City of Lakewood

Stormwater Management Action Plan: Ponce de Leon Creek

February 2023

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Ponce de Leon Mid-Creek

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Introduction

The City of Lakewood owns and operates a stormwater conveyance system that discharges collected stormwater into bodies of surface water under the terms of the NPDES Western Washington Phase II Municipal Stormwater Permit. The current iteration of the NPDES permit, issued August 19, 2019, stipulates in special condition S5.C.1.d that each permittee must complete a Stormwater Management Action Plan (SMAP). The SMAP is a planning process that will result in the identification of specific actions to address water quality concerns in a high-priority watershed within the permittee's jurisdiction. The SMAP is a three-part requirement. The schedule for the three parts is as follows:

i.	Receiving Water Conditions Assessment	March 31, 2022
ii.	Receiving Water Prioritization	June 30, 2022
iii.	Stormwater Management Action Plan	March 31, 2023

The *Stormwater Management Action Plan* requirement for the City of Lakewood builds on the work of Receiving Water Prioritization. Phase II S5.C.1.d.iii Permit requirement: No later than March 31, 2023, Permittees shall develop a SMAP for at least one high priority catchment area from (ii) above. This document expands on work within a single basin for an identified receiving water for SMAP planning.

The Stormwater Management Action Plan contains six sections:

Section 1: A description of the stormwater facility retrofits needed for the area, including the BMP types and preferred locations.

Section 2: Land management/development strategies identified for water quality management. Stormwater Management Action Planning Guidance Page 12 Publication No. 19-10-010

Section 3: Targeted, enhanced, or customized implementation of stormwater management actions related to permit sections within S5, including:

- Illicit Discharge Detection and Elimination(IDDE) field screening,
- Prioritization of Source Control inspections,
- O&M inspections or enhanced maintenance, or
- Public Education and Outreach behavior change programs

Identified actions shall support other specifically identified stormwater management strategies and actions for the basin overall, or for the catchment area in particular.

Section 4: Identification of needed changes to local long-range plans to address SMAP priorities, if applicable.

Section 5: A proposed implementation schedule and budget sources for:

- Short-term actions (i.e., actions to be accomplished within six years), and
- Long-term actions (i.e., actions to be accomplished within seven to 20 years).

Section 6: A process and schedule to provide future assessment and feedback to improve the planning process and implementation of procedures or projects.

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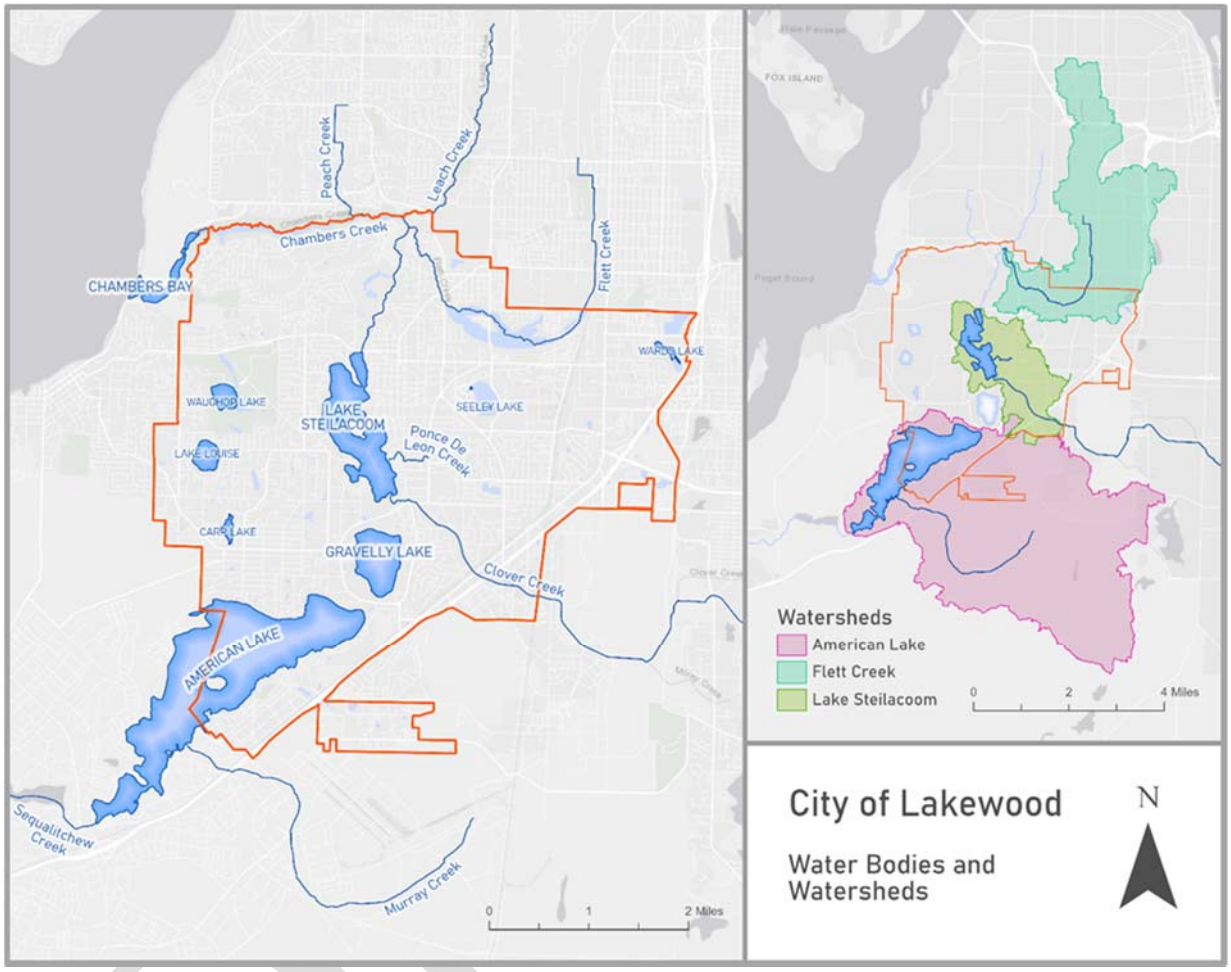
Catchment Area Selection

The City of Lakewood water bodies are identified in the following figure that was developed as part of the stepwise SMAP implementation related to the Phase II NPDES Permit.



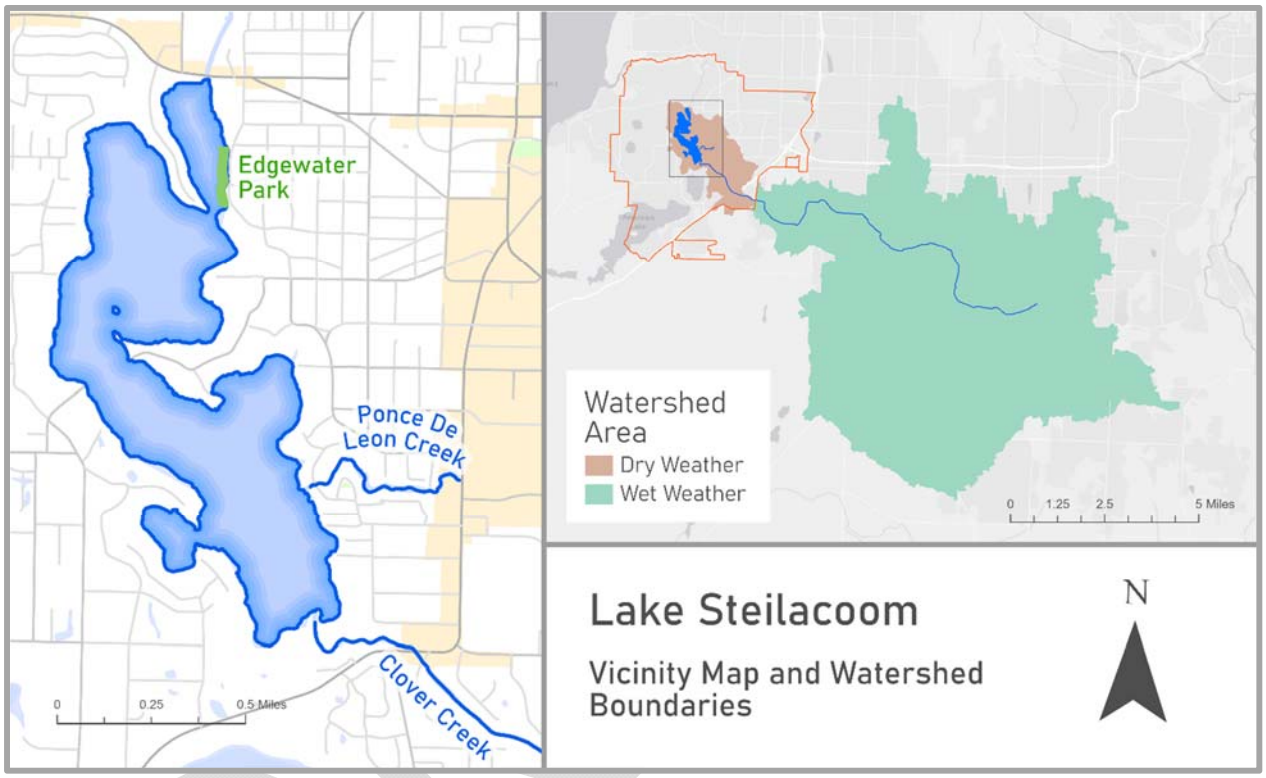
The SMAP scoring process resulted in the following scores for the three candidate receiving waters:

Receiving Water	Importance	Opportunity
American Lake	High	Low
Flett Creek	Medium	Medium
Lake Steilacoom	**High**	**High**

Based on these scores, Lake Steilacoom is the most suitable candidate, City staff have selected Lake Steilacoom to proceed with SMAP planning.

Lake Steilacoom

Lake Steilacoom is a 310-acre lake located entirely within city limits. Its 6.3 miles of shoreline are mainly residentially developed. It is fed by two streams, Clover Creek and Ponce de Leon Creek. Although Clover Creek has a substantial watershed outside of Lakewood, upstream stretches of the creek dry up annually during the summer months, at which time Ponce de Leon Creek is the primary input of water to the lake. Because summer is typically associated with water quality issues such as toxic algae blooms, the dry weather scenario (as shown in figure below) is assumed in the calculations of watershed areas.



Importance = High

Size and Visibility	*Salmon Habitat*	*Recreation*	*Public Access*
Large lake; entirely within City limits; close to downtown; important to history of Lakewood	Lake and its two feeder streams are used for salmonid habitat	Used for swimming, fishing, and boating	Public park with boat launch; fishing access from Interlaaken Drive bridge

Opportunity = High

Portion of Watershed in Lakewood	*Opportunity for Stormwater Retrofits*	*Opportunity for Riparian Improvements or Protection*	*Opportunity for Education and Outreach*
100%	Untreated stormwater discharges from downtown commercial area to Ponce de Leon Creek	Clover Creek riparian corridor could be improved/restored	Residents of lake are concerned with water quality and may be receptive to outreach; downtown area in watershed contains many businesses that education efforts could target

For the SMAP process it is recommended that the catchment size be between 400-600 acres. Lake Steilacoom's watershed, at 3.7 square miles (approximately 2,400 acres), is well outside of the recommended range. Although the guidance document specifies that a jurisdiction may choose a catchment of a size that is outside of the recommended range if it is appropriate for their planning process, it is possible that the City may wish to conduct SMAP planning for a smaller catchment. For Lakewood, the Ponce de Leon Creek sub-basin is closer to the recommended size at 1.15 square miles (736 acres) and would be a suitable choice as 100% of the creek sub-basin is within the City limits.

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Section 1: Description of the Stormwater Facility Retrofits Needed

Ponce de Leon Creek

Ponce de Leon Creek has not been the subject of extensive monitoring. It has only occasionally been included in Ecology's routing stream monitoring program. However, it is classified as a "water of concern" by Ecology on the grounds that water samples taken in 1997 exceeded water quality standards for temperature and dissolved oxygen. Pierce Conservation District has found in recent years that temperature standards are typically met by a small margin and that dissolved oxygen and pH standards have typically not been met. Pierce Conservation District's sampling station is located at the upstream end of the creek, shortly after it emerges from the ground, so low D.O. levels are to be expected.

Ponce de Leon Creek has also been included in several studies assessing sources of phosphorus in Lake Steilacoom. KCM (1996) and URS (2004) both found that Ponce de Leon Creek contained higher total phosphorus concentrations than Clover Creek and was the primary source of surface water phosphorus loading in Lake Steilacoom. URS found that most of this phosphorus is from groundwater, which accounts for most of the creek's flow and is the sole source of base flow during the dry season.

It is anticipated and planned for that the needs for the Ponce de Leon creek area is a surface water treatment system for the drainage to the south of Main St. SW that flows to Gravelly Lake Drive SW.

Needs for the Area

It is anticipated and planned for that the needs for the Ponce de Leon creek area a surface water treatment for the drainage to the south of Main St. SW. Long-term, as the Towne Center redevelops, additional surface water treatment will be required for roadways and parking lots.

Preferred Locations

The preferred location for a treatment facility is in the Gravelly Lake Drive SW road rights-of-way (ROW) south of Main St. SW. For new development and redevelopment the ideal location for surface water treatment will be road ROWs and parking lots.

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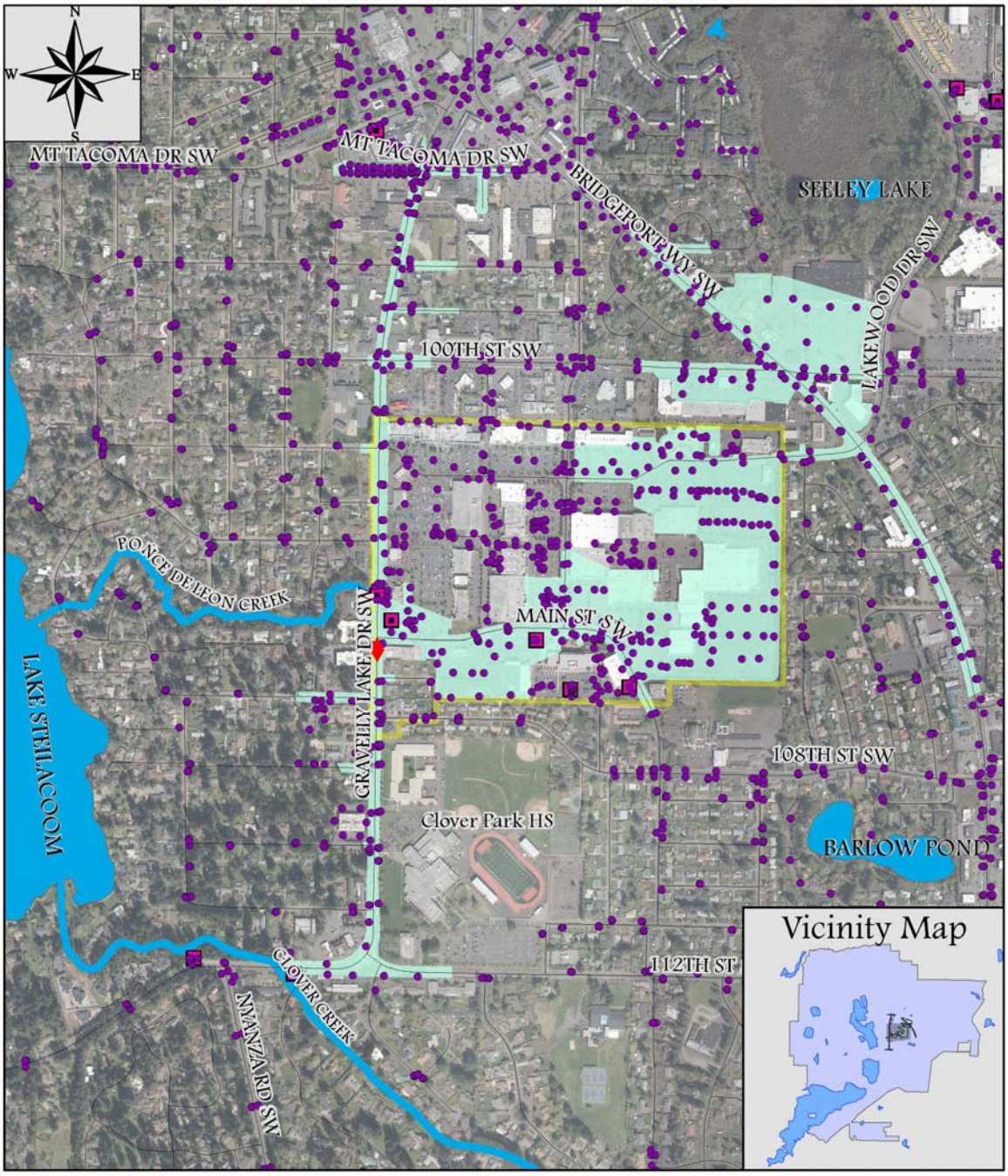
Ponce de Leon and Steilacoom Lake



Legend

- Catch Basin
- Vault
- Proposed Treatment Vault
- Road
- Creek
- Town Center
- Lake
- Downtown Drainage Area

This product was prepared with care by City of Lakewood GIS. City of Lakewood expressly disclaims any liability for any inaccuracies which may yet be present. This is not a survey. Datasets were collected at different accuracy levels by various sources. Data on this map may be shown at scales larger than its original compilation.

Map Date: February 22, 2023

Section 2: Land management/development strategies identified for water quality management

The City has actively evaluated the land use in the City of Lakewood since incorporation in 1996. By City Code, as development and redevelopment occur surface water runoff requires water quality management. This outlined in the City of Lakewood Municipal code section 12.11.010, the purpose as follows:

The purpose of this chapter is to describe requirements for new development and redevelopment to:

A. Reduce flooding, erosion, and sedimentation;

B. Prevent and mitigate habitat loss;

C. Enhance ground water recharge; and

D. Prevent surface and subsurface water pollution through the implementation of comprehensive and thorough permit review and construction inspection. [Ord. 501 § 3, 2009.]

Downtown Subarea Plan

The City developed the downtown subarea plan in 2014 to address the planned redevelopment of Town Center.

https://cityoflakewood.us/downtown-plan/

Project Overview

On October 1, 2018 the Lakewood City Council adopted the Downtown Subarea Plan, Downtown Development Code, and Planned Action Ordinance. The Plan went into effect on November 1, 2018.
Following a 2017 economic analysis of Lakewood's downtown and the local area, the City Council directed the Downtown to be focused on meeting the daily needs of local residents. In terms of retail and services, this is the opportunity to provide:

- Daily goods and services, including groceries, personal care products, restaurants, coffee shops, and bars.
- Professional and healthcare services, including financial services, dental offices, and trend toward retail-based medical providers.

The Plan reflects input from hundreds of Lakewood citizens of all ages and walks of life. It reflects both Lakewood's unique past and also desires to create a Downtown that works for today's and tomorrow's residents. This includes incentivizing new types of housing and services within walking distance of each other. The area in and around the Towne Center is envisioned as a magnet for intensive mixed-use urban development including higher-density office and residential uses.

At the north end of the Plan area, the Colonial Center will serve as the hub of Lakewood's cultural activity. Higher quality, higher density urban redevelopment is expected within the District. This will noticeably increase social, cultural, and commercial activity. Streetscape and other urban design improvements will make this area more accessible and inviting to pedestrians.

The Planned Action Ordinance will also make developing Downtown easier and faster for property owners and developers. It includes the required environmental analysis for the entire area. This means that when an individual application is submitted, the permit review will be streamlined. The Downtown Development Code is user-friendly and allows for creativity while requiring the desired design standards expressed by citizens.

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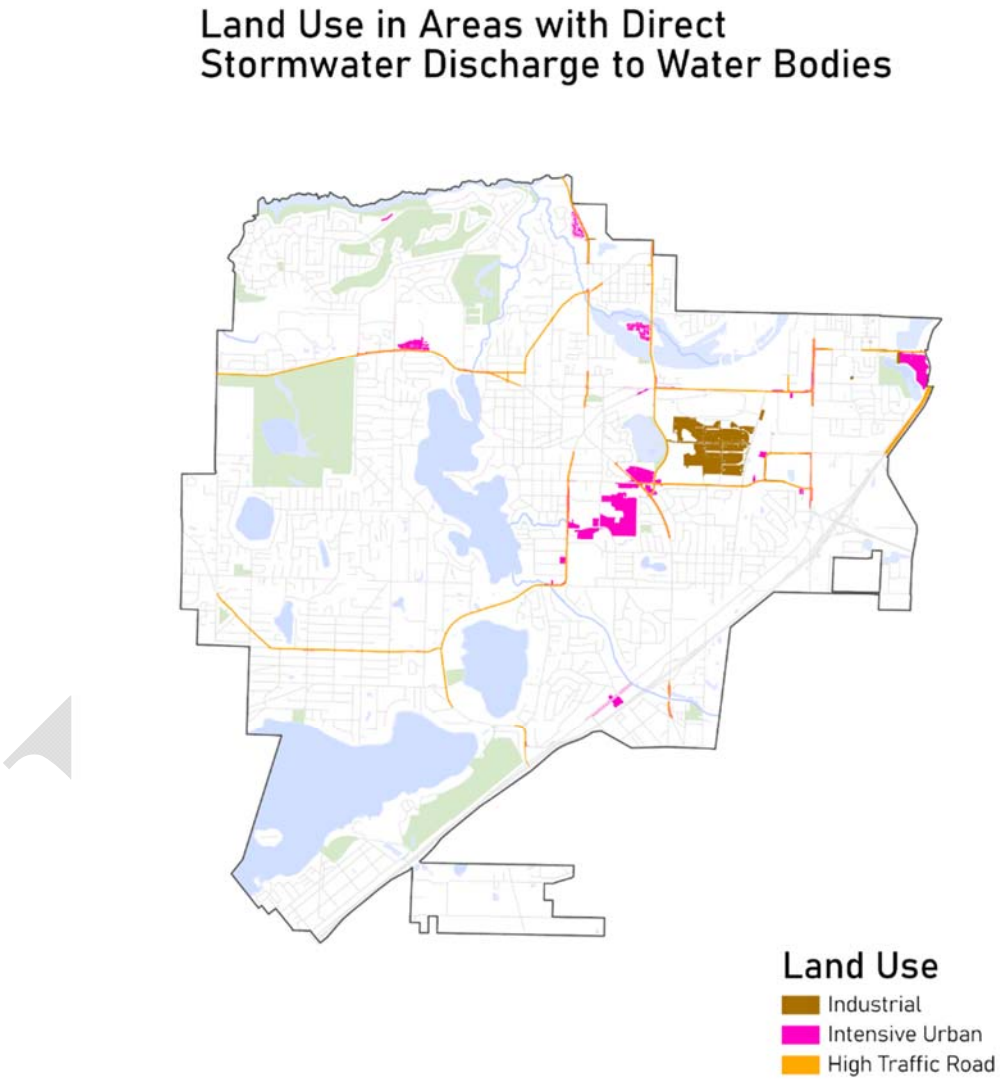
The final Plan anticipates:

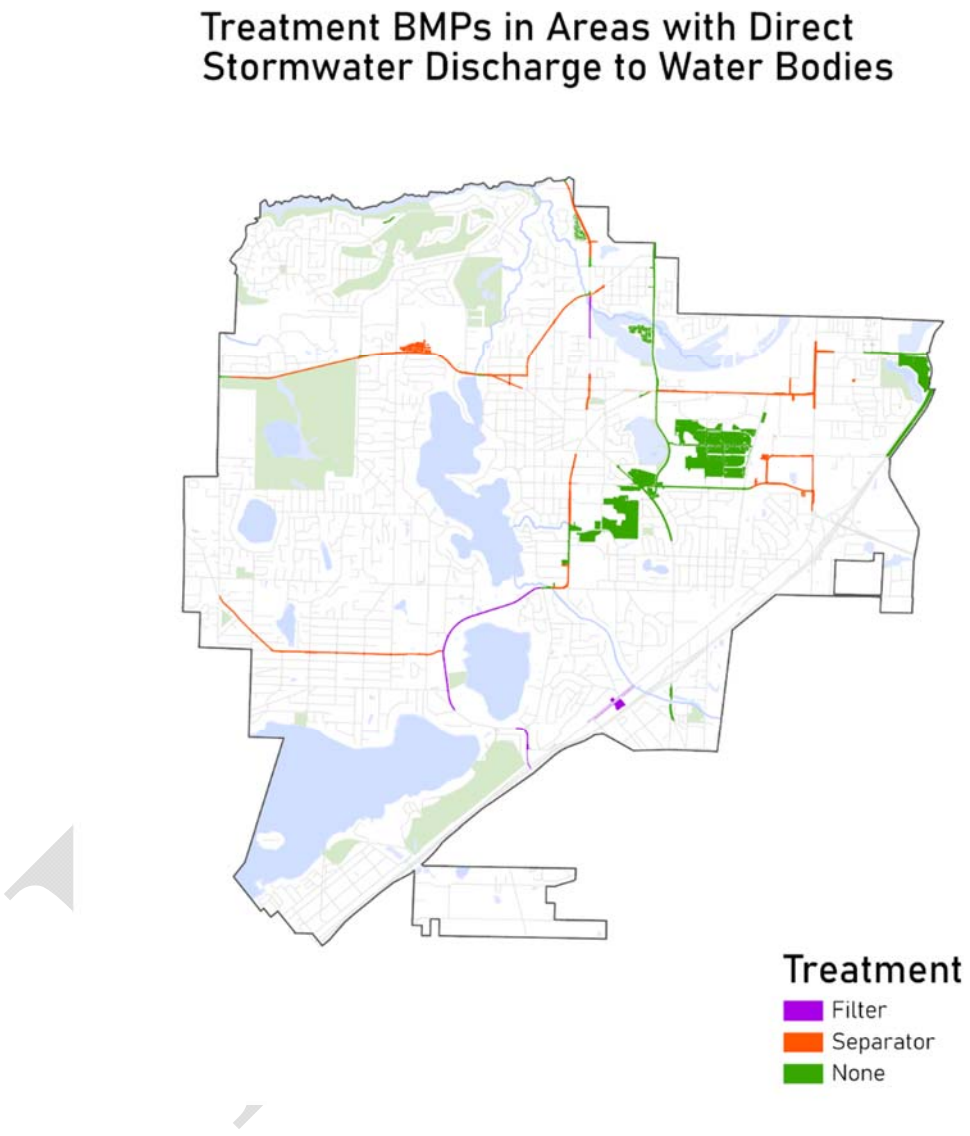
- New civic and linear parks and linear park
- New festival area
- Catalyst sites where growth will be encouraged first over the next 20 years
- Improvements to Gravelly Lake Drive and Bridgeport Way
- Converting Lakewood Towne Center Boulevard into a public street
- Design standards for new buildings and parking that will preserve the Colonial District's character as well as give the subarea a "facelift" over time.

The following figure demonstrates that the downtown subarea is an intensive urban use as well as a high traffic roadway.



Section 3: Targeted Enhancement in Receiving Waters – Ponce de Leon Creek

The City of Lakewood's Downtown Center is made up of primarily retail business and restaurants with some car repair.



Illicit Discharge Detection and Elimination(IDDE) field screening

Local IDDE includes a sanitary sewer system that serves all but a small handful of developed properties within the basin. The City does inspection and outreach to the businesses within the subbasin.

Prioritization of Source Control inspections

In 2023, February through June time line, the City of Lakewood Stormwater Compliance Inspector will be working with the "foodie" businesses located within the Lakewood Towne Center. These sites were chosen due to their proximity to Ponce de Leon creek and our focus to that area. The general outline of inspection area will be as follows: South of 100th, west of Bridgeport Way, north of 108th and east of Gravelly Lake Drive.

The following 35 businesses (but not limited too) will be included in this outreach/inspections:

Moonrise Café	Jersey Mikes	Starbucks (stand-alone)	Carl's Jr.	Chipotle Mexican Grill
MOD Pizza	Panda Express	L & L Hawaiian BBQ	IC Poke	Herfy's
Applebee's	Hops N Drops	Barnes & Noble's coffee	AMC Theater	Starbucks in Target
Red Robin	Safeway deli	Starbucks in Safeway	Safeway	Panera Bread
Five Guys	Long Beach Café	Domino's Pizza	Wing Stop	BBQ Pete's
Yum Yum Teriyaki	Subway	Ram Restaurant	Pappa Murphy's	House of Pho
Rush Bowls	Koto Teriyaki	Firehouse Subs	Emerald City Smoothie	McDonalds

Operations and Maintenance inspections or enhanced maintenance

The City's O&M department does yearly inspections on City owned storm treatment facilities. For the remainder of the surface water infrastructure the City hires an outside vendor for video inspected, catch basin vactoring and jetting of stormwater lines. The City has 50% of the City's catchbasins inspected and cleaned if necessary on a two year cycle, jetting of lines is dependent upon video inspection and observed performance.

In addition, the City has a street sweeping program for both the principal arterials through this basin and the roads bisecting Towne Center.

Public Education and Outreach behavior change programs

During this special "Lakewood Towne Center Foodie" Outreach Inspection event, the following items (but not limited too) will be addressed:

1. Mop water disposal
    a. Internal mopping
    b. External mopping
        i. Frequency
        ii. Chemicals used
2. Hood and vent cleaning
    a. Location
    b. Frequency
    c. Contracted or done in house,
3. Spill response
    a. Do you have a plan
    b. Do you log spills
4. Employee Training
    a. How to manage spills

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    b. Report spills
5. Communal Garbage dumpster etiquette
    a. Closing lids
    b. What gets dumped (liquid/solid)
6. Fluorescent bulbs
7. Chemical storage
8. Understanding of where stormwater goes and that sewer and storm and not connected
9. CB inspection
    a. Public
    b. Private
    c. Cleaning practices
10. Any other questions that the business owner, manager and/or employee may have.

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Section 4: Identification of needed changes to local long-range plans

Long Range Planning Needs

The City is currently looking at the long range planning needs of the transportation system in the down town subarea. A component of every capital road project is an assessment of needed conveyance and treatment. Capital projects are partially funded by the surface water funds to cover the cost of surface water infrastructure. https://cityoflakewood.us/longrange_planning/

The Long-Range Planning Division:

- Provides support to the **Planning Commission** and the **City Council** for decisions or recommendations on various plans, policies, and development regulations;
- Develops and maintains the **Comprehensive Plan**, along with various plans and standards for community development, preservation, and disaster recovery;

  https://cityoflakewood.us/wp-content/uploads/2022/08/0822-LAKEWOODCOMPREHENSIVEPLAN.pdf
- Facilitates the City's participation in regional planning by working with the **Puget Sound Regional Council** (PSRC), the **Pierce County Regional Council** (PCRC), and the Pierce County Growth Management Coordination Committee (GMCC);
- Encourages economic development, environmental protection, affordable housing for all income levels, and efficient transportation, and coordination with other local governments;
- Performs review of potential land annexations;
- Works with the Pierce County Continuum of Care and reviews Pierce County Human Services contracts.

The City of Lakewood Comprehensive Plan guides the City's overall strategy for growth and development over the next 20 years. It sets the goals and policies for items such as land use, economic development, housing, transportation, and the environment.

City's Comprehensive Plan Regarding Stormwater

The City of Lakewood provides stormwater service to the entire city. Figure 7.1 depicts the locations of the City's stormwater systems. The City maintains close working relationships with adjacent stormwater utilities, including the City of Tacoma and Pierce County Public Works and Utilities. These working relationships are essential because stormwater conveyed from portions of Tacoma and portions of unincorporated Pierce County ultimately reaches, and is conveyed through, City-owned facilities. The City will ensure that adequate storm drainage facilities exist to accommodate growth by finding existing deficiencies, regularly updating its stormwater planning, and adopting a set of development standards that require developers to fund and install appropriate storm drainage facilities. Additional information is contained in the background report and Section 3.11 of the EIS.

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City of Lakewood Stormwater Policies

GOAL U-4: Provide efficient, cost-effective, and environmentally sound surface water and flood control facilities to protect existing and future land uses to preserve public safety and protect surface and groundwater quality.

U-4.1: Ensure that adequate storm drain and flood-control facilities are provided and properly maintained to alleviate surface flooding during storm events.

U-4.2: Undertake a stormwater management program that meets or exceeds the standards of the National Pollutant Discharge Elimination System (NPDES).

U-4.3: Provide for maintenance and upgrade of existing public storm drainage systems and flood control facilities and for construction of expanded public storm drain systems and flood control facilities to protect existing and future development.

U-4.4: Implement flood-control improvements that maintain the integrity of significant riparian and other environmental habitats.

U-4.5: Develop public works policies and design standards which encourage minimizing the development of impervious surfaces.

U-4.6: Seek land acquisition opportunities in areas of the City targeted for future growth and increasing density for stormwater storage functions to compensate for increasing impervious surface.

U-4.7: Support lake management studies for Lake Steilacoom, Gravelly Lake, and Lake Louise to determine pollutant sources.

U-4.8: Participate in ongoing water quality monitoring programs for all public drainage systems that discharge into lakes and streams.

U-4.9: Develop and implement a state-approved Comprehensive Storm Water Management Program.

U-4.10: Cooperate with the Pierce County Conservation District Stream Team Program to provide water quality education to the community.

GOAL U-5: Ensure that the costs of improvements to the storm drain and flood-control system are borne by those who both contribute and benefit.

U-5.1: Require that on-site treatment of stormwater generated by new development is adequate to meet the requirements of the City's stormwater management and site development manual and that such facilities are constructed coincident with new development.

U-5.2: Costs for improvements to existing storm drain and flood control facilities associated with a new development shall be borne by the developer through payment of fees or by actual construction of the improvements.

U-5.3: Consider formation of benefit assessment districts and community facilities districts, where appropriate, in which those who benefit from specific local storm drain and flood-control improvements pay a proportionate share of the costs.

GOAL U-6: Minimize the impact of poor storm drain performance upon transportation infrastructure.

U-6.1: Ensure the timely removal of debris from storm drains.

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U-6.2: Consider and seek funding for public projects to resolve roadway flooding problems in areas that are poorly served by storm drains.

U-6.3: Require adequate storm drainage in conjunction with new development.

Table 9.6 Level of Service Standards for Capital Facilities

	playground facilities		
Storm Water Management	On-site infiltration expected. Treatment As required by DOE Stormwater manual.	See Comp Plan Section 7.2, 2015 Stormwater Management Program and LMC Chap. 12A.11	City of Lakewood

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Section 5: A proposed implementation schedule and budget sources

The City has a dedicated Surface Water Management Fund accounts for activities that provide storm water collection and disposal services to the City. Activities include administration, engineering, construction, operation, maintenance, and repairs, which are primarily supported by user fees. The fees are billed along with Pierce County's semi-annual property taxes, and remitted by the County to the City.

Item	2020 Actual	2021 Actual	2022 Original	2022 Adjusted	2022 Year-end	2023 Proposed	2024 Proposed	23 Proposed - 22 Adj $ Chg	23 Proposed - 22 Adj % Chg
REVENUES									
Storm Drainage Fees	$ 4,480,680	$ 4,682,408	$ 4,466,400	$ 4,516,400	$ 4,516,400	$ 4,629,310	$ 4,745,043	$ 112,910	2.5%
Charges for Services & Fees	$ 74,816	$ 86,145	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ -	0.0%
Interest Earnings	22,701	6,283	15,600	15,600	15,600	18,500	18,500	2,900	18.6%
Total Operating Revenues	**$ 4,578,197**	**$ 4,774,836**	**$ 4,532,000**	**$ 4,582,000**	**$ 4,582,000**	**$ 4,697,810**	**$ 4,813,543**	**$ 115,810**	**2.5%**

Short-term actions – zero to six years

The short term actions for this basin are seen in the City's budget in the surface water section related to the 6-year capital improvement program.

6-Year (2021-2026) Capital Improvement Plan
Surface Water Management Projects

Reference #: 401.0014
Project Name: 2022 Water Quality Improvements

Project Description & Justification:
This project will retrofit existing stormwater conveyance systems that currently discharge untreated stormwater into Ponce de Leon Creek from Gravelly Lake Dr. south of the creek, and to groundwater in the vicinity of 84th St. and 34th Ave. The project will install water quality treatment structures into existing stormwater conveyance systems upstream of existing outfalls or groundwater discharge points. The treatment structures are designed to remove oil and sediment from the stormwater thus improving water quality before discharging to water bodies and groundwater.

Operational Impact:
The impact will be the new structures will need inspected annually and cleaned as needed.
There will be an overall increase in operational costs as estimated below since the new structures will need inspected and cleaned

Funding Sources	2021	2022	2023	2024	2025	2026	Total
Surface Water Mgmt Fund (SWM)	$ 25,000	$ 200,000			$ -	$ -	$ 225,000
Total Funding Sources	$ 25,000	$ 200,000	$ -	$ -	$ -	$ -	$ 225,000

Project Costs	2021	2022	2023	2024	2025	2026	Total
Design & Construction Mgmt.	$ 25,000	$ 200,000	$ -	$ -	$ -	$ -	$ 225,000
Total Project Costs	$ 25,000	$ 200,000	$ -	$ -	$ -	$ -	$ 225,000

Impact on Operating Funds	2021	2022	2023	2024	2025	2026	Total
Revenue Increase/(Decrease)	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Expenditure Increase/(Decrease)	-	1,500	1,500	1,500	1,500	1,500	7,500
Net M&O Impact	$ -	$ 1,500	$ 1,500	$ 1,500	$ 1,500	$ 1,500	$ 7,500

Long-term actions – seven to 20 years

The long term actions will be dictated primarily by the redevelopment of the downtown core. Currently roadways that serve much of the businesses are private. As these areas redevelop they will be required to update the capital infrastructure and dedicate rights-of-way that will house City surface water conveyance and treatment.

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Section 6: Process and schedule to provide future assessment and feedback to improve the planning

The assessment, planning, and update of the City's SMAP will occur on an annual basis.

Process to adaptively manage the plan

The process to adaptively manage the SMAP will document your progress toward meeting your goals and enable you to report progress to the funders, the public, and Ecology. Your process should directly reflect the protection and/or restoration goals that were set for the receiving water during the Receiving Water Conditions Assessment or in the Phase I Counties' scenario modeling and findings. The adaptive management process may also address the process used to develop the SMAP in order to improve effectiveness of the program.

SMAP adaptations should be expected over time as Permittees find a better way to run the process or learn from implementation. The SMAP may benefit from strategic monitoring, particularly where little data were initially available. The SMAP should include a long term assessment approach in sufficient detail that it is clear how your jurisdiction will know and be able to report whether the protection and/or restoration goals are being achieved. The adaptive management process should include implementation tracking and an ongoing assessment of what portion of the planned projects and activities have taken place and how much of the catchment area has been addressed.

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