON COUNTY PUBLIC HEALTH AND SOCIAL SERVICES DEPARTMENT
- THURSTON REGIONAL PLANNING COUNCIL



Public Participation

- REGIONAL ENVIRONMENTAL EDUCATION PROGRAM (REEP)
- NORTH THURSTON PUBLIC SCHOOLS



Stormwater Planning, Administration, and Funding

- HENDERSON INLET TMDL – COORDINATION WITH THE CITY OF OLYMPIA
- SMAP – POSSIBLE COORDINATION WITH NEIGHBORING JURISDICTIONS INCLUDING THE CITY OF TUMWATER, THE CITY OF OLYMPIA, AND THURSTON COUNTY, THOUGH THIS IS NOT REQUIRED

5.5

STORMWATER UTILITY FINANCES

The activities and projects listed in this plan are funded by revenue from the stormwater utility. A financial analysis was conducted to define utility rate adjustments that would be necessary to fully fund the capital project needs, operating and maintenance expenditures, fiscal policies, and staffing increases identified in the recommended level of service (See Appendix F). The original analysis was conducted before the corona virus disease 2019 (COVID-19) pandemic and is presented in Appendix F-1. To account for the expected financial hardships created by the COVID-19 pandemic, the City also considered options for funding the utility without increasing rates in 2021. The alternative scenario analysis is presented in Appendix F-2. Like the original analysis, the alternative scenario meets minimum operating and capital reserve targets through the planning period and results in a similar monthly rate at the end of the planning period (2025). The annual rate increases for the alternative scenario (Appendix F-2) are slightly higher from 2022 through 2025, relative to the rate increases originally recommended (Appendix F-1), to compensate for not increasing stormwater utility rates in 2021. The financial analysis and rate plans presented in Appendix F demonstrate options that are available to fund the CIP. The final rate plan will be determined and approved by the City Council. The approval process for setting rates requires a Revenue Hearing which is typically held by the City Council in November.



DRAINAGE SWALE AND FALL COLOR



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